



Datos técnicos VACUTAP® VM®, VM 300, VMS®. Cambiador de tomas bajo carga

2332907/06 ES



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Índice

1 Introducción	4	4.2.8 746219	40
1.1 Denominaciones del cambiador de tomas bajo carga	4	4.2.9 746224	41
1.1.1 Ejemplo de denominación del cambiador de tomas bajo carga	4	4.2.10 746226	42
1.1.2 Número de escalones y conexión básica.....	4	4.2.11 10116560.....	43
1.2 Modelos de cambiador de tomas bajo carga	6	4.2.12 746230	44
1.3 Conexiones básicas	6	4.2.13 10117022.....	46
		4.2.14 765192	47
		4.2.15 768698	48
		4.2.16 769225.....	49
		4.2.17 769226.....	50
		4.2.18 768851.....	51
2 Datos técnicos	10	4.3 Cabeza del cambiador de tomas bajo carga.....	52
2.1 Propiedades de los cambiadores de tomas bajo carga	10	4.3.1 893899.....	53
2.2 Condiciones ambientales admisibles	13	4.3.2 720026	54
2.3 Diagrama de potencia por escalón	13	4.3.3 720027	55
2.3.1 Diagrama de potencia por escalón en servicio de red VACUTAP® VM® y VM 300	14	4.3.4 896762	56
2.3.2 Diagrama de potencia por escalón en servicio para horno de arco voltaico VACUTAP® VM® y VM 300	15	4.3.5 893896	57
2.3.3 Diagrama de potencia por escalón en servicio de red VACUTAP® VMS® III.....	16	4.3.6 895168	58
2.4 Solicitaciones de tensión admisibles.....	17	4.3.7 766161	59
2.4.1 Distancias de aislamiento sin selector grueso múltiple	17	4.4 recipiente de aceite	60
2.4.2 Distancias de aislamiento con selector grueso múltiple	21	4.4.1 730336.....	61
2.4.3 Conmutaciones ejecutables	23	4.5 Selector	62
		4.5.1 890477	63
		4.5.2 898013	64
		4.5.3 730335.....	65
		4.5.4 723590	66
		4.5.5 891108	67
		4.5.6 891110	68
		4.5.7 891109	69
		4.5.8 891107	70
		4.5.9 725649	71
		4.5.10 893934	72
		4.5.11 893935	73
		4.5.12 899598	74
		4.5.13 898804	75
		4.5.14 719733	76
		4.5.15 898690	77
		4.5.16 898691.....	78
		4.5.17 898692	79
		4.5.18 10117025	80
		4.5.19 10117029	81
		4.5.20 10116563	82
		4.5.21 898041	83
		4.5.22 891114	84
		4.5.23 898695	85
		4.5.24 898694	86
		4.5.25 898693	87
3 Modelos especiales	25	4.6 Esquemas de conexiones (ejemplos).....	88
3.1 Puentes para conexión en paralelo de niveles del selector	25	4.6.1 SBI_2414658	89
3.2 Combinación de cambiadores de tomas bajo carga para conexión en triángulo	25	4.6.2 SBI_2414670.....	90
3.3 Cambiador de tomas bajo carga VACUTAP® VM III 650 Y...VM I 1503 con selector grueso múltiple (hasta un máx. de 5 pasos gruesos)	26	4.6.3 SBI_2414631	91
3.4 Cambiador de tomas bajo carga bifásico VACUTAP® VM II 302/352/502/652.....	26	4.6.4 SBI_2407535	92
3.5 Cambiador de tomas bajo carga para conexión en estrella con punto neutro abierto.....	27	4.6.5 SBI_2414636.....	93
		4.6.6 SBI_6228951	94
		4.6.7 SBI_6228952	95
4 Dibujos	28		
4.1 Vista general de modelos	28		
4.1.1 899740.....	29		
4.1.2 10117026.....	30		
4.1.3 765835.....	31		
4.2 Dibujos acotados	32		
4.2.1 746221	33		
4.2.2 746227	34		
4.2.3 746222	35		
4.2.4 746228.....	36		
4.2.5 746223	37		
4.2.6 746229	38		
4.2.7 746220	39		

1 Introducción

Esta documentación técnica contiene información detallada sobre las propiedades técnicas del producto. Encontrará información básica en los Datos técnicos TD 61 – Parte general.

1.1 Denominaciones del cambiador de tomas bajo carga

Todos los tipos de cambiadores de tomas bajo carga se suministran en múltiples modelos, que son distintos según el número de fases, la corriente nominal de paso máxima, la tensión máxima para medios de producción U_m , el modelo del selector y el esquema de conexiones básico. Por este motivo, la denominación de un modelo de cambiador de tomas bajo carga concreto también debe realizarse según estas características. De este modo, el cambiador de tomas bajo carga queda marcado sin lugar a confusión.

1.1.1 Ejemplo de denominación del cambiador de tomas bajo carga

Cambiador de tomas bajo carga VACUTAP® VM III 650 Y-72,5 / C-10 19 1W R.

Denominación de tipo	VACUTAP® VM III 650 Y-72,5 / C-10 19 1W R
VACUTAP® VM®	Tipo de cambiador de tomas bajo carga
III	Número de fases
650	Corriente nominal de paso máxima I_m en A, así como número de sectores equipados (última cifra) en cambiadores de tomas bajo carga monofásicos
Y	Uso con punto neutro
72,5	Tensión máxima para medios de producción U_m en kV
C	Modelo del selector
10 19 1W R	Conexión básica

Tabla 1: Ejemplo para la denominación de un cambiador de tomas bajo carga

1.1.2 Número de escalones y conexión básica

El selector puede adaptarse ampliamente al número de escalones necesario y a la conexión del arrollamiento de tomas fino. Las conexiones básicas se distinguen por la división de los selectores, el número de posiciones de servicio, el número de posiciones medias, el modelo de preselector y el tipo de guía del potencial.

Ejemplo: 10 19 1 WR

Denominación de la conexión básica	10 19 1 WR
10	Número de contactos del selector
19	Número máximo de posiciones de servicio
1	Número de posiciones medias

Denominación de la conexión básica	10 19 1 WR
W	Modelo de preselector: W=inversor G=paso grueso
R	Tipo de guía del potencial: R=resistencias de guía montadas S=contactos para resistencia de guía y resistencias de guía sobre placa P=contactos para resistencia de guía con resistencias de guía montadas

Tabla 2: Ejemplo para la denominación de la conexión básica

1.2 Modelos de cambiador de tomas bajo carga

En el apartado Vista general de modelos [► Apartado 4.1, Página 28] encontrará un resumen de los modelos del cambiador de tomas bajo carga.

1.3 Conexiones básicas

A continuación, encontrará algunos ejemplos de las conexiones básicas del cambiador de tomas bajo carga con denominación de los terminales del selector según la norma MR. Encontrará las conexiones que realmente se pueden realizar en el apartado "Solicitaciones de tensión permitidas".

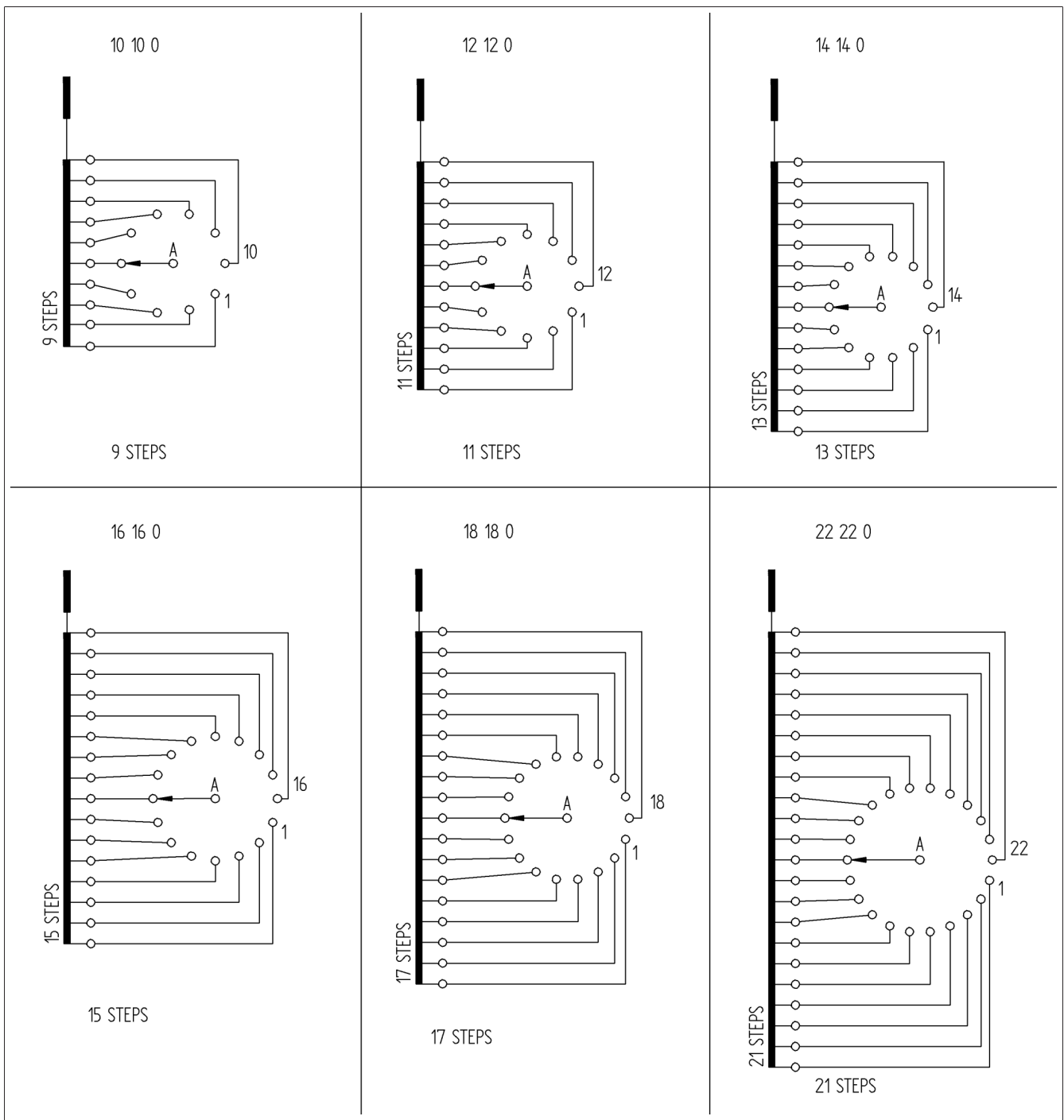


Figura 1: Conexiones básicas sin preselector, VACUTAP® VM® I II III y VACUTAP® VMS® III, modelo del selector C

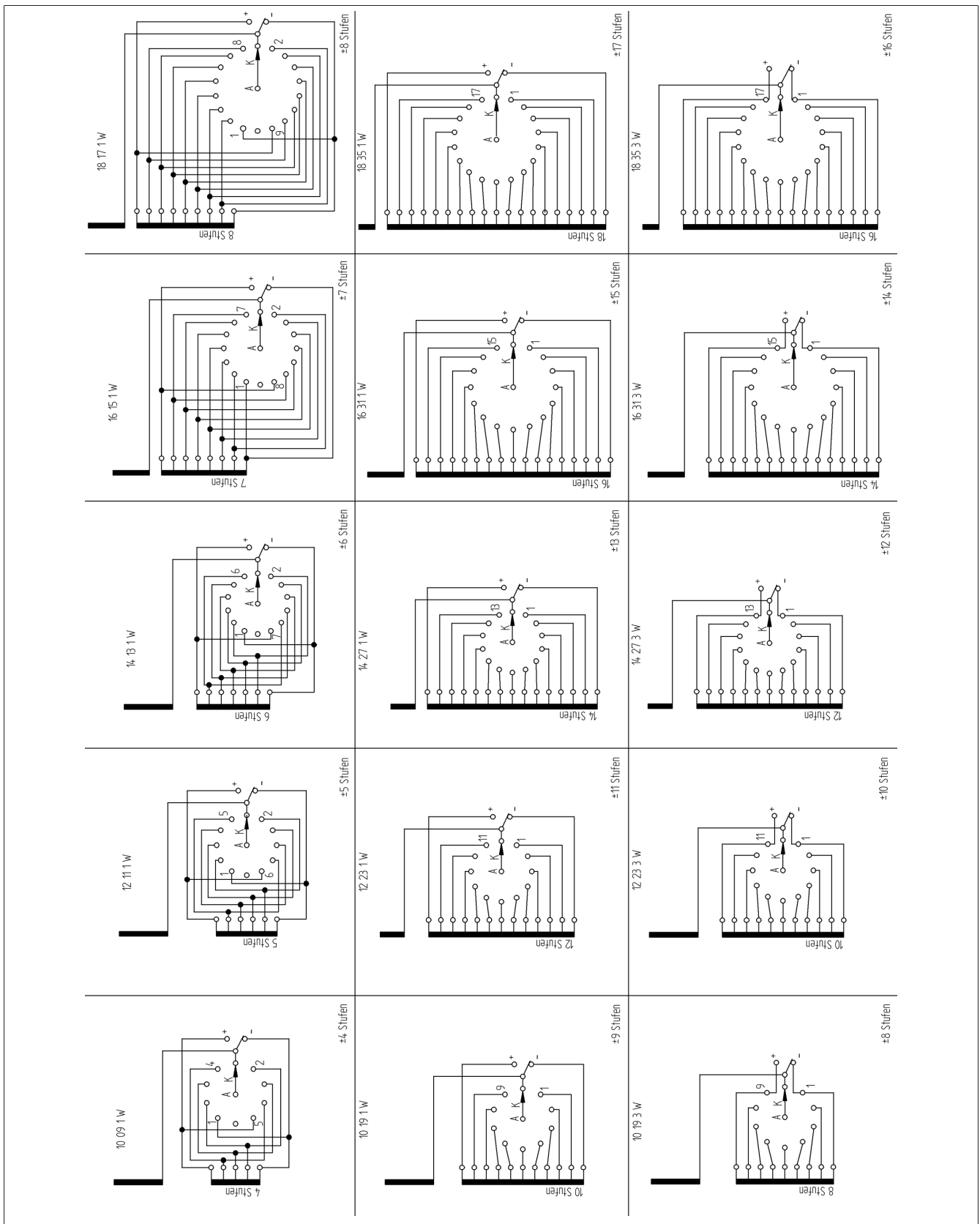


Figura 2: Conexiones básicas en conexión con inversor, VACUTAP® VM® I III III y VACUTAP® VMS® III, modelo del selector C

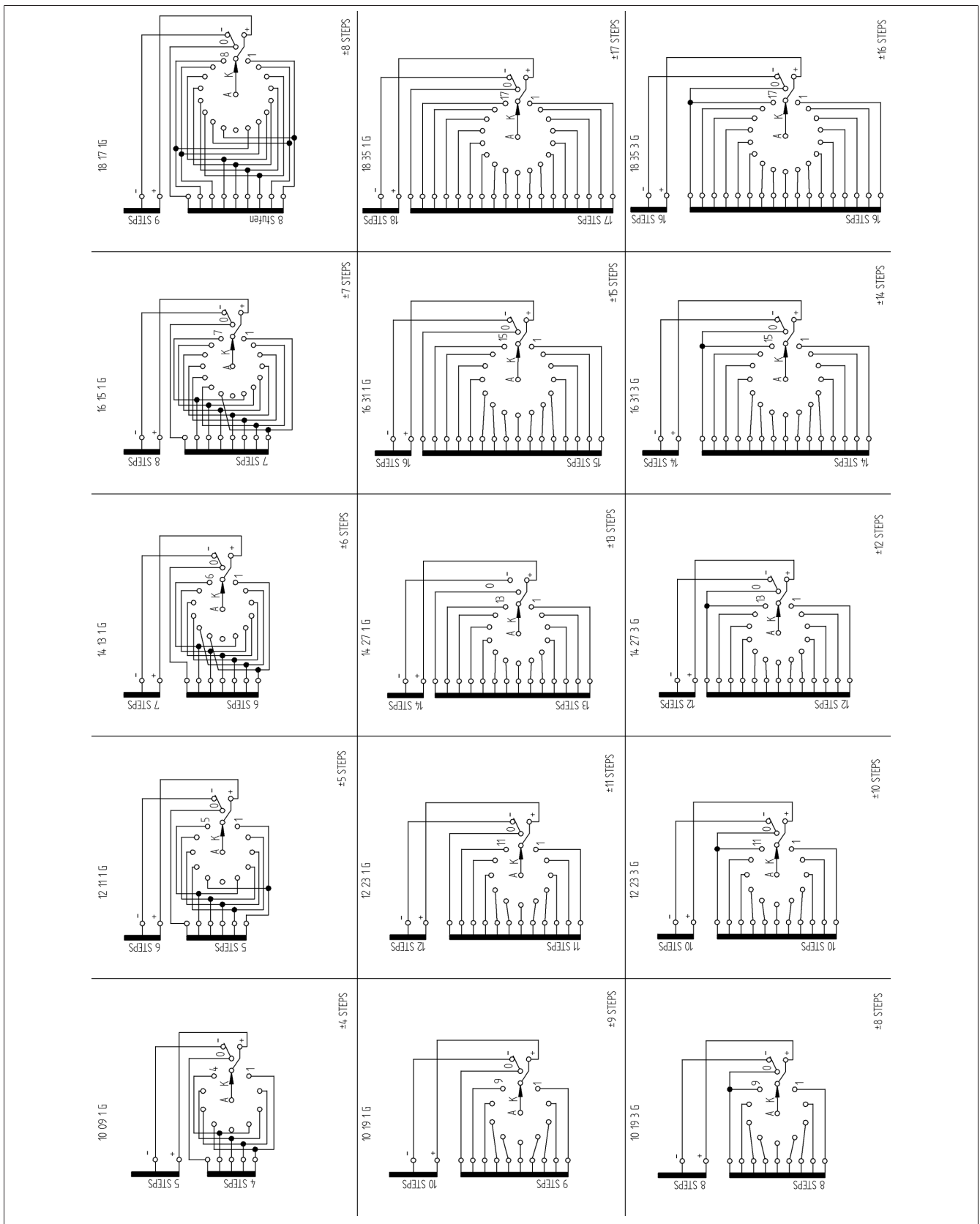


Figura 3: Conexiones básicas en conexión con paso grueso, VACUTAP® VM® I III y VACUTAP® VMS® III, modelo del selector C

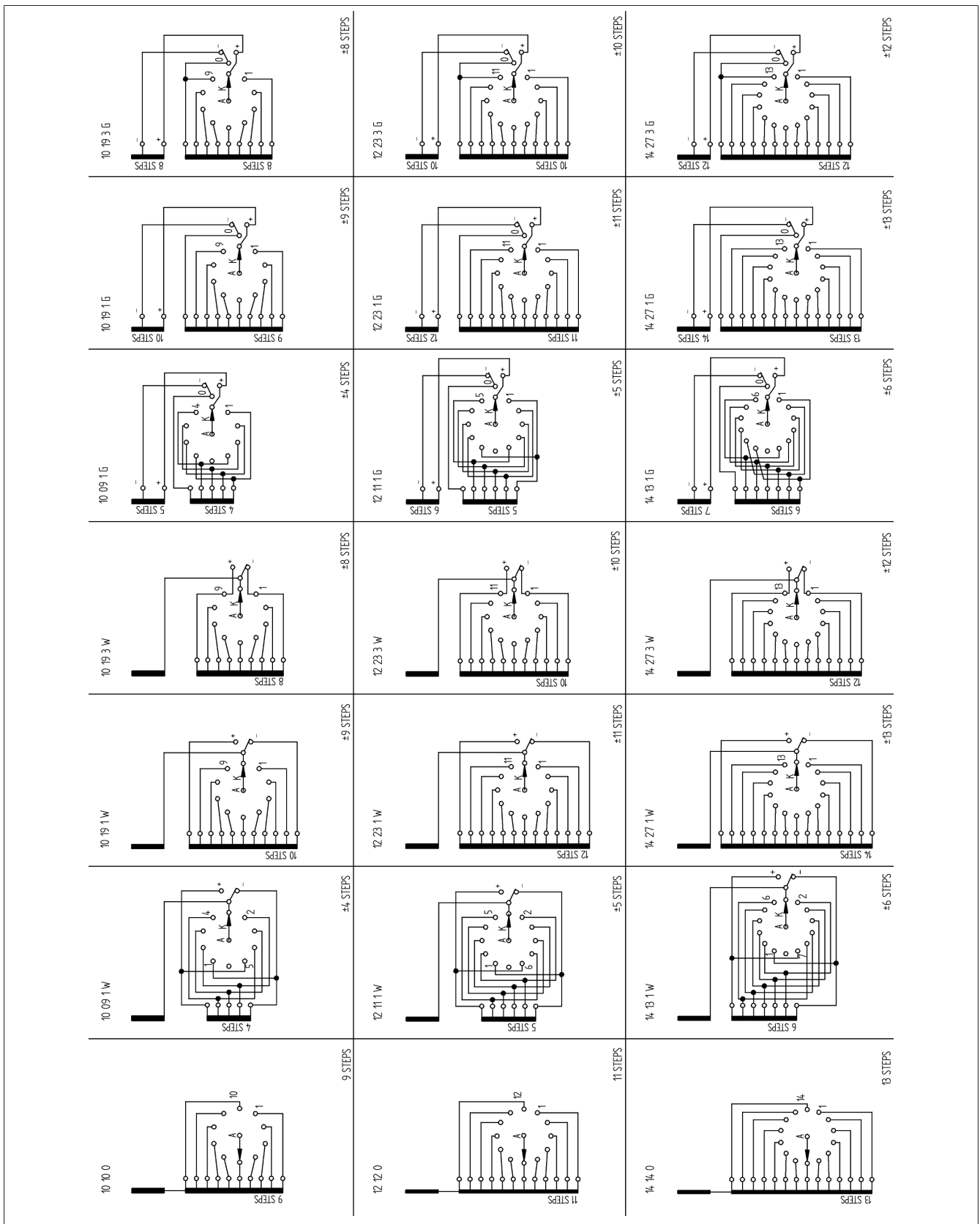


Figura 4: Conexiones básicas, VACUTAP® VM 300 y VACUTAP® VMS® III, modelo del selector B

2 Datos técnicos

2.1 Propiedades de los cambiadores de tomas bajo carga

Datos eléctricos del VACUTAP® VM

Cambiador de tomas bajo carga	VM I 351	VM I 501	VM I 651	VM I 802	VM I 1002	VM I 1203	VM I 1503
Corriente nominal de paso máx. I_{rn} [A]	350	500	650	800	1000	1200	1500
Corriente instantánea nominal [kA]	4,2	5	6,5	8	10	12	15
Duración de cortocircuito nominal [s]	3						
Impulso de corriente nominal [kA]	10,5	12,5	16,25	20	25	30	37,5
Tensión por escalón nominal máx. U_{irm} [V] ¹⁾	3300						
Potencia por escalón P_{stN} [kVA]	1155	1625	1625	2600	2600	3500	3500
Frecuencia nominal [Hz]	50...60						

Tabla 3: Datos eléctricos del VACUTAP® VM I

Cambiador de tomas bajo carga	VM II 352	VM II 502	VM II 652
Corriente nominal de paso máx. I_{rn} [A]	350	500	650
Corriente instantánea nominal [kA]	4,2	5	6,5
Duración de cortocircuito nominal [s]	3		
Impulso de corriente nominal [kA]	10,5	12,5	16,25
Tensión por escalón nominal máx. U_{irm} [V] ¹⁾	3300		
Potencia por escalón P_{stN} [kVA]	1155	1625	1625
Frecuencia nominal [Hz]	50...60		

Tabla 4: Datos eléctricos del VACUTAP® VM II

Cambiador de tomas bajo carga	VM III 350 Y	VM III 500 Y	VM III 650 Y
Corriente nominal de paso máx. I_{rn} [A]	350	500	650
Corriente instantánea nominal [kA]	4,2	5	6,5
Duración de cortocircuito nominal [s]	3		
Impulso de corriente nominal [kA]	10,5	12,5	16,25
Tensión por escalón nominal máx. U_{irm} [V] ¹⁾	3300		
Potencia por escalón (P_{stN}) [kVA]	1155	1625	1625
Frecuencia nominal [Hz]	50...60		

Tabla 5: Datos eléctricos del VACUTAP® VM III

¹⁾ Se podrá superar en una cantidad del 10 % la tensión por escalón nominal máxima a causa de una sobreexcitación del transformador siempre y cuando no se supere la potencia por escalón.

Datos eléctricos del VACUTAP® VM 300

Cambiador de tomas bajo carga	VM I 301/VM II 302/VM III 300 Y
Corriente nominal de paso máx. I_{rm} [A]	300
Corriente instantánea nominal [kA]	4
Duración de cortocircuito nominal [s]	3
Impulso de corriente nominal [kA]	10
Tensión por escalón nominal máx. U_{irm} [V] ¹⁾	3300
Potencia por escalón P_{stN} [kVA]	990
Frecuencia nominal [Hz]	50...60

Tabla 6: Datos eléctricos del VACUTAP® VM 300

¹⁾ Se podrá superar en una cantidad del 10 % la tensión por escalón nominal máxima a causa de una sobreexcitación del transformador siempre y cuando no se supere la potencia por escalón.

Datos eléctricos del VACUTAP® VMS®

Cambiador de tomas bajo carga	VMS III 400 Y	VMS III 650 Y
Corriente nominal de paso máx. I_{rm} [A]	400	650
Corriente instantánea nominal [kA]	4	6,5
Duración de cortocircuito nominal [s]	3	
Impulso de corriente nominal [kA]	10	16,25
Tensión por escalón nominal máx. U_{irm} [V] ¹⁾	1300	
Potencia por escalón (P_{stN}) [kVA]	520	845
Frecuencia nominal [Hz]	50...60	

Tabla 7: Datos eléctricos del VACUTAP® VMS® III, modelo del selector C

Cambiador de tomas bajo carga	VMS III 400 Y
Corriente nominal de paso máx. I_{rm} [A]	400
Corriente instantánea nominal [kA]	4
Duración de cortocircuito nominal [s]	3
Impulso de corriente nominal [kA]	10
Tensión por escalón nominal máx. U_{irm} [V] ¹⁾	1300
Potencia por escalón (P_{stN}) [kVA]	520
Frecuencia nominal [Hz]	50...60

Tabla 8: Datos eléctricos del VACUTAP® VMS® III, modelo del selector B

¹⁾ Se podrá superar en una cantidad del 10 % la tensión por escalón nominal máxima a causa de una sobreexcitación del transformador siempre y cuando no se supere la potencia por escalón.

Datos mecánicos del VACUTAP® VM

Número de posiciones de servicio	sin preselector: máximo 18 con preselector: máximo 35 con un selector grueso múltiple: máximo 107
Número de sectores equipados	1...3
Modelos del selector	B, C, D, DE (no en selectores gruesos múltiples)
Dimensiones	Véanse los dibujos acotados
Peso	
Volumen de desplazamiento y contenido de aceite	

Tabla 9: Datos mecánicos del VACUTAP® VM I II III

Datos mecánicos del VACUTAP® VM 300

Número de posiciones de servicio	sin preselector: máximo 14 con preselector: máximo 27
Número de sectores equipados	1...3
Modelos del selector	B
Dimensiones	Véanse los dibujos acotados
Peso	
Volumen de desplazamiento y contenido de aceite	

Tabla 10: Datos mecánicos de VACUTAP® VM I 301/VM II 302/VM III 300 Y

Datos mecánicos del VACUTAP® VMS®

Número de posiciones de servicio	sin preselector: máximo 18 con preselector: máximo 35
Número de sectores equipados	3
Modelos del selector	C
Dimensiones	Véanse los dibujos acotados
Peso	
Volumen de desplazamiento y contenido de aceite	

Tabla 11: Datos mecánicos del VACUTAP® VMS® III, modelo del selector C

Número de posiciones de servicio	sin preselector: máximo 14 con preselector: máximo 27
Número de sectores equipados	3
Modelos del selector	B
Dimensiones	Véanse los dibujos acotados
Peso	
Volumen de desplazamiento y contenido de aceite	

Tabla 12: Datos mecánicos del VACUTAP® VMS® III, modelo del selector B

2.2 Condiciones ambientales admisibles

Temperatura del aire durante el servicio	- 25 °C...+ 50 °C
Temperatura del líquido aislante durante el funcionamiento	- 25 °C...+ 105 °C (en servicio de emergencia del transformador hasta + 115 °C)
Temperatura de transporte, temperatura de almacenamiento	- 40 °C...+ 50 °C
Temperaturas de secado	Véanse las instrucciones para el montaje y la puesta en servicio, capítulo "Montaje"
Resistencia a la compresión	Véanse los Datos técnicos TD 61 – Parte general
Líquido aislante	<ul style="list-style-type: none"> - Aceites aislantes no usados de productos derivados del petróleo¹⁾ según IEC60296 y ASTM D3487 (normas equivalentes bajo demanda) - Aceites aislantes no usados de otros hidrocarburos inalterados según IEC60296 o mezclas de estos aceites con productos derivados del petróleo¹⁾ según IEC60296, ASTM D3487 o normas equivalentes bajo demanda - Líquidos aislantes alternativos, p. ej. ésteres naturales y sintéticos o aceites de silicona, bajo demanda. <p>¹⁾ Los aceites gas a líquido (aceites GTL) se entienden en este contexto como productos derivados del petróleo</p>
Altura de montaje del conservador de aceite	Véanse los Datos técnicos TD 61 – Parte general
Altura de montaje sobre el nivel del mar	Véanse los Datos técnicos TD 61 – Parte general

Tabla 13: Condiciones ambientales admisibles

2.3 Diagrama de potencia por escalón

2.3.1 Diagrama de potencia por escalón en servicio de red VACUTAP® VM® y VM 300

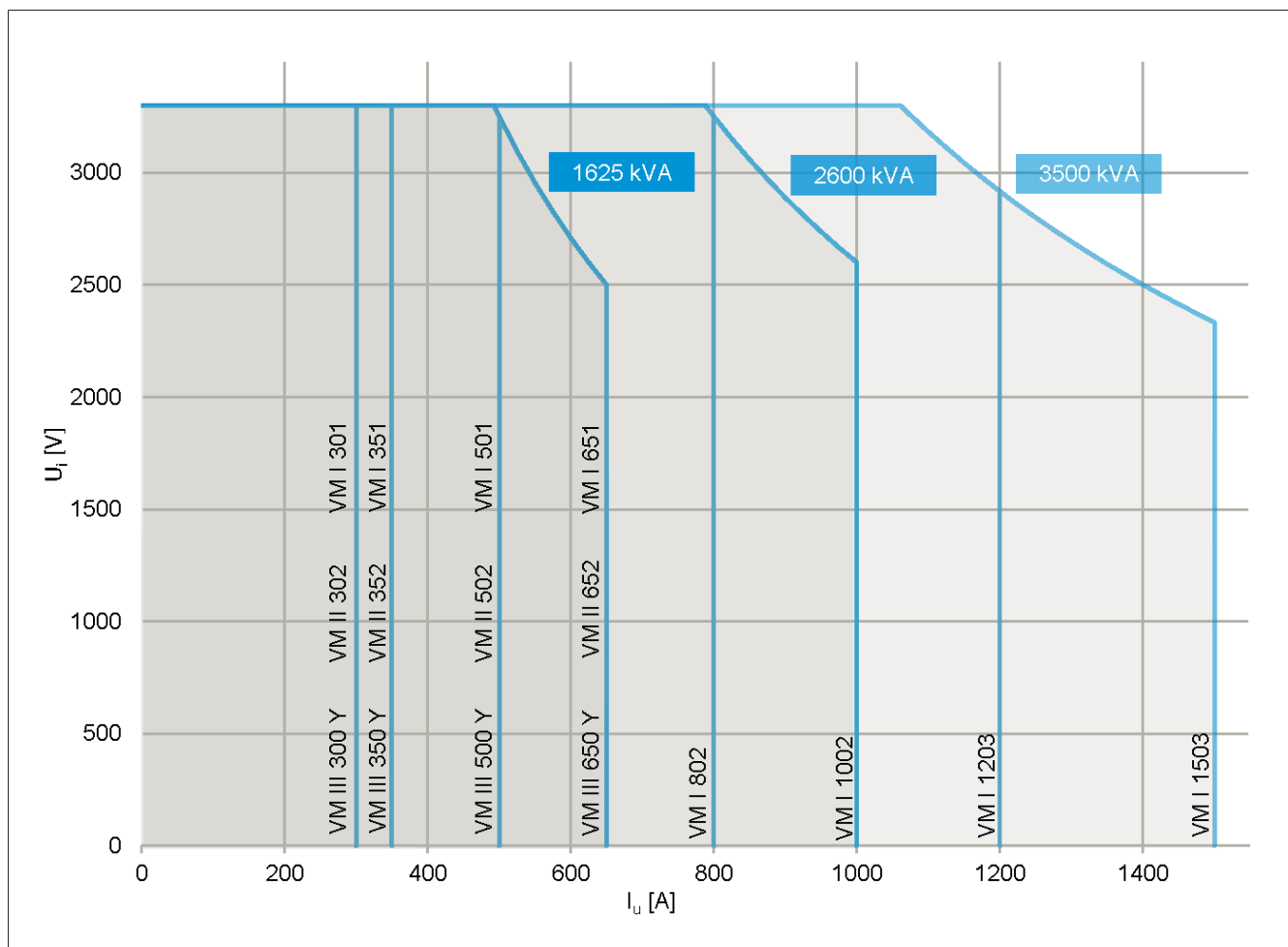


Figura 5: Potencias por escalón (tensión por escalón nominal $U_{i,r}$ con corriente nominal de paso I_r)

2.3.2 Diagrama de potencia por escalón en servicio para horno de arco voltaico VACUTAP® VM® y VM 300

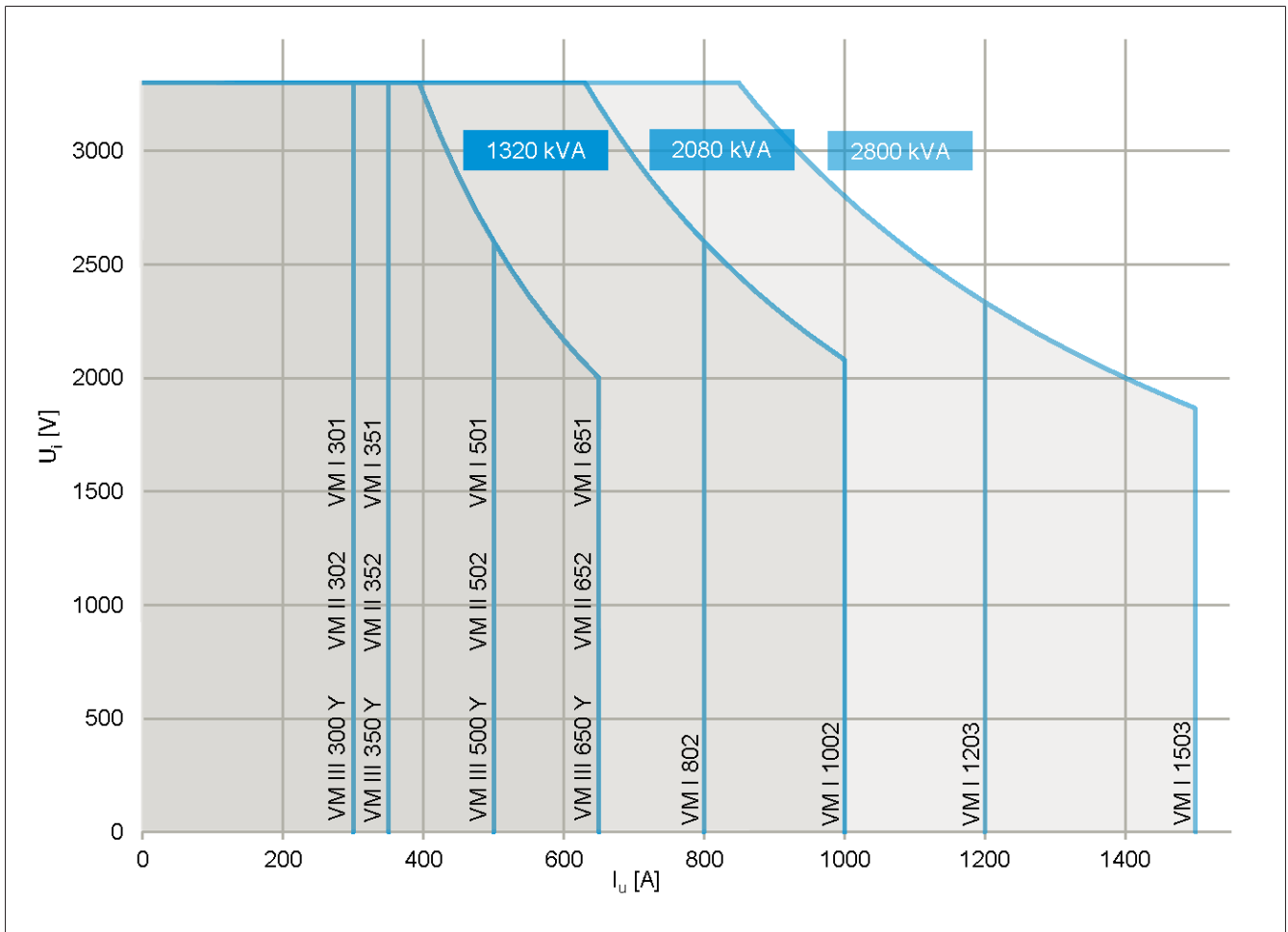


Figura 6: Potencias por escalón (tensión por escalón nominal U_{ir} con corriente nominal de paso I_u)

2.3.3 Diagrama de potencia por escalón en servicio de red VACUTAP® VMS® III

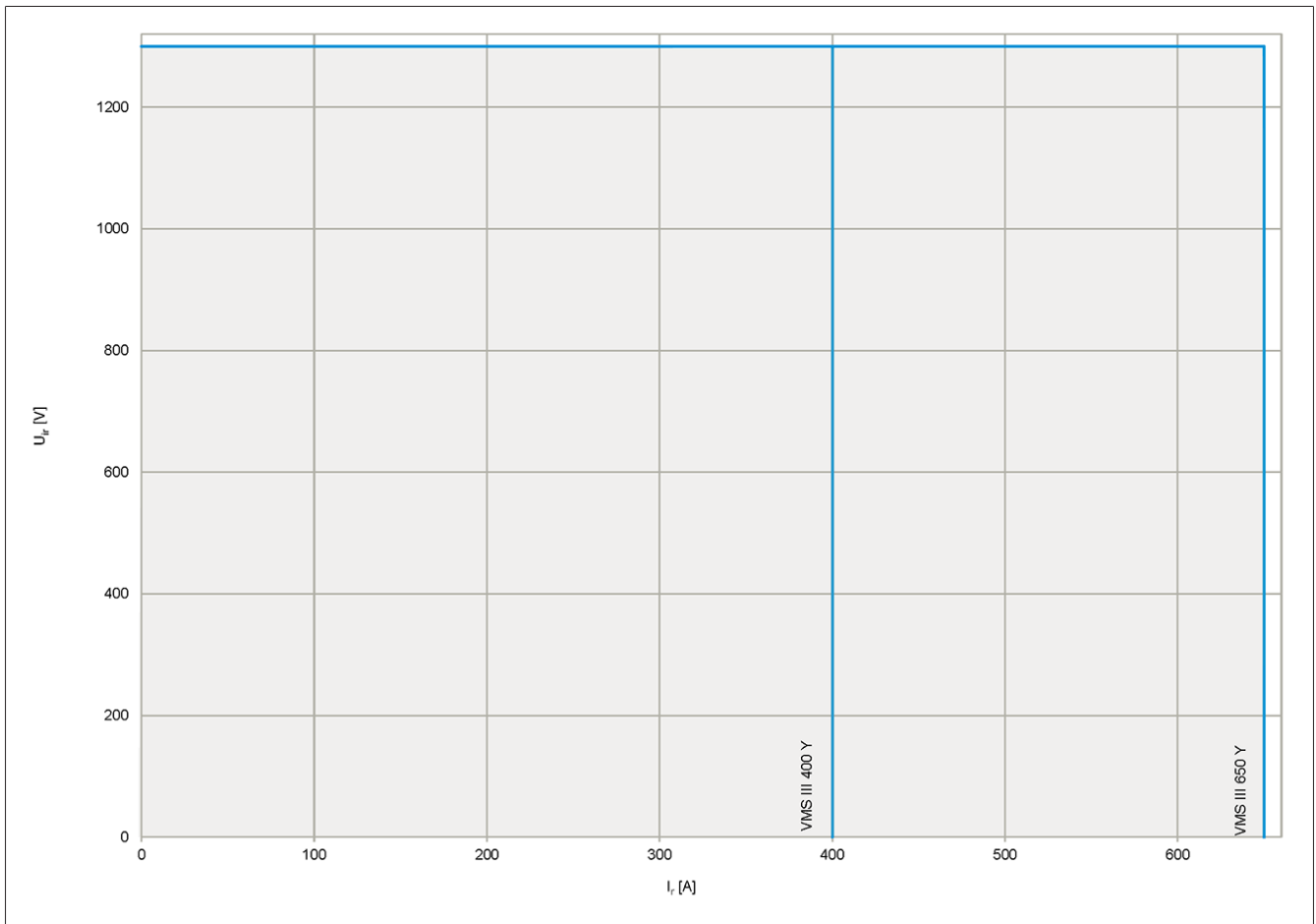


Figura 7: Potencias por escalón (tensión por escalón nominal U_{ir} con corriente nominal de paso I_r)

2.4 Solicitaciones de tensión admisibles

Este apartado describe las solicitaciones de tensión admisibles del cambiador de tomas bajo carga.

Al elegir el cambiador de tomas bajo carga debe comprobar que las solicitaciones máximas que se producen no superen las tensiones nominales soportables pertinentes en las distancias de aislamiento.

2.4.1 Distancias de aislamiento sin selector grueso múltiple

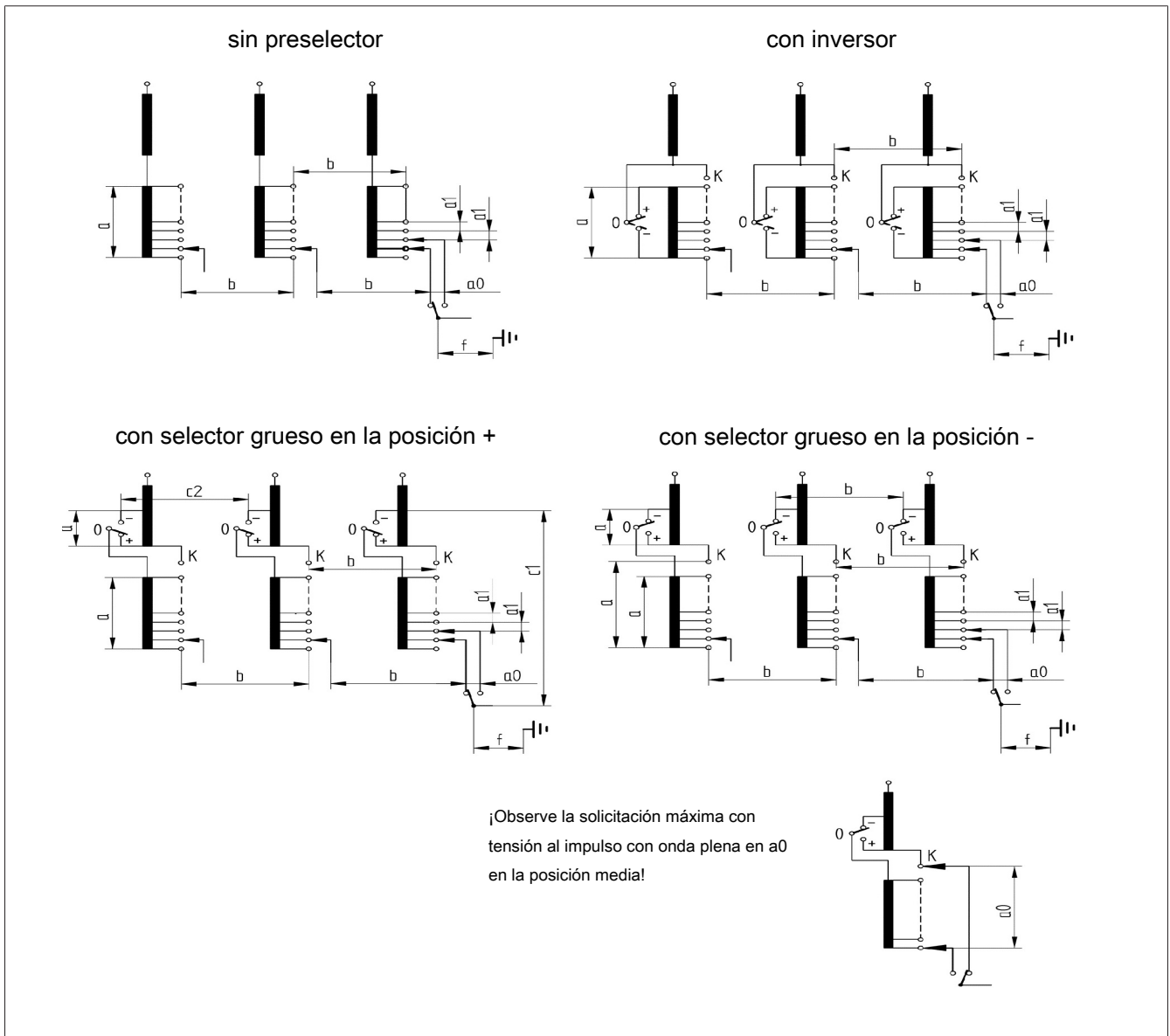


Figura 8: Distancias de aislamiento

a0	entre la toma seleccionada y preseleccionada en el ruptor
a1	entre contactos del selector de tomas del devanado de una toma (conectada o sin conectar)
a	entre el principio y el fin de un arrollamiento de tomas fino y, en el modelo con devanado de regulación gruesa, entre el principio y el fin de un devanado de regulación gruesa. Indicación para la conexión con paso grueso en la posición (-) del preselector: Sobre todo en caso de sollicitación con tensión de impulso, es preciso observar especialmente la tensión soportable admisible "a" entre el fin de un devanado de regulación gruesa conectado a un contacto K del selector de tomas y el contacto del selector de tomas al final del arrollamiento de tomas fino de la misma fase.
b	entre los contactos del selector de tomas de distintas fases y entre los contactos del preselector de distintas fases que estén conectados con el principio/fin de un arrollamiento de tomas fino o con un contacto del selector de tomas
f	entre la derivación del ruptor y tierra
Adicionalmente en caso de conexión con paso grueso en la posición (+) del preselector:	
c1	de un contacto del preselector (-) a la derivación de la misma fase
c2	entre contactos del preselector (-) de distintas fases

Abreviaturas para el nivel de aislamiento nominal:

LI	Tensión de impulso de onda plena (kV, 1,2/50 μ s)
LIC	Tensión de impulso de onda cortada (kV, 1,2/50/3 μ s)
SI	Tensión de impulso de maniobra (kV, 250/2500 μ s)
CA	Tensión aplicada (kV, 50 Hz, 1 min)

Nivel de aislamiento nominal en el ruptor

Distancia de aislamiento f				
U_m ¹⁾	LI	LIC	SI	CA
72,5	350	385	-	140
123	550	605	460	230
170	750	825	620	325
245 ²⁾	1050	1155	850	460
300 ²⁾³⁾	1050	1155	850	460

Tabla 14: Nivel de aislamiento nominal en el ruptor

¹⁾Según IEC 60214-1: valor efectivo máximo de una tensión entre dos fases en un sistema trifásico, para el que se diseña un cambiador de tomas bajo carga en lo que respecta a su aislamiento.

²⁾ VACUTAP® VMS® solo hasta $U_m=170$ kV

³⁾ Solo cambiador de tomas bajo carga monofásico

Nivel de aislamiento nominal del aislamiento interior en el selector, VACUTAP® VM® I II III, modelos del selector B, C, D, DE y VACUTAP® VMS® III, modelo del selector C, sin selector grueso múltiple

La tensión máxima de servicio admisible en cada uno de los tramos del selector corresponde a la mitad del valor de los valores indicados a continuación para la tensión aplicada (CA).

Distancia de aislamiento		Modelo del selector			
		B	C	D	ES
a0	LI	150 ²⁾			150 ²⁾
	LIC	165 ²⁾			165 ²⁾
	SI	100 ²⁾			100 ²⁾
	CA	20			20
a1	LI	150			150
	LIC	165			165
	SI	100			100
	CA	30			30
a	LI	265	350	490	550
	LIC	295	385	540	605
	SI	175	230	320	360
	CA	50	82	105	120
b ¹⁾	LI	265	350	490	550
	LIC	295	385	540	605
	SI	175	230	320	360
	CA	50	82	146	160
c1	LI	485	545	590	660
	LIC	535	600	650	725
	SI	315	355	385	430
	CA	143	178	208	230
c2 ¹⁾	LI	495	550	590	660
	LIC	545	605	650	725
	SI	325	360	385	430
	CA	150	182	225	250

Tabla 15: Nivel de aislamiento nominal del aislamiento interno en el selector

¹⁾ Se suprime con cambiador de tomas bajo carga monofásico

²⁾ Tensión de reacción del varistor con 1,2/50 µs de impulso de onda: a partir de 45 kV ($U_{100\%}(t)_{\text{normalizado}} \neq U_{75\%}(t)_{\text{normalizado}}$), tensión residual con 3 kA de corriente de impulso: 56 kV

Nivel de aislamiento nominal del aislamiento interior en el selector, VACUTAP® VM 300 y VACUTAP® VMS® III, modelo del selector B, sin selector grueso múltiple

La tensión máxima de servicio admisible en cada uno de los tramos del selector corresponde a la mitad del valor de los valores indicados a continuación para la tensión aplicada (CA).

Distancia de aislamiento		Modelo del selector B
a0	LI	150 ¹⁾
	LIC	165 ¹⁾
	SI	100 ¹⁾
	CA	20
a	LI	300
	LIC	330
	SI	195
	CA	70
b	LI	300
	LIC	330
	SI	195
	CA	70
c1	LI	400
	LIC	440
	SI	260
	CA	120
C2	LI	400
	LIC	440
	SI	260
	CA	120

Tabla 16: Nivel de aislamiento nominal del aislamiento interno en el selector

¹⁾ Tensión de reacción del varistor con 1,2/50 µs de impulso de onda: a partir de 45 kV ($U_{100\%}(t)_{\text{normalizado}} \neq U_{75\%}(t)_{\text{normalizado}}$), tensión residual con 3 kA de corriente de impulso: 56 kV

2.4.2 Distancias de aislamiento con selector grueso múltiple

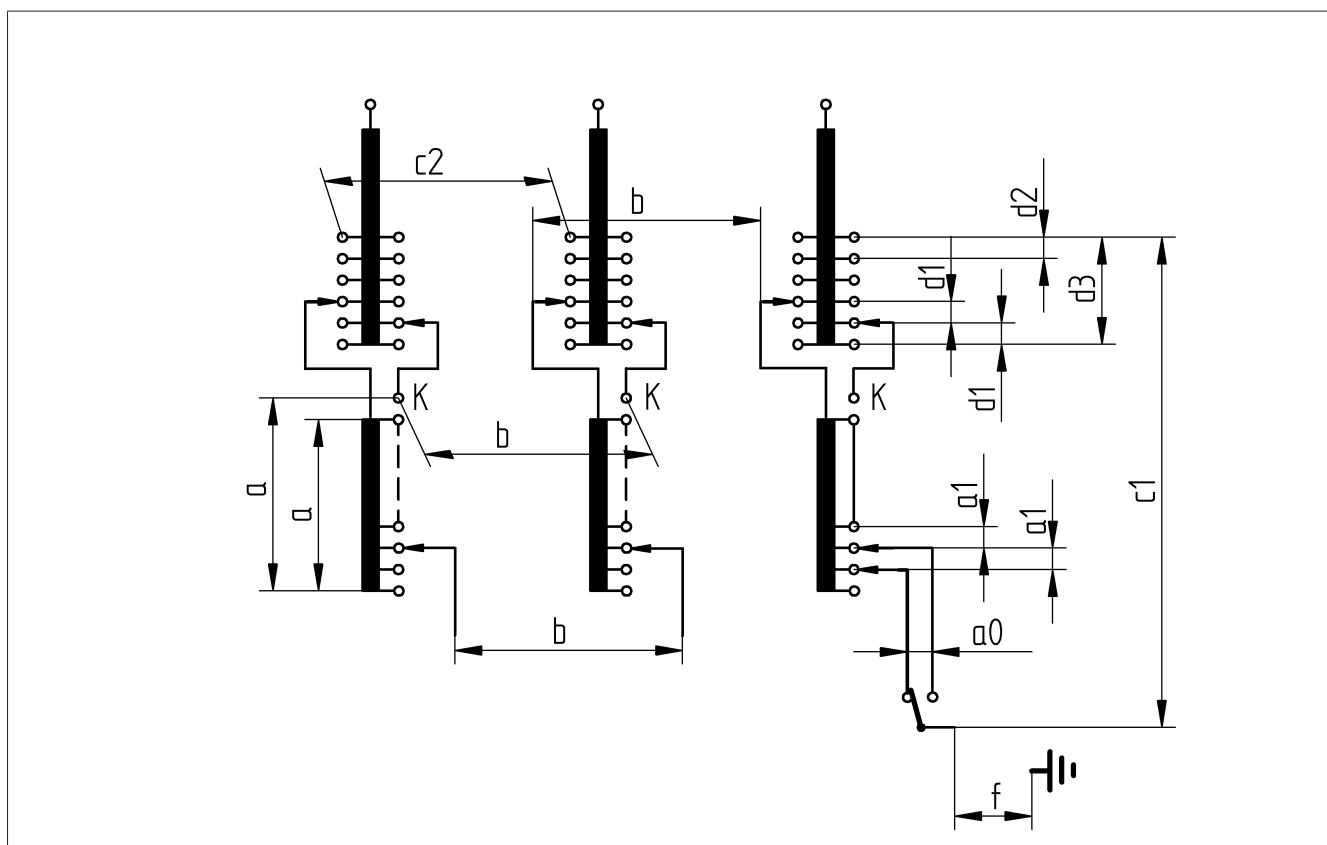


Figura 9: Distancias de aislamiento VACUTAP® VM® I III III, modelos del selector B, C, D con selector grueso múltiple

a0	entre la toma seleccionada y preseleccionada en el ruptor
a1	entre contactos del selector de tomas del devanado de una toma (conectada o sin conectar)
a	entre el principio y el fin de un arrollamiento de tomas fino y también entre el contacto K conectado y los puntos deseados del arrollamiento de tomas fino de la misma fase
b	entre los contactos del selector de tomas de distintas fases y entre el contacto K conectado y los puntos deseados del arrollamiento de tomas fino de otra fase
c1	entre tomas de paso grueso discrecionales de una fase a la derivación del ruptor de la misma fase
c2	entre tomas de paso grueso del mismo nombre desconectadas de distintas fases
d1	entre el contacto de paso grueso conectado y contiguo de una fase
d2	entre contactos de paso grueso desconectados y contiguos en una fase
d3	entre el principio y el fin de todos los pasos gruesos de una fase
f	entre la derivación del ruptor y tierra

Para la distancia de aislamiento f véase Nivel de aislamiento nominal en el ruptor.

Nivel de aislamiento nominal del aislamiento interior en el selector con selector grueso múltiple, VACUTAP® VM® I II III, modelos del selector B, C, D

La tensión máxima de servicio admisible en cada uno de los tramos del selector corresponde a la mitad del valor de los valores indicados a continuación para la tensión aplicada (AC).

Distancia de aislamiento		Modelo del selector		
		B	C	D
a0	LI	150 ²⁾		
	LIC	165 ²⁾		
	SI	100 ²⁾		
	CA	20		
a1	LI	150		
	LIC, SI	Valores bajo demanda		
	CA	30		
a	LI	265	350	450
	LIC, SI	Valores bajo demanda		
	CA	50	82	105
b ¹⁾	LI	265	350	450
	LIC, SI	Valores bajo demanda		
	CA	50	82	146
c1	LI	455	525	590
	LIC, SI	Valores bajo demanda		
	CA	127	165	210
c2 ¹⁾	LI	455	525	590
	LIC, SI	Valores bajo demanda		
	CA	127	165	215
d1	LI	265	350	450
	LIC, SI	Valores bajo demanda		
	CA	50	82	105
d2	LI	350	450	450
	LIC, SI	Valores bajo demanda		
	CA	82	105	105
d3	LI	350	450	490
	LIC, SI	Valores bajo demanda		
	CA	82	105	120

Tabla 17: Nivel de aislamiento nominal del aislamiento interno en el selector con selector grueso múltiple

¹⁾ Se suprime con cambiador de tomas bajo carga monofásico

²⁾ Tensión de reacción del varistor con 1,2/50 µs de impulso de onda: a partir de 45 kV ($U_{100\%}(t)_{\text{normalizado}} \neq U_{75\%}(t)_{\text{normalizado}}$), tensión residual con 3 kA de corriente de impulso: 70 kV

2.4.3 Conmutaciones ejecutables

Conmutaciones ejecutables con los modelos del selector correspondientes VACUTAP® VM® I II III

Las conmutaciones indicadas a continuación también pueden ejecutarse para preselectores con inversor y 3 posiciones medias (3W) y para preselectores con paso grueso y 3 posiciones medias (3G).

sin preselector		con inversor		con selector grueso	
Conexión	Modelo del selector	Conexión	Modelo del selector	Conexión	Modelo del selector
10050	B/C/D/DE	10071W	B/C/D/DE	10071G	B/C/D/DE
10060	B/C/D/DE	10081W	B/C/D/DE	10081G	B/C/D/DE
10070	B/C/D/DE	10091W	B/C/D/DE	10091G	B/C/D/DE
10080	B/C/D/DE	12101W	B/C/D/DE	12101G	B/C/D/DE
10090	B/C/D/DE	12111W	B/C	12111G	B/C
10100	B/C/D/DE	14111W	D/DE	14111G	D/DE
12110	B/C/D/DE	14121W	B/C	14121G	B/C
12120	B/C/D/DE	14131W	B/C	14131G	B/C
14130	B/C/D/DE	16121W	D/DE	16121G	D/DE
14140	B/C/D/DE	16131W	D/DE	16131G	D/DE
16150	B/C/D/DE	16141W	B/C/D/DE	16141G	B/C/D/DE
16160	B/C/D/DE	16151W	B/C	16151G	B/C
18170	B/C/D/DE	18151W	D/DE	18151G	D/DE
18180	B/C/D/DE	18161W	B/C	18161G	B/C
22190	B/C/D/DE	18171W	B/C	18171G	B/C
22200	B/C/D/DE	10191W	B/C/D/DE	10191G	B/C/D/DE
22210	B/C	12231W	B/C/D/DE	12231G	B/C/D/DE
22220	B/C	14271W	B/C/D/DE	14271G	B/C/D/DE
		16311W	B/C/D/DE	16311G	B/C/D/DE
		18351W	B/C/D/DE	18351G	B/C/D/DE

Tabla 18: Conexiones ejecutables VACUTAP® VM® I II III

Conexiones ejecutables VACUTAP® VMS® III, modelo del selector C

Las conmutaciones indicadas a continuación también pueden ejecutarse para preselectores con inversor y 3 posiciones medias (3W) y para preselectores con paso grueso y 3 posiciones medias (3G).

Conexión sin preselector	Conexión con inversor	Conexión con selector grueso
10050	10071W	10071G
10060	10081W	10081G
10070	10091W	10091G
10080	12101W	12101G
10090	12111W	12111G
10100	14121W	14121G

Conexión sin preselector	Conexión con inversor	Conexión con selector grueso
12110	14131W	14131G
12120	16141W	16141G
14130	16151W	16151G
14140	18161W	18161G
16150	18171W	18171G
16160	10191W	10191G
18170	12231W	12231G
18180	14271W	14271G
	16311W	16311G
	18351W	18351G

Tabla 19: Conexiones ejecutables VACUTAP® VMS® III, modelo del selector C

Conexiones ejecutables VACUTAP® VM 300 y VACUTAP® VMS® III, modelo del selector B

Las conmutaciones marcadas con ¹⁾ también pueden ejecutarse para preseletores con inversor y 3 posiciones medias (3W) y para preseletores con paso grueso y 3 posiciones medias (3G).

Conexión sin preselector	Conexión con inversor	Conexión con selector grueso
10100	10091W	10091G
12120	12111W	12111G
14140	14131W	14131G
	10191W ¹⁾	10191G ¹⁾
	12231W ¹⁾	12231G ¹⁾
	14271W ¹⁾	14271G ¹⁾

Tabla 20: Conexiones ejecutables VACUTAP® VMS® III, modelo del selector B

3 Modelos especiales

3.1 Puentes para conexión en paralelo de niveles del selector

Para distribuir la corriente en los terminales de 2 niveles del selector solo para el cambiador de tomas bajo carga VACUTAP® VM I 802/1002 y de 3 niveles del selector solo para el cambiador de tomas bajo carga VACUTAP® VM I 1203/1503.

Los puentes en los terminales del selector resultan imprescindibles cuando el arrollamiento de tomas se ha arrollado en dos o varios conductores parciales y cada una de estas fases parciales se conduce a modo de toma a los contactos de conexión del selector.

Esta medida evita de manera segura lo siguiente:

- el arrastre de corrientes de compensación a las vías de circulación de corriente del selector y ruptor
- un arco voltaico de conmutación en contactos móviles del selector
- sobretensiones entre terminales del selector contiguos conectados en paralelo

3.2 Combinación de cambiadores de tomas bajo carga para conexión en triángulo

Los cambiadores de tomas bajo carga monofásicos pueden combinarse con cambiadores de tomas bajo carga bifásicos para ajustar la tensión de arrollamientos del transformador en una conexión en triángulo. Esta combinación de cambiadores de tomas bajo carga de dos columnas se denomina "VM III K" ("K" para combinación).

Son posibles las siguientes combinaciones de cambiadores de tomas bajo carga:

- VM I 301 con VM II 302
- VM I 351 con VM II 352
- VM I 501 con VM II 502
- VM I 651 con VM II 652

Para ello, los arrollamientos de tomas debe preverlos según el siguiente gráfico:

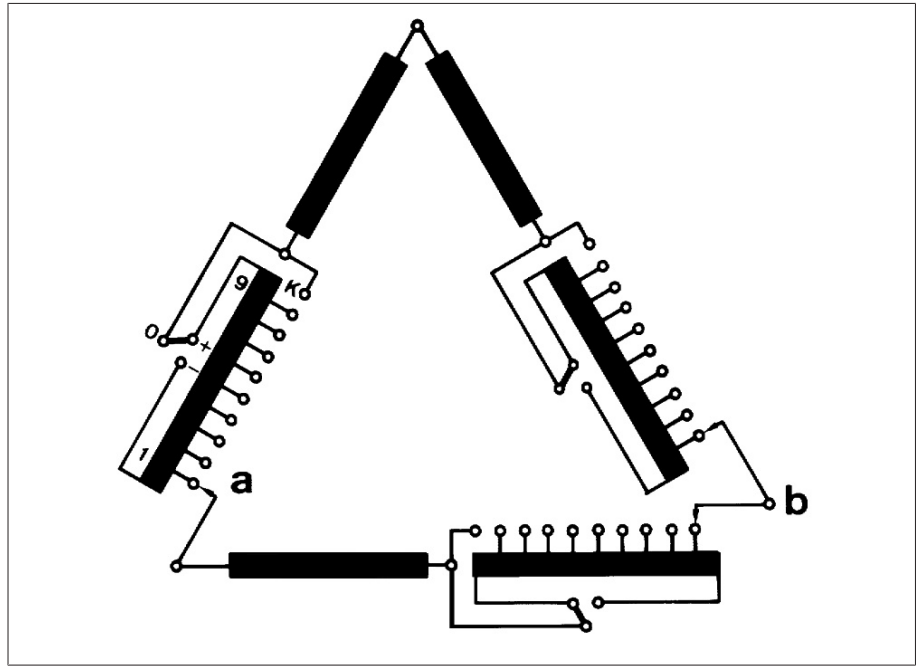


Figura 10: Combinación de cambiadores de tomas bajo carga VM III K para conexión en triángulo VM I 351/VM II 352 (a = VM I 351, b = VM II 352)

3.3 Cambiador de tomas bajo carga VACUTAP® VM III 650 Y...VM I 1503 con selector grueso múltiple (hasta un máx. de 5 pasos gruesos)

Para un ajuste de tensión de escalonamiento especialmente fino se precisa un gran número de posiciones de servicio, que en determinadas circunstancias solo puede tener lugar mediante una conexión con paso grueso múltiple.

Por ejemplo, si se utiliza un devanado grueso de 5 tomas y un arrollamiento de tomas fino con 18 tomas, se deberán alcanzar 107 posiciones de servicio.

El selector grueso múltiple está montado en los dos lados del selector de tomas.

Los cambiadores de tomas bajo carga se suministran para $U_m = 72,5$ hasta un máx. de 300 kV y para 2...5 pasos gruesos (modelos del selector B, C y D).

3.4 Cambiador de tomas bajo carga bifásico VACUTAP® VM II 302/352/502/652

El cambiador de tomas bajo carga VM II 302/352/502/652 se suministra como cambiador de tomas bajo carga bifásico para conexión central monofásica con los mismos datos técnicos que corresponden al cambiador de tomas bajo carga VM III 300 Y, VM III 350 Y, VM III 500 Y o VM III 650 Y.

3.5 Cambiador de tomas bajo carga para conexión en estrella con punto neutro abierto

En los cambiadores de tomas bajo carga con punto neutro abierto, en el punto neutro abierto **solo pueden conectarse transformadores de corriente**, ya que de lo contrario se generan sobretensiones no admisibles en el punto neutro.

i No pueden conectarse bobinas de inductancia.

Conexión de las tres tuberías del recipiente de aceite (= punto neutro abierto)	VACUTAP VM III 300/350/500/650 Y	
Conexión para el transformador de corriente y formación de punto neutro fuera del cambiador de tomas bajo carga	A) Tensiones de prueba admisibles entre los contactos de derivación del recipiente de aceite	
	- Tensión al impulso con onda plena	< 140 kV (1,2/50 µS) ¹⁾
	- Tensión alterna nominal soportable	1 kV (50 Hz, 1 min.)
	B) Tensión de servicio máxima admisible entre los contactos de derivación del recipiente de aceite	1 kV (50...60 Hz)
¹⁾ Tensión de servicio del varistor con 1,2/50 µs de impulso de onda: > 1,4 kV, tensión residual con 1000 A (8/20 µs) de corriente de impulso: < 3 kV, carga de energía máxima admisible del varistor < 100 J		

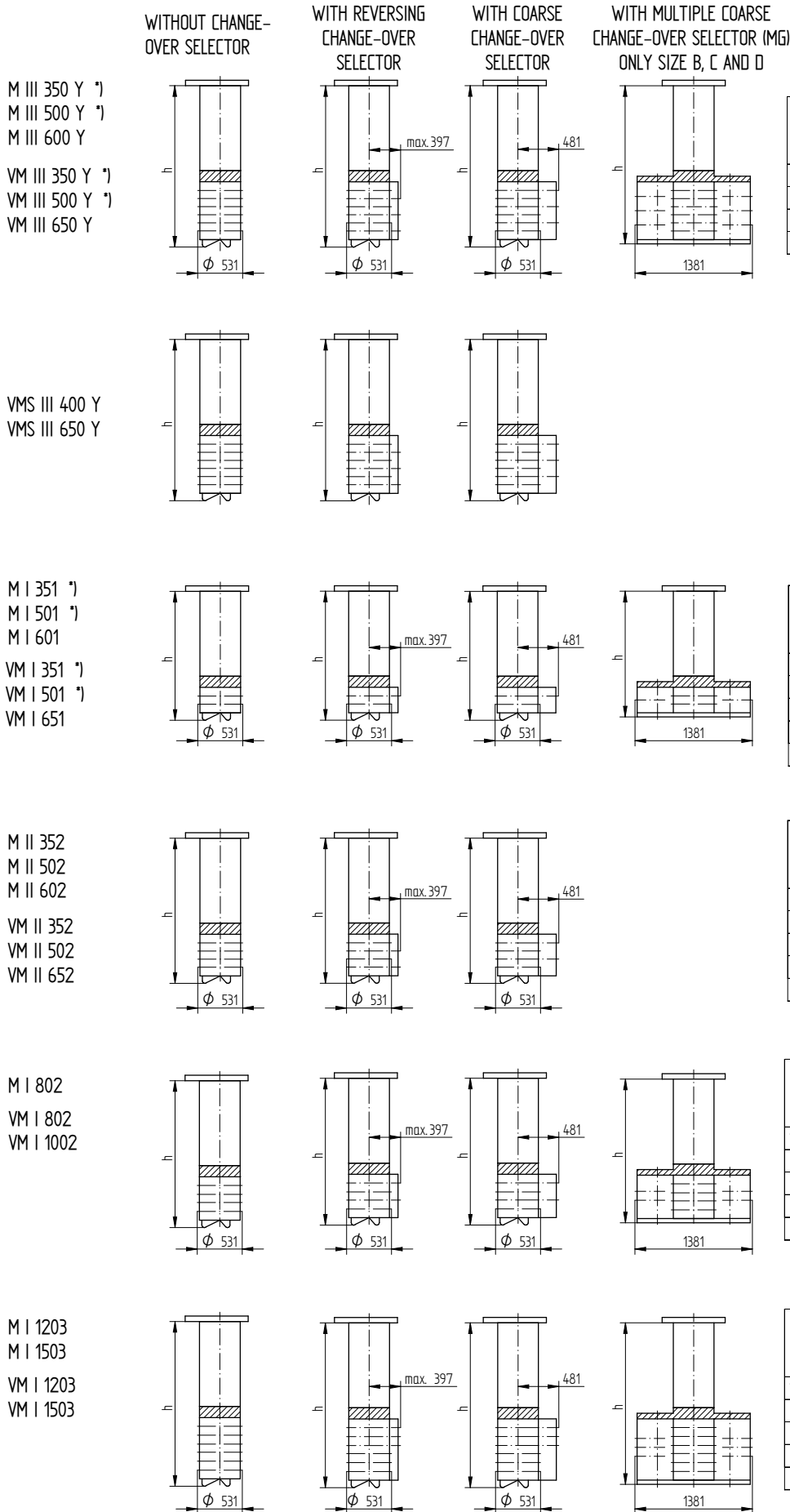
Tabla 21: Tensiones de prueba y tensiones de servicio para VACUTAP® VM III 300/350/500/650 Y

4 Dibujos

4.1 Vista general de modelos

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DATE	NAME	DOCUMENT NO.
DFTR. 13.07.2018	BUTERUS	SED 1663609 000 04
CHKD. 16.07.2018	WILHELM	SCALE
STAND. 16.07.2018	PRODASTSCHUK	CHANGE NO. 1086956



M III 350 Y *)
 M III 500 Y *)
 M III 600 Y
 VM III 350 Y *)
 VM III 500 Y *)
 VM III 650 Y

VMS III 400 Y
 VMS III 650 Y

M I 351 *)
 M I 501 *)
 M I 601
 VM I 351 *)
 VM I 501 *)
 VM I 651

M II 352
 M II 502
 M II 602
 VM II 352
 VM II 502
 VM II 652

M I 802
 VM I 802
 VM I 1002

M I 1203
 M I 1503
 VM I 1203
 VM I 1503

*) NOT AVAILABLE AS MULTIPLE COARSE CHANGE-OVER SELECTOR (MG)

INSTALLATION LENGTH h IN MM

U _m [kV]	SELECTOR SIZE					
	B		C		D/DE	D
	0/W/G	MG	0/W/G	MG	0/W/G	MG
72,5	1894	1856	2069	2031	2524	2486
123	2024	1986	2199	2161	2654	2616
170	2154	2116	2329	2291	2784	2746
245	2254	2216	2429	2391	2884	2846

U _m [kV]	SELECTOR SIZE	
	C	
	0/W/G	
72,5	2069	
123	2199	
170	2329	

U _m [kV]	SELECTOR SIZE					
	B		C		D/DE	D
	0/W/G	MG	0/W/G	MG	0/W/G	MG
72,5	1514	1476	1589	1551	1784	1746
123	1644	1606	1719	1681	1914	1876
170	1774	1736	1849	1811	2044	2006
245	1874	1836	1949	1911	2144	2106
300	2026	1988	2101	2063	2296	2258

U _m [kV]	SELECTOR SIZE			
	B	C	D/DE	
	0/W/G	0/W/G	0/W/G	
72,5	1704	1829	2154	
123	1834	1959	2284	
170	1964	2089	2414	
245	2064	2189	2514	
300	2216	2341	2666	

U _m [kV]	SELECTOR SIZE					
	B		C		D/DE	D
	0/W/G	MG	0/W/G	MG	0/W/G	MG
72,5	1724	1686	1799	1761	1994	1956
123	1854	1816	1929	1891	2124	2086
170	1984	1946	2059	2021	2254	2216
245	2084	2046	2159	2121	2354	2316
300	2236	2198	2311	2273	2506	2468

U _m [kV]	SELECTOR SIZE					
	B		C		D/DE	D
	0/W/G	MG	0/W/G	MG	0/W/G	MG
72,5	1934	1896	2009	1971	2204	2166
123	2064	2026	2139	2101	2334	2296
170	2194	2156	2269	2231	2464	2426
245	2294	2256	2369	2331	2564	2526
300	2446	2408	2521	2483	2716	2678

DIMENSION IN mm EXCEPT AS NOTED



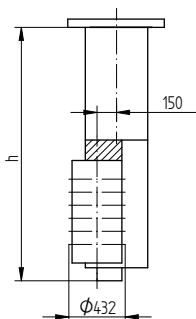
ON-LOAD TAP-CHANGER OILTAP® M / VACUTAP® VM®, VMS®-C
M-SELECTOR SIZE B/C/D/DE
SURVEY OF MODELS

SERIAL NUMBER

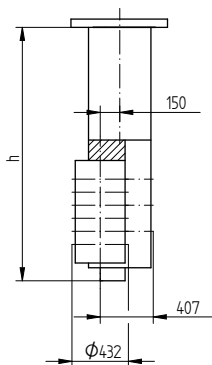
MATERIAL NUMBER 8997404E SHEET 1/1

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WITHOUT
CHANGE-OVER SELECTOR



WITH
CHANGE-OVER SELECTOR



INSTALLATION LENGTH h IN MM

VMS III 400 Y

U _m [kV]	SELECTOR SIZE B
72,5	1942
123	2072
170	2202

DATE	NAME	DOCUMENT NO.
11.07.2018	BUTERUS	SED 6185260 001 00
CHKD. 16.07.2018	WILHELM	CHANGE NO.
STAND. 16.07.2018	PRODASTSCHUK	1086956
		SCALE
		-

DIMENSION
IN mm
EXCEPT AS
NOTED



ON-LOAD TAP-CHANGER VACUTAP® VMS®
 SELECTOR SIZE B
 SURVEY OF MODELS

SERIAL NUMBER

MATERIAL NUMBER	SHEET
101170260E	1/1

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DATE	NAME	DOCUMENT NO.
22.01.2016	RAEDLINGER	SED 2416819 001 01
25.02.2016	TKBIRKMANN	CHANGE NO.
25.02.2016	PRODASTSCHUK	1072100
		SCALE
		-

DIMENSION
IN mm
EXCEPT AS
NOTED



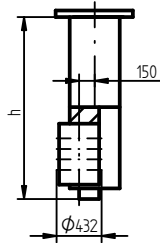
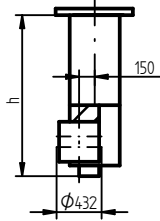
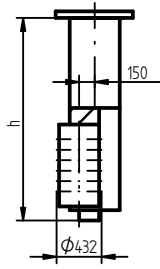
ON-LOAD TAP-CHANGER VACUTAP® VM 300
SELECTOR SIZE B
SURVEY OF MODELS

SERIAL NUMBER

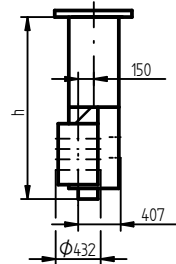
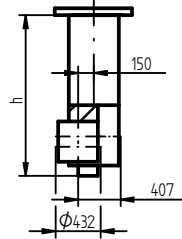
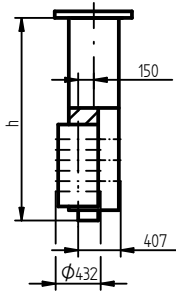
MATERIAL NUMBER
7658351E

SHEET
1/1

without
change-over selector



with
change-over selector



Installation length h in mm

VM III 300 Y

U _m [kV]	Selector size B
72,5	1942
123	2072
170	2202
245	2302

VM I 301

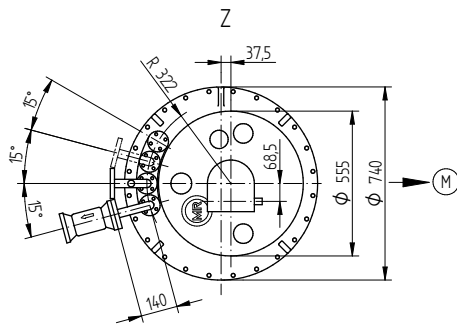
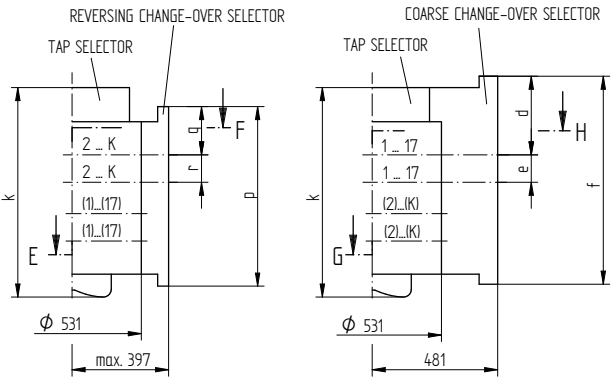
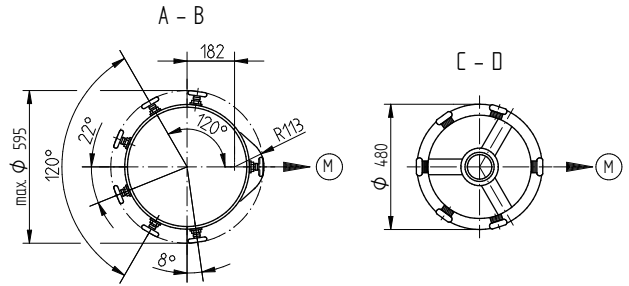
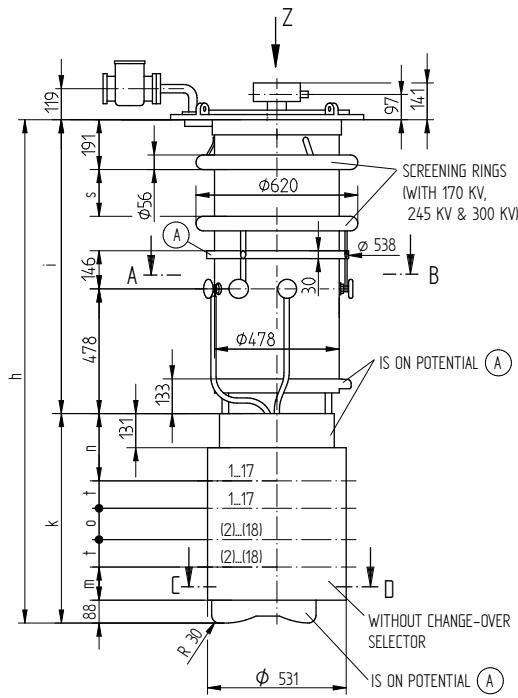
U _m [kV]	Selector size B
72,5	1542
123	1672
170	1802
245	1902

VM II 302

U _m [kV]	Selector size B
72,5	1742
123	1872
170	2002
245	2102

4.2 Dibujos acotados

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E - F
REFER TO 723590

G - H
REFER TO 723590

FOR INHERENT DRAWINGS REFER TO 898012

- (A) ON-LOAD TAP-CHANGER TAKE-OFF TERMINAL
- (M) DRIVE SIDE OF SELECTOR

FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

SELECTOR SIZE	B					C					D / DE				
U _m [KV]	72,5	123	170	245	300	72,5	123	170	245	300	72,5	123	170	245	300
h	1724	1854	1984	2084	2236	1799	1929	2059	2159	2311	1994	2124	2254	2354	2506
i	996	1126	1256	1356	1508	996	1126	1256	1356	1508	996	1126	1256	1356	1508
s	-		267	367	520	-		267	367	520	-		267	367	520
k	728					803					998				
n	233					258					323				
o	95					120					185				
m	102					127					192				
t	105					105					105				
r	105					105					105				
q	160					185					250				
p	613					688					883				
e	105					105					105				
d	276,5					301,5					366,5				
f	722					797					992				
OIL VOLUME [DM ³]	130	150	170	190	210	130	150	170	190	210	130	150	170	190	210
DISPLACEMENT [DM ³]	196	221	241	261	281	196	221	241	261	281	199	224	244	264	284
WEIGHT [KG]	310	315	320	325	330	320	325	330	335	340	330	335	340	345	350

DATE	NAME	DOCUMENT NO.
18.12.2015	RAEDLINGER	SED 2312691 001 02
01.12.2015	TKBIRKMAN	CHANGE NO.
01.12.2015	PRODASTSCHUK	1069171
SCALE	1:10	

DIMENSION IN mm EXCEPT AS NOTED

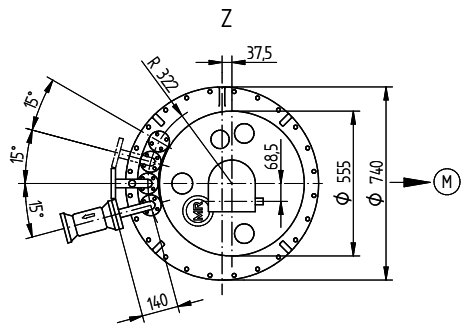
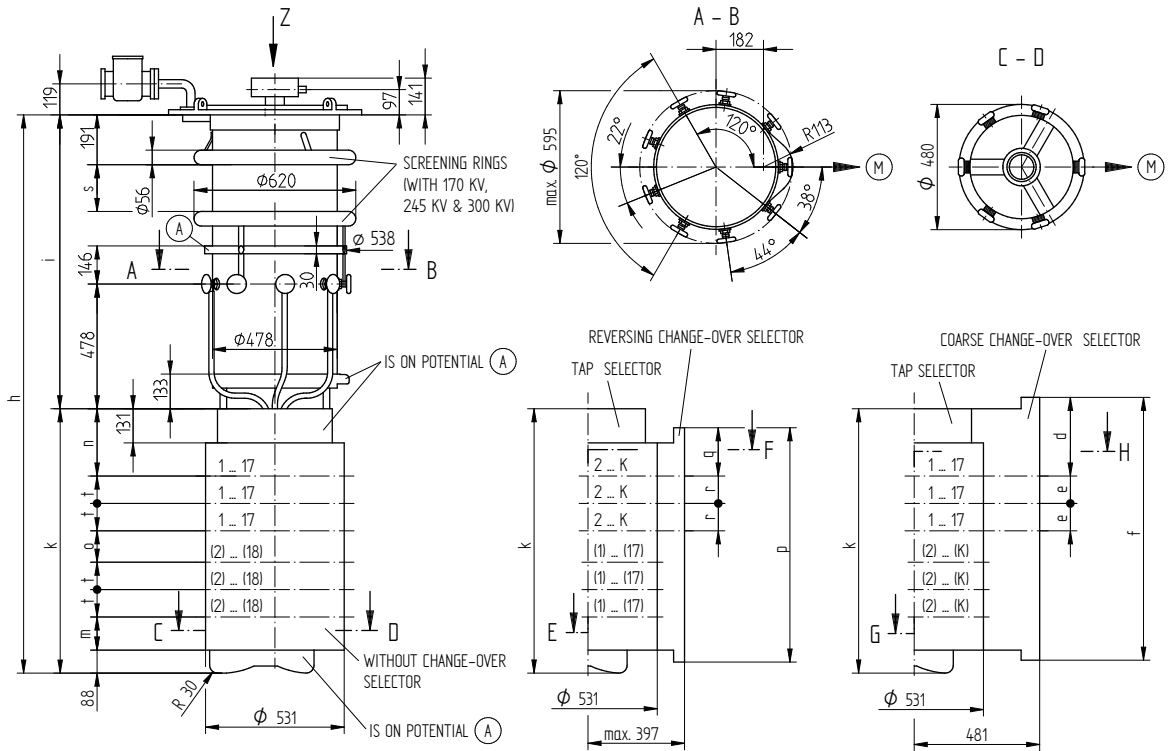


ON-LOAD TAP-CHANGER VACUTAP® VM
 VM I 802/1002 - B/C/D/DE - O/W/G
 DIMENSION DRAWING

SERIAL NUMBER

MATERIAL NUMBER 7462222E SHEET 1/1

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E - F
REFER TO 723590

G - H
REFER TO 723590

FOR INHERENT DRAWINGS REFER TO 898012

- (A) ON-LOAD TAP-CHANGER TAKE-OFF TERMINAL
- (M) DRIVE SIDE OF SELECTOR

FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

SELECTOR SIZE	B					C					D/DE					
	72,5	123	170	245	300	72,5	123	170	245	300	72,5	123	170	245	300	
U_m [KV]	72,5	123	170	245	300	72,5	123	170	245	300	72,5	123	170	245	300	
DIMENSIONS [MM]	h	1934	2064	2194	2294	2446	2009	2139	2269	2369	2521	2204	2334	2464	2564	2716
	i	996	1126	1256	1356	1508	996	1126	1256	1356	1508	996	1126	1256	1356	1508
	s	-	267	367	367	520	-	267	367	367	520	-	267	367	367	520
	k			938					1013					1208		
	n		233						258					323		
	o		95						120					185		
	m		102						127					192		
	t		105						105					105		
	r		105						105					105		
	q		160						185					250		
	p		823						898					1093		
	e		105						105					105		
	d		276.5						301.5					366.5		
f		932						1007					1202			
OIL VOLUME [DM ³]	130	150	170	190	210	130	150	170	190	210	130	150	170	190	210	
DISPLACEMENT [DM ³]	200	225	245	265	285	200	225	245	265	285	204	229	249	269	289	
WEIGHT [KG]	350	355	360	365	370	360	365	370	375	380	375	380	385	390	395	

DATE	NAME	DOCUMENT NO.
18.11.2015	RAEDLINGER	SED 2313229 001 01
01.12.2015	TKBIRKMAN	CHANGE NO.
01.12.2015	PRODASTSCHUK	1069171
		SCALE
		1:10

DIMENSION IN mm EXCEPT AS NOTED



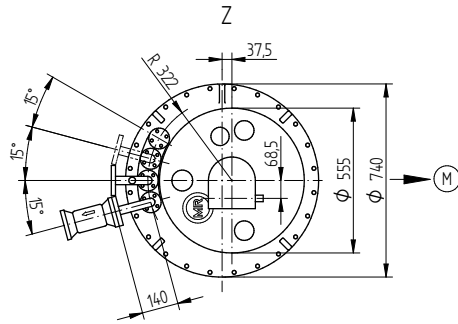
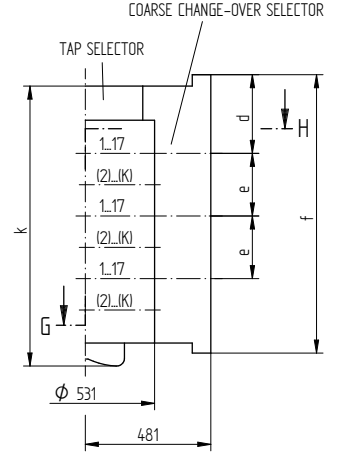
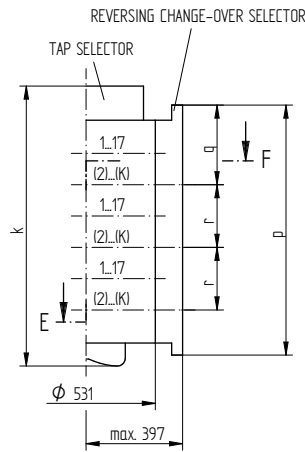
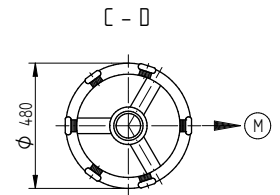
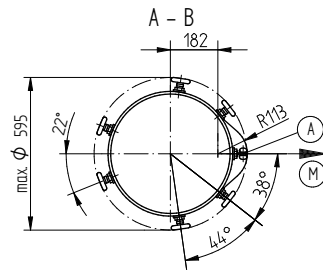
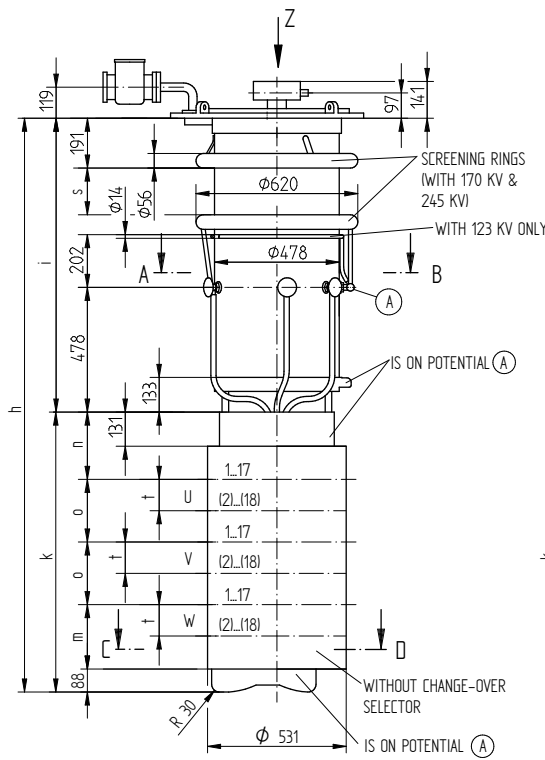
ON-LOAD TAP-CHANGER VACUTAP® VM
 VM I 1203/1503 - B/C/D/DE - O/W/G
 DIMENSION DRAWING

SERIAL NUMBER

MATERIAL NUMBER
7462231E

SHEET
1/1

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E - F
REFER TO 723590

G - H
REFER TO 723590

FOR INHERENT DRAWINGS REFER TO 898012

(A) ON-LOAD TAP-CHANGER TAKE-OFF LEAD (NEUTRAL)

(M) DRIVE SIDE OF SELECTOR

FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

SELECTOR SIZE	B				C *)				D / DE				
	72,5	123	170	245	72,5 ¹⁾	123 ¹⁾	170 ¹⁾	245	72,5	123	170	245	
U _m [kV]													
DIMENSIONS [MM]	h	1894	2024	2154	2254	2069	2199	2329	2429	2524	2654	2784	2884
	i	996	1126	1256	1356	996	1126	1256	1356	996	1126	1256	1356
	s	-	-	267	367	-	-	267	367	-	-	267	367
	k	-	898	-	-	-	1073	-	-	-	1528	-	-
	n	-	233	-	-	-	258	-	-	-	323	-	-
	o	-	190	-	-	-	240	-	-	-	370	-	-
	m	-	197	-	-	-	247	-	-	-	377	-	-
	t	-	95	-	-	-	120	-	-	-	185	-	-
	r	-	190	-	-	-	240	-	-	-	370	-	-
	q	-	255	-	-	-	305	-	-	-	435	-	-
	p	-	783	-	-	-	958	-	-	-	1413	-	-
	d	-	276,5	-	-	-	3015	-	-	-	366,5	-	-
	e	-	190	-	-	-	240	-	-	-	370	-	-
f	-	892	-	-	-	1067	-	-	-	1522	-	-	
OIL VOLUME [DM ³]	130	150	170	190	130	150	170	190	130	150	170	190	
DISPLACEMENT [DM ³]	199	224	244	264	199	224	244	264	207	232	252	272	
MAX. WEIGHT [KG]	350	355	360	365	360	365	370	375	375	380	385	390	

*) VMS® AVAILABLE ONLY IN THESE VERSIONS

DATE	12.07.2018	NAME	BUTERUS	DOCUMENT NO.	SED 2310153 001 02
DFTR.	16.07.2018	CHKD.	WILHELM	CHANGE NO.	1086956
STAND.	16.07.2018	PRODASTSCHUK		SCALE	1:10

DIMENSION IN mm EXCEPT AS NOTED

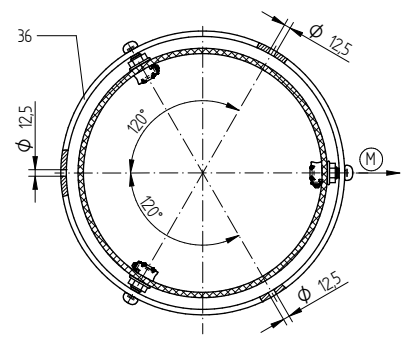
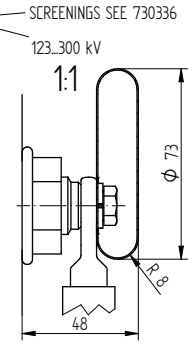
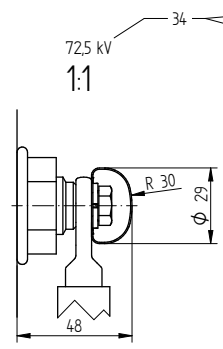
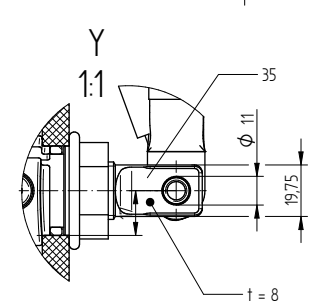
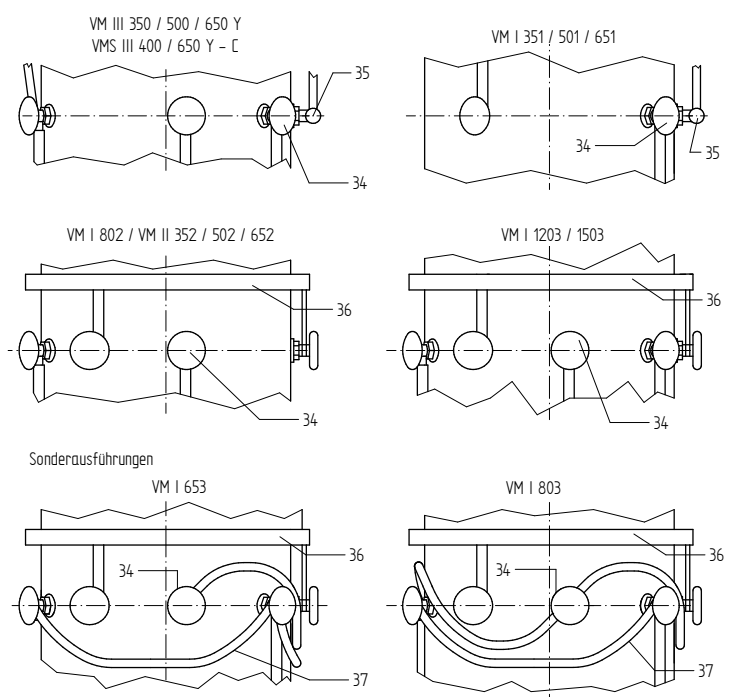
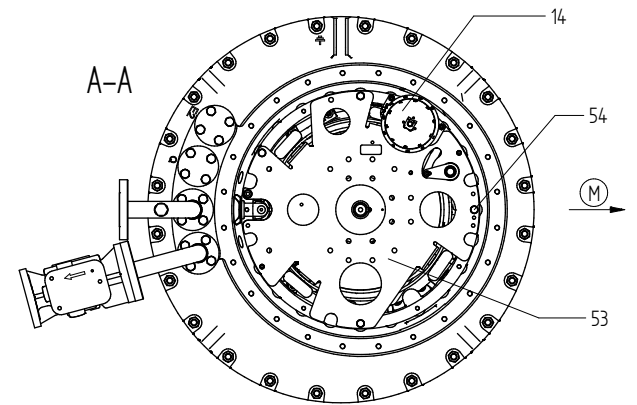
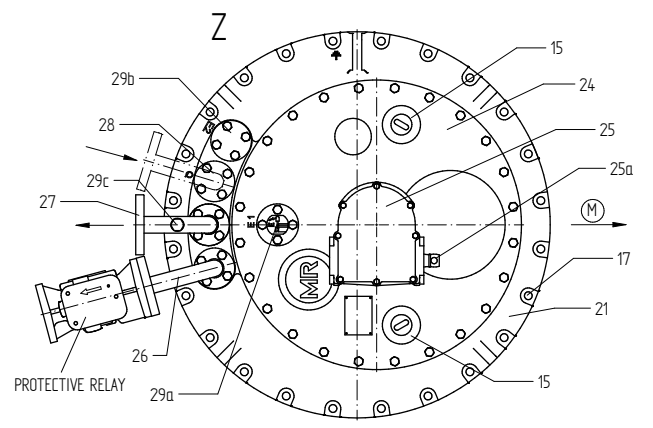
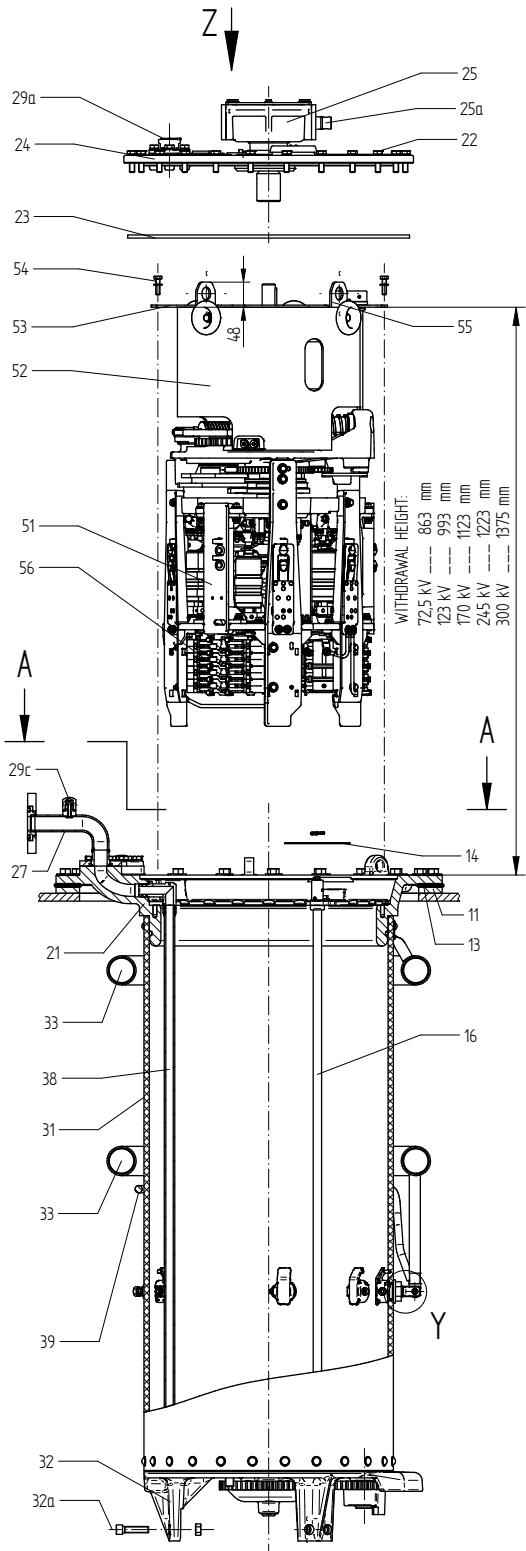


ON-LOAD TAP-CHANGER VACUTAP® VM®, VMS® - DIMENSION DRAWING
 VM III 350/500/650 Y - B/C/D/DE - O/W/G
 VMS III 400/650 Y - C - O/W/G

SERIAL NUMBER

MATERIAL NUMBER 7462192E SHEET 1/1

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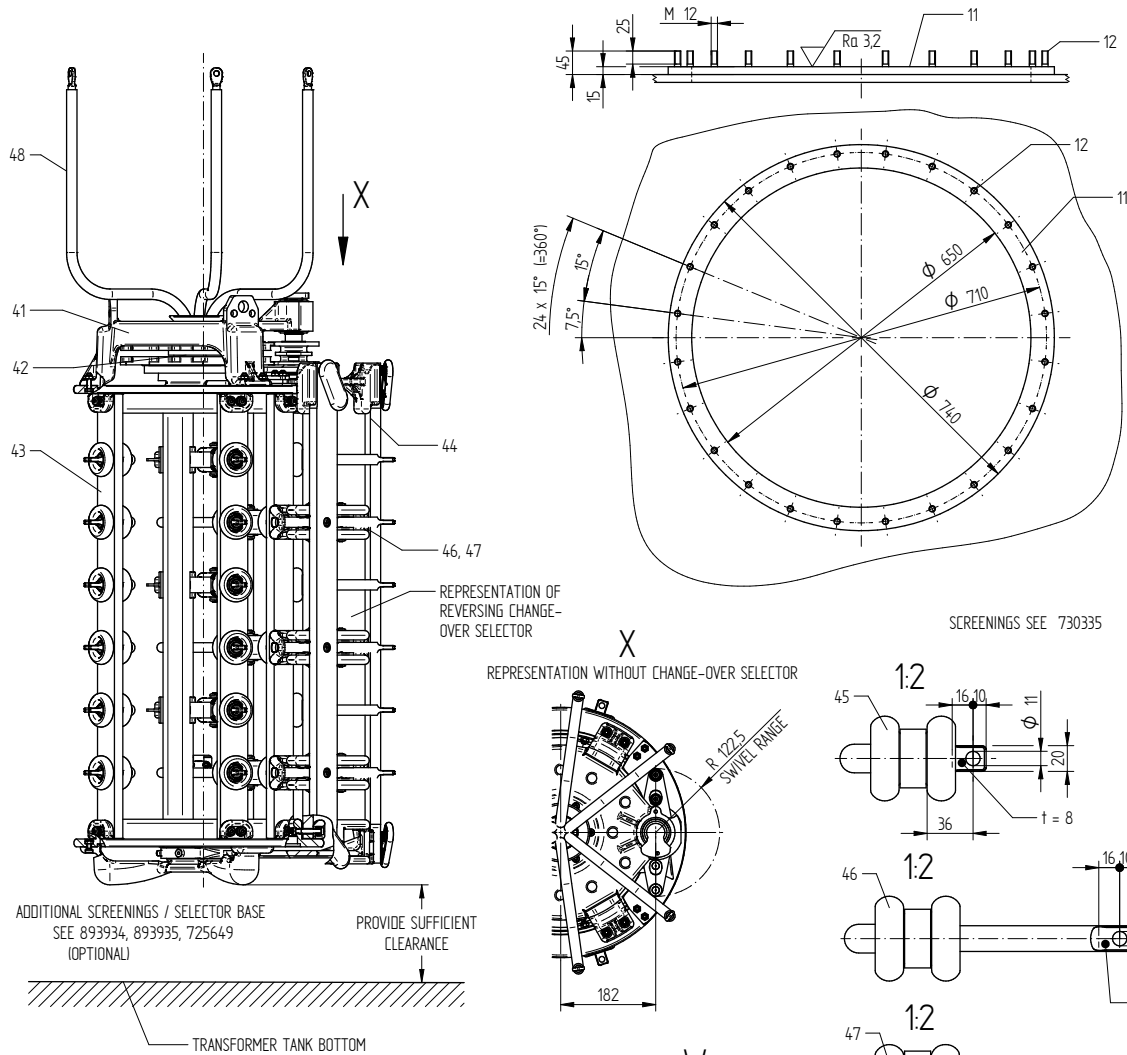
Datum	Name	Dokumentnummer
13.07.2018	BUTERUS	SED 231710 001 03
Gez. bepr.	Änderungsnummer	Maßstab
16.07.2018	WILHELM	1:1
Norm.	16.07.2018	PRODASTSCHUK
		1086956
		15

Maßangaben in mm, soweit nicht anders angegeben



ON-LOAD TAP-CHANGER VACUTAP® VM®, VMS®-C
 M-SELECTOR SIZE B/C/D/DE (CENTRIC DRIVE)
 INSTALLATION DRAWING

Serialnummer	
Materialnummer	Blatt
7462303E	1/2



ADDITIONAL SCREENINGS / SELECTOR BASE
SEE 893934, 893935, 725649
(OPTIONAL)

PROVIDE SUFFICIENT
CLEARANCE

TRANSFORMER TANK BOTTOM

- 11 MOUNTING FLANGE ON TRANSFORMER COVER
- 12 FIXING BOLT M12
- 13 ON-LOAD TAP-CHANGER HEAD GASKET
- 14 TAP POSITION INDICATOR
- 15 INSPECTION WINDOW
- 16 DRIVE SHAFT FOR TAP POSITION INDICATOR
- 17 THROUGH-HOLES 15mm IN DIAMETER

- 21 ON-LOAD TAP-CHANGER HEAD
- 22 COVER BOLT
- 23 COVER GASKET
- 24 ON-LOAD TAP-CHANGER HEAD COVER
- 25 CENTRIC GEAR UNIT WITH DRIVE SHAFT 25a
- 26 PIPE CONNECTING R FOR PROTECTIVE RELAY
- 27 PIPE CONNECTING S FOR SUCTION PIPE
- 28 PIPE CONNECTING Q FOR OIL RETURN PIPE (WITH OIL FILTER ONLY)
- 29a AIR-VENT VALVE OF ON-LOAD TAP-CHANGER HEAD COVER
- 29b BLEEDING FACILITY FOR TRANSFORMER OIL COMPARTMENT
- 29c VENT SCREW FOR SUCTION PIPE

DRIVE SIDE OF SELECTOR

** NOT WITH MULTIPLE COARSE CHANGE-OVER SELECTOR

- 31 DIVERTER SWITCH OIL COMPARTMENT
- 32 OIL COMPARTMENT BASE WITH SUPPORTING BOLT 32a
- 33 SCREENING RINGS (WITH Um = 170 kV; 245 kV; 300 kV ONLY)
- 34 OIL COMPARTMENT CONNECTION TERMINAL
- 35 TERMINAL:
VM III 350/500/650, VMS III 400/650: NEUTRAL CONNECTION
VM I 351/501/651: TAKE-OFF TERMINAL
- 36 ON-LOAD TAP-CHANGER TAKE-OFF RING
(ONLY VM I 802/803/1203/1503)
- 37 CONNECTING LEAD (ONLY VM I 653/803)
- 38 SUCTION PIPE
- 39 SCREENING RING (WITH Um = 123 kV ONLY)
- 41 SELECTOR SUSPENSION
- 42 SELECTOR GEAR
- 43 TAP SELECTOR
- 44 CHANGE-OVER SELECTOR
- 45 SELECTOR CONNECTION CONTACT (SEE CORRESPONDING DIMENSION DRAWING)
- 46 CHANGE-OVER SELECTOR CONNECTION CONTACT "K" OR "O" **
- 47 CHANGE-OVER SELECTOR CONNECTION CONTACT "+" OR "-" **
- 48 SELECTOR CONNECTING LEAD

- 51 DIVERTER SWITCH INSERT
- 52 SUPPORTING CYLINDER
- 53 BASE PLATE
- 54 FIXING BOLT
- 55 EYEBOLT WITH THROUGH-HOLE 25 mm IN DIAMETER
- 56 TRANSITION RESISTORS

Datum	Name	Dokumentnummer
13.07.2018	BUTERUS	SED 231710 001 03
Gez. bepr.	WILHELM	Änderungsnummer
16.07.2018	PRODASTSCHUK	1086956
Norm.		15

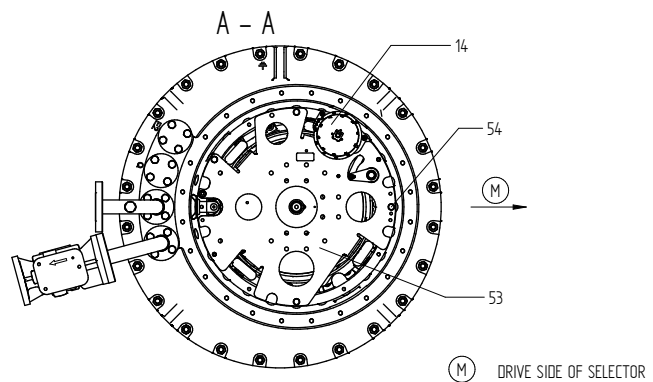
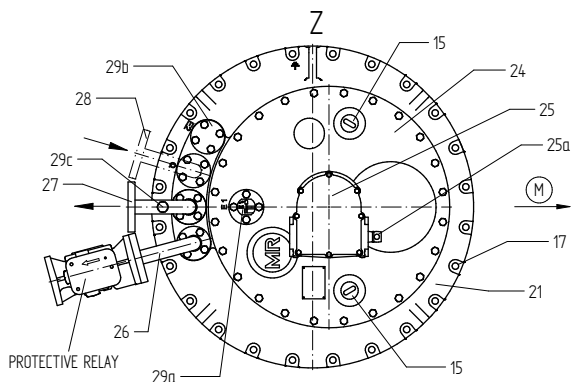
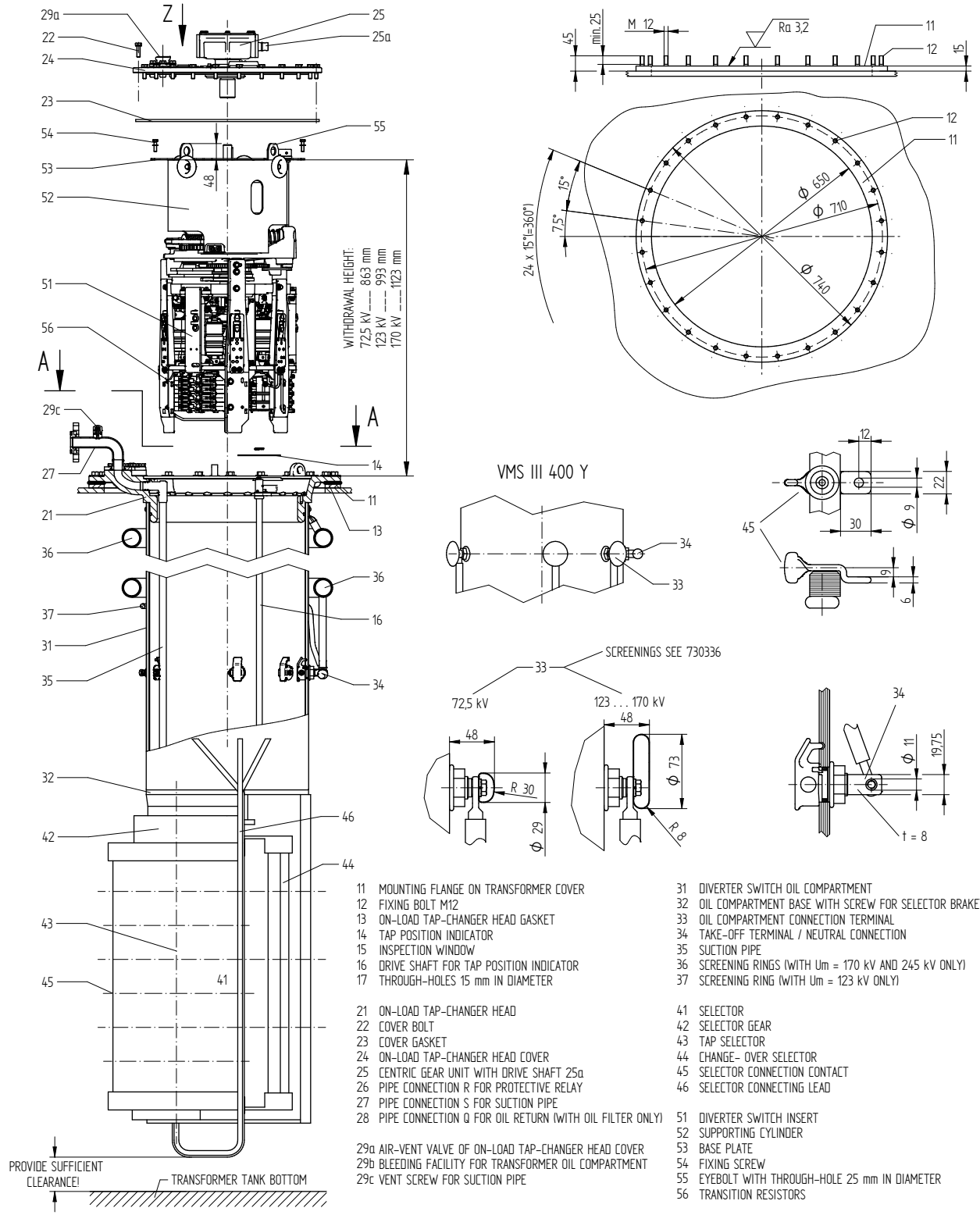
Maßangaben
in mm, soweit
nicht anders
angegeben



ON-LOAD TAP-CHANGER VACUTAP® VM®, VMS®-C
M-SELECTOR SIZE B/C/D/DE (CENTRIC DRIVE)
INSTALLATION DRAWING

Serialnummer	
Materialnummer	Blatt
7462303E	2/2

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DOCUMENT NO.	SED 6018599 001 00
NAME	BUTERUS WILHELM
DATE	11.07.2018
DFTR.	16.07.2018
CHKD.	16.07.2018
SCALE	1
CHANGE NO.	1086956
PRODASTSCHUK	

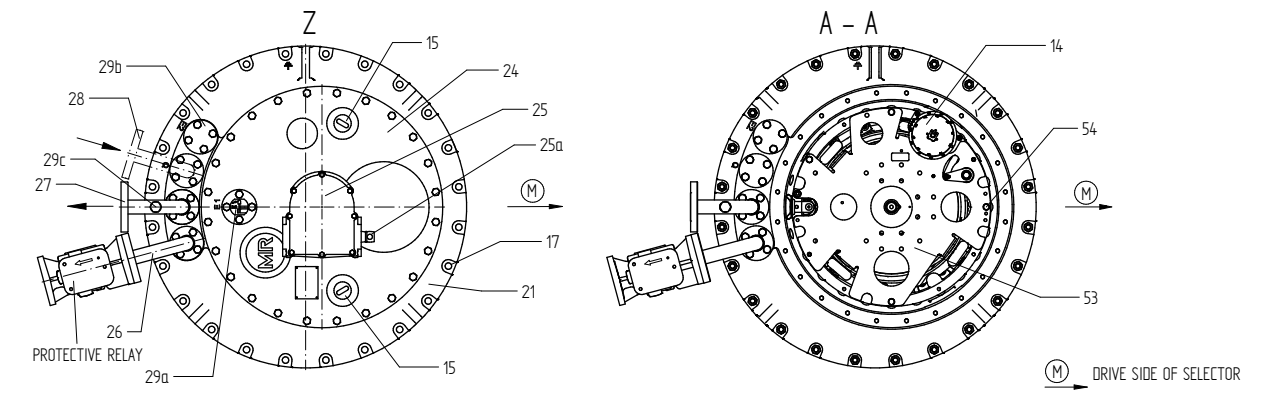
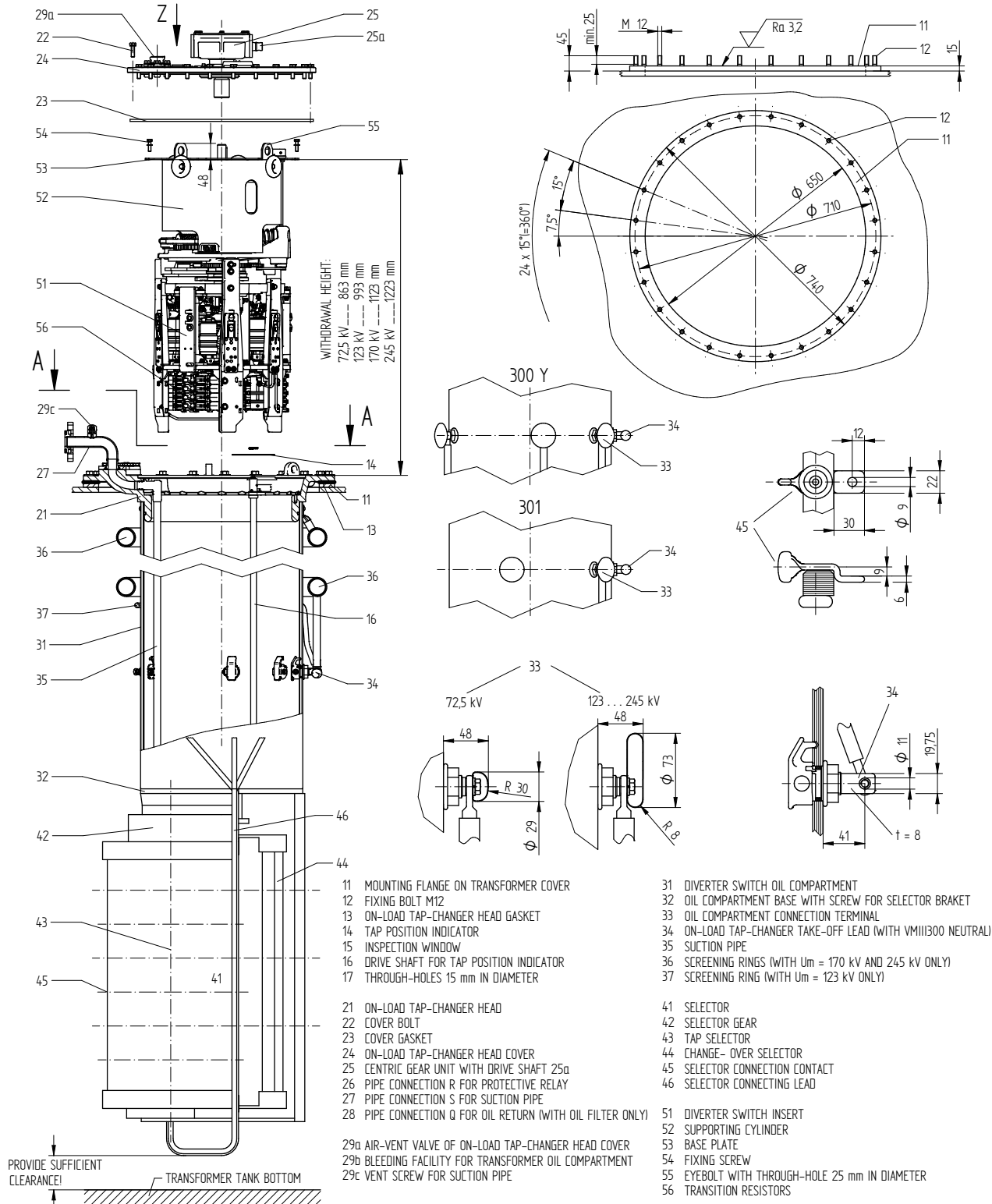
DIMENSION IN mm EXCEPT AS NOTED



ON-LOAD TAP-CHANGER VACUTAP® VMS®
SELECTOR SIZE B (CENTRIC DRIVE)
INSTALLATION DRAWING

SERIAL NUMBER	
MATERIAL NUMBER	SHEET
101170220E	1/1

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- 11 MOUNTING FLANGE ON TRANSFORMER COVER
- 12 FIXING BOLT M12
- 13 ON-LOAD TAP-CHANGER HEAD GASKET
- 14 TAP POSITION INDICATOR
- 15 INSPECTION WINDOW
- 16 DRIVE SHAFT FOR TAP POSITION INDICATOR
- 17 THROUGH-HOLES 15 mm IN DIAMETER
- 21 ON-LOAD TAP-CHANGER HEAD
- 22 COVER BOLT
- 23 COVER GASKET
- 24 ON-LOAD TAP-CHANGER HEAD COVER
- 25 CENTRIC GEAR UNIT WITH DRIVE SHAFT 25a
- 26 PIPE CONNECTION R FOR PROTECTIVE RELAY
- 27 PIPE CONNECTION S FOR SUCTION PIPE
- 28 PIPE CONNECTION Q FOR OIL RETURN PIPE (WITH OIL FILTER ONLY)
- 29a AIR-VENT VALVE OF ON-LOAD TAP-CHANGER HEAD COVER
- 29b BLEEDING FACILITY FOR TRANSFORMER OIL COMPARTMENT
- 29c VENT SCREW FOR SUCTION PIPE
- 31 DIVERTER SWITCH OIL COMPARTMENT
- 32 OIL COMPARTMENT BASE WITH SCREW FOR SELECTOR BRACKET
- 33 OIL COMPARTMENT CONNECTION TERMINAL
- 34 ON-LOAD TAP-CHANGER TAKE-OFF LEAD (WITH VMIII300 NEUTRAL)
- 35 SUCTION PIPE
- 36 SCREENING RINGS (WITH $U_m = 170$ kV AND 245 kV ONLY)
- 37 SCREENING RING (WITH $U_m = 123$ kV ONLY)
- 41 SELECTOR
- 42 SELECTOR GEAR
- 43 TAP SELECTOR
- 44 CHANGE-OVER SELECTOR
- 45 SELECTOR CONNECTION CONTACT
- 46 SELECTOR CONNECTING LEAD
- 51 DIVERTER SWITCH INSERT
- 52 SUPPORTING CYLINDER
- 53 BASE PLATE
- 54 FIXING SCREW
- 55 EYEBOLT WITH THROUGH-HOLE 25 mm IN DIAMETER
- 56 TRANSITION RESISTORS

DOCUMENT NO.	SED 2416809 001 02
NAME	RAEDLINGER HAUER
DATE	10.02.2017
CHKD.	29.03.2017
STAND.	29.03.2017
SCALE	1
CHANGE NO.	1079192
PRODASTSCHUK	

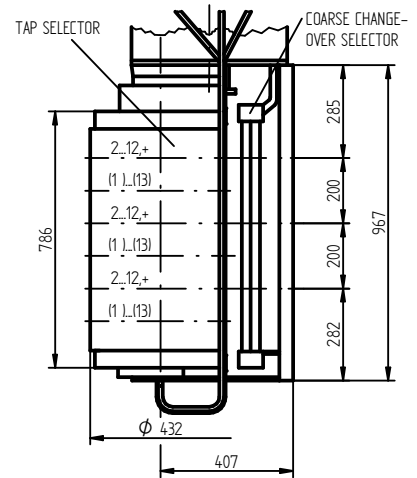
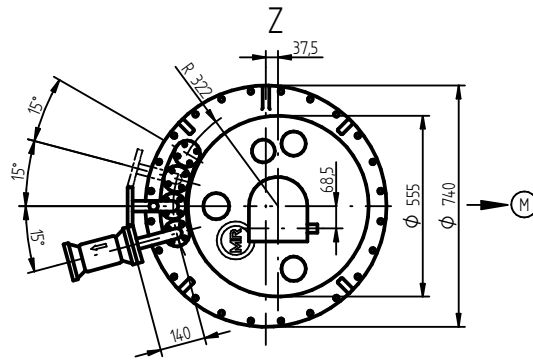
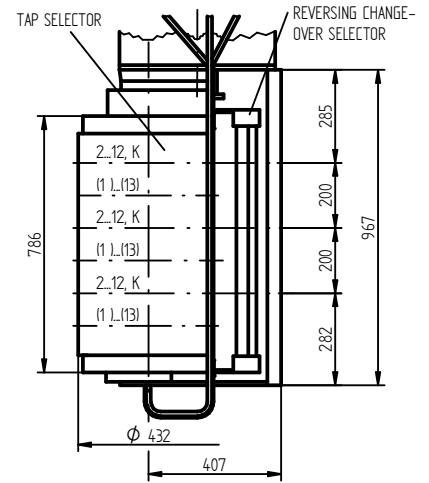
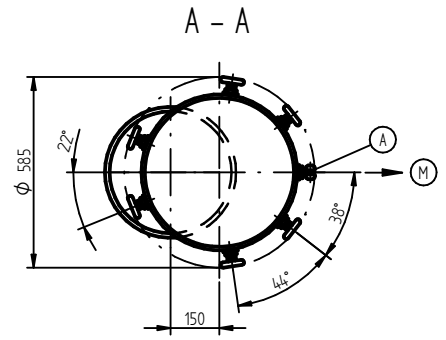
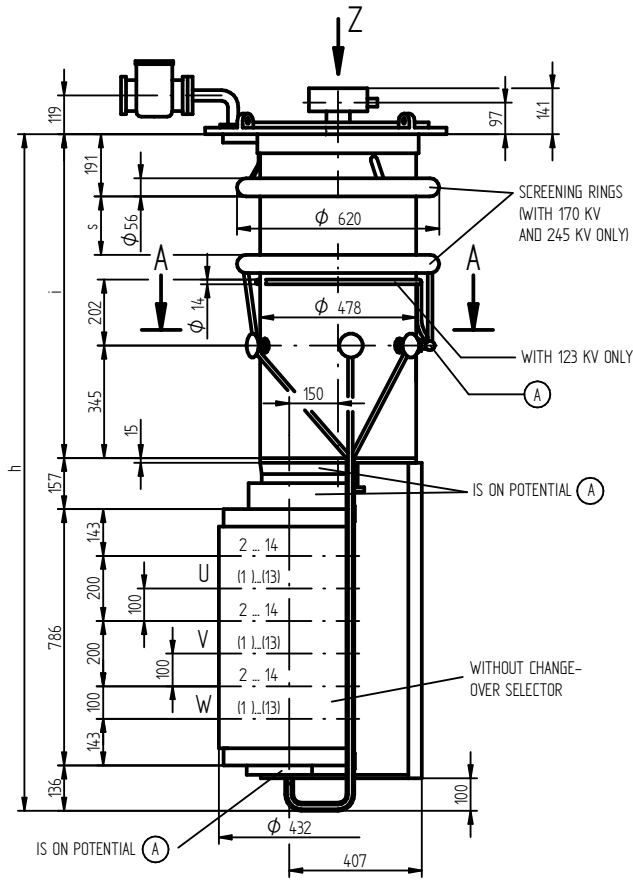
DIMENSION IN mm EXCEPT AS NOTED



ON-LOAD TAP-CHANGER VACUTAP® VM 300
 SELECTOR SIZE B (CENTRIC DRIVE)
 INSTALLATION DRAWING

SERIAL NUMBER	
MATERIAL NUMBER	SHEET
7651922E	1/1

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DATE	NAME	DOCUMENT NO.
18.11.2015	RAEDLINGER	SED 2532402 001 02
CHKD.	TKBIRKMAN	SCALE
01.12.2015	PRODASTSCHUK	1:8
STAND		CHANGE NO.
		1069171

FOR INHERENT DRAWINGS REFER TO 898026

- (A) ON-LOAD TAP-CHANGER TAKE-OFF LEAD (NEUTRAL)
- (M) DRIVE SIDE OF SELECTOR

FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

SELECTOR SIZE	B			
U_M [kV]	72,5	123	170	245
DIMENSIONS [mm]	h	1942	2072	2202
	i	863	993	1123
	s	-		267
OIL VOLUME [dm ³]	130	150	170	190
DISPLACEMENT [dm ³]	190	220	240	260
MAX. WEIGHT [kg]	280	285	290	295

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



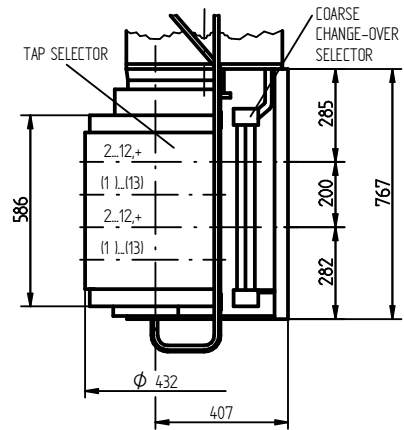
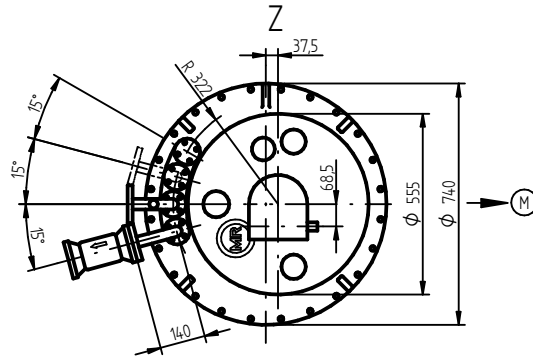
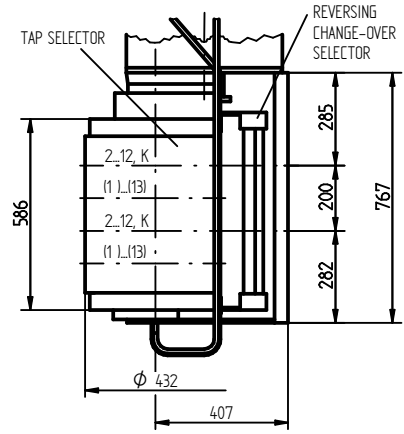
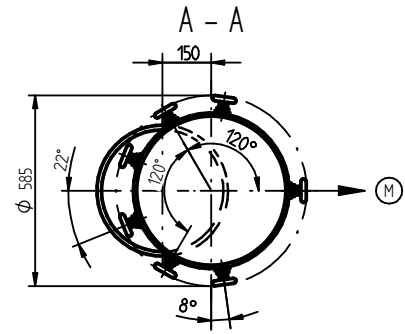
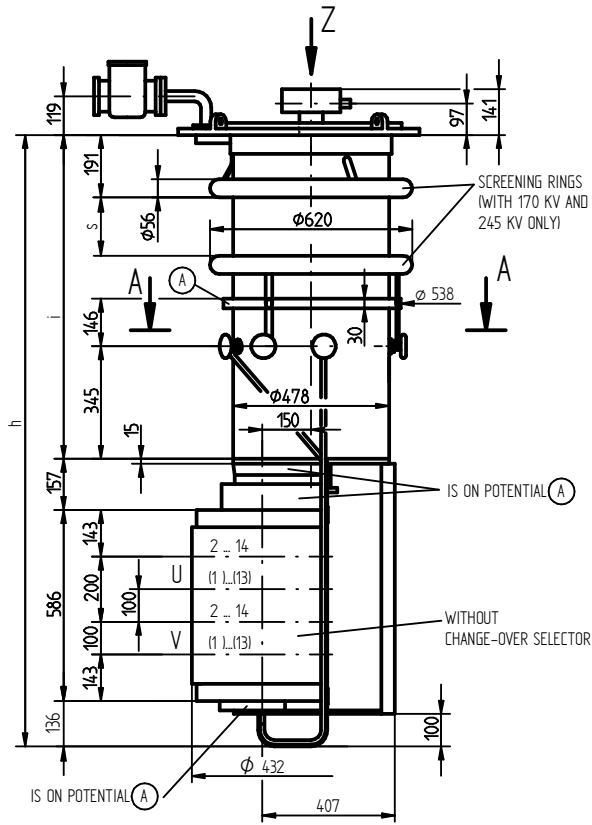
ON-LOAD TAP-CHANGER VACUTAP® VM®
 VM III 300 Y - B- 0/W/G
 DIMENSION DRAWING

SERIAL NUMBER

MATERIAL NUMBER
 7686982E

SHEET
 1/1

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DATE	NAME	DOCUMENT NO.
01.04.2016	RAEDLINGER	SED 2742981 001 02
CHKD. 11.04.2016	MENZELS	SCALE
STAND 11.04.2016	PRODASTSCHUK	18
		CHANGE NO. 1073378

FOR INHERENT DRAWINGS REFER TO 898026

(A) ON-LOAD TAP-CHANGER TAKE-OFF TERMINAL

(M) DRIVE SIDE OF SELECTOR

FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

SELECTOR SIZE	B			
U _M [KV]	72,5	123	170	245
h	1742	1872	2002	2102
DIMENSIONS [MM]	i	863	993	1123
	s	-		267
OIL VOLUME [DM ³]	130	150	170	190
DISPLACEMENT [DM ³]	180	210	230	250
MAX. WEIGHT [KG]	260	265	270	275

DIMENSION IN mm EXCEPT AS NOTED



ON-LOAD TAP-CHANGER VACUTAP® VM®
 VM II 302 - B - 0/W/G
 DIMENSION DRAWING

SERIAL NUMBER

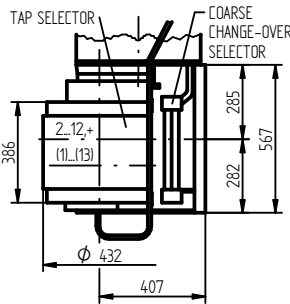
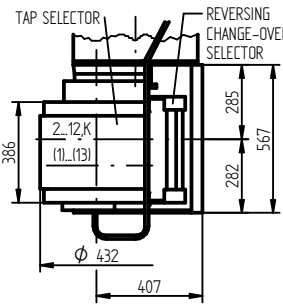
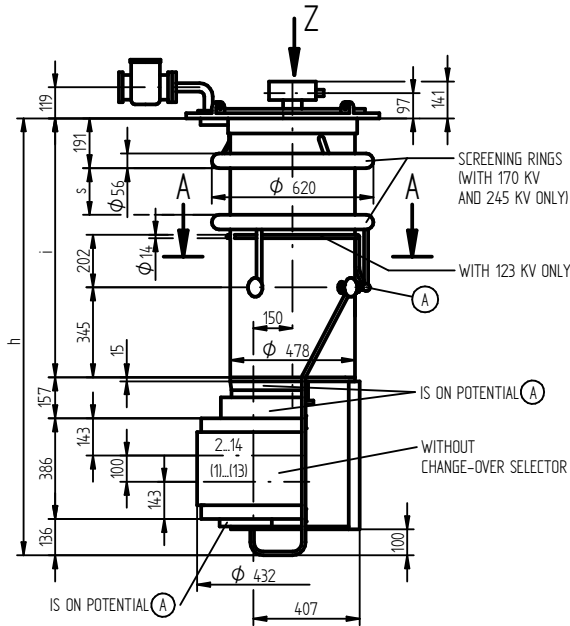
MATERIAL NUMBER
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SHEET
 1/1

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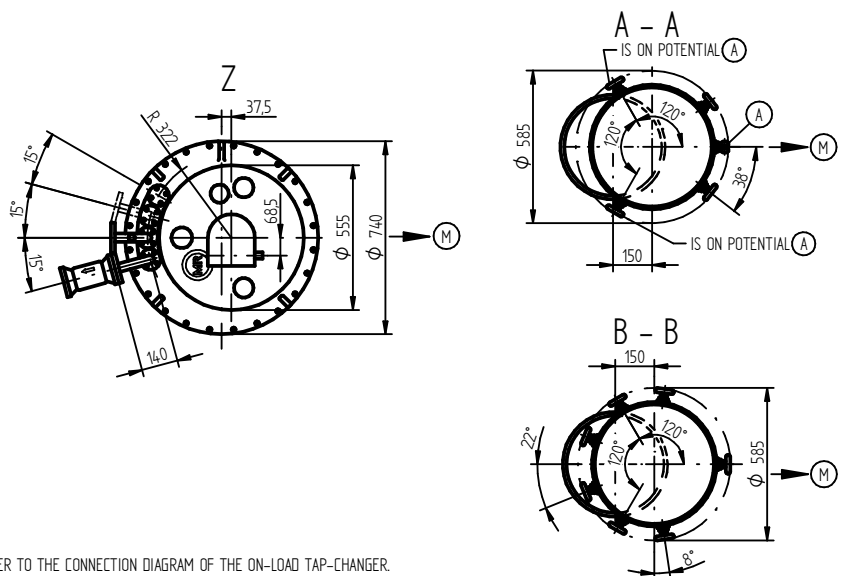
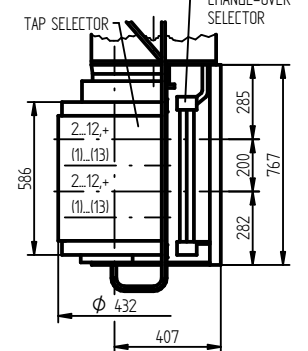
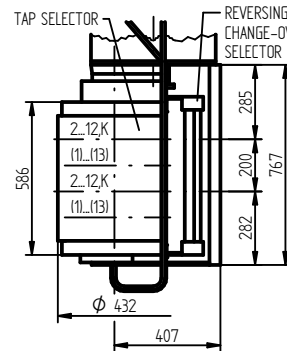
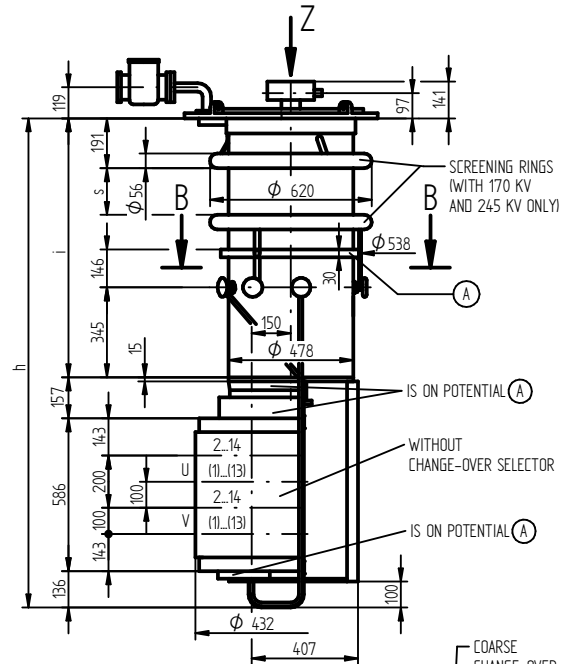
VM I 301 - 0 / W / G

SELECTOR SIDE		B			
Um [kV]		72.5	123	170	245
DIMENSIONS [MM]	h	1542	1672	1802	1902
	i	863	993	1123	1223
	s	-	-	267	367
OIL VOLUME [DM ³]		130	150	170	190
DISPLACEMENT [DM ³]		160	190	210	230
MAX. WEIGHT [KG]		240	245	250	255



VM II 302 - 0 / W / G

SELECTOR SIDE		B			
Um [kV]		72.5	123	170	245
DIMENSIONS [MM]	h	1742	1872	2002	2102
	i	863	993	1123	1223
	s	-	-	267	367
OIL VOLUME [DM ³]		130	150	170	190
DISPLACEMENT [DM ³]		180	210	230	250
MAX. WEIGHT [KG]		260	265	270	275



FOR INHERENT DRAWINGS REFER TO 898026

- (A) ON-LOAD TAP-CHANGER TAKE-OFF LEAD
- (M) DRIVE SIDE OF SELECTOR

FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

DATE	NAME	DOCUMENT NO.
18.11.2015	RAEDLINGER	SED 2559763 001 02
01.12.2015	TKBIRKMAN	CHANGE NO.
01.12.2015	PRODASTSCHUK	1069171
		SCALE 1:10

DIMENSION IN mm EXCEPT AS NOTED



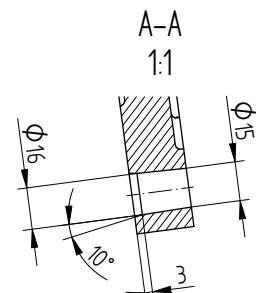
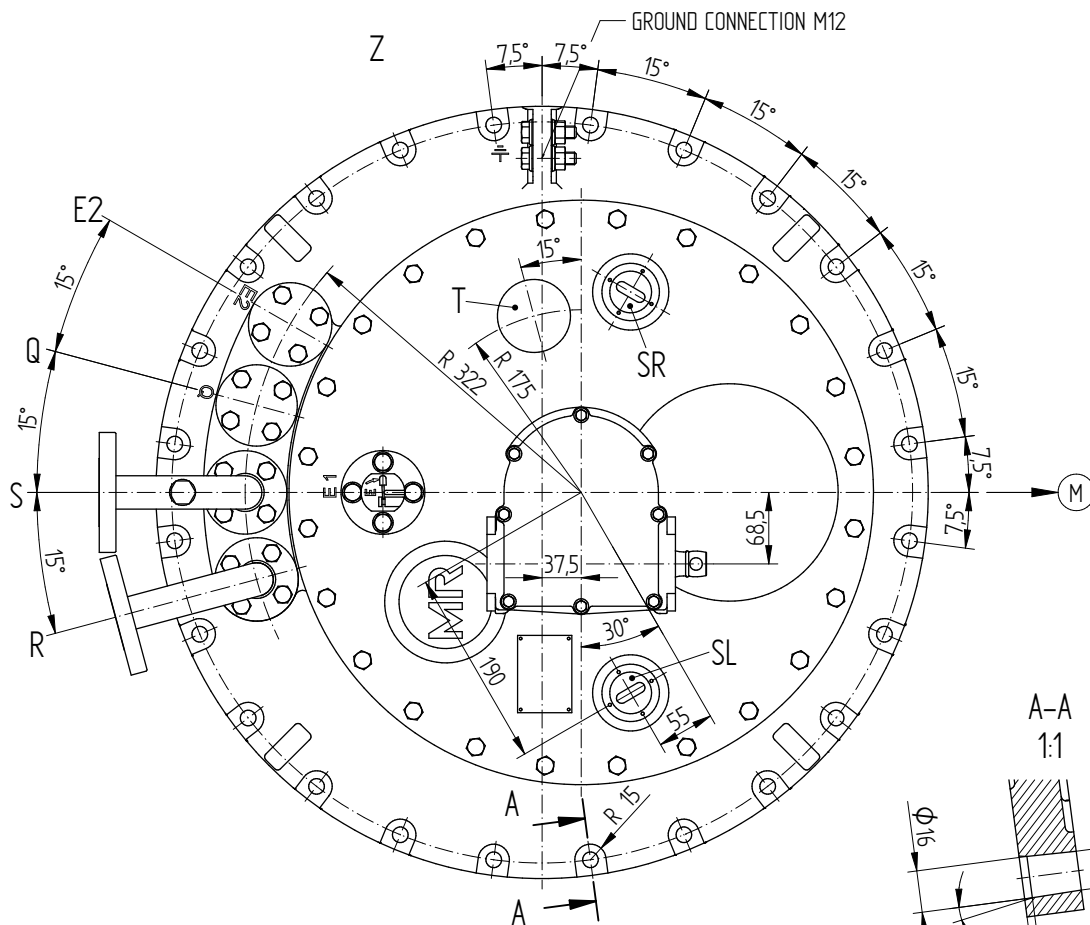
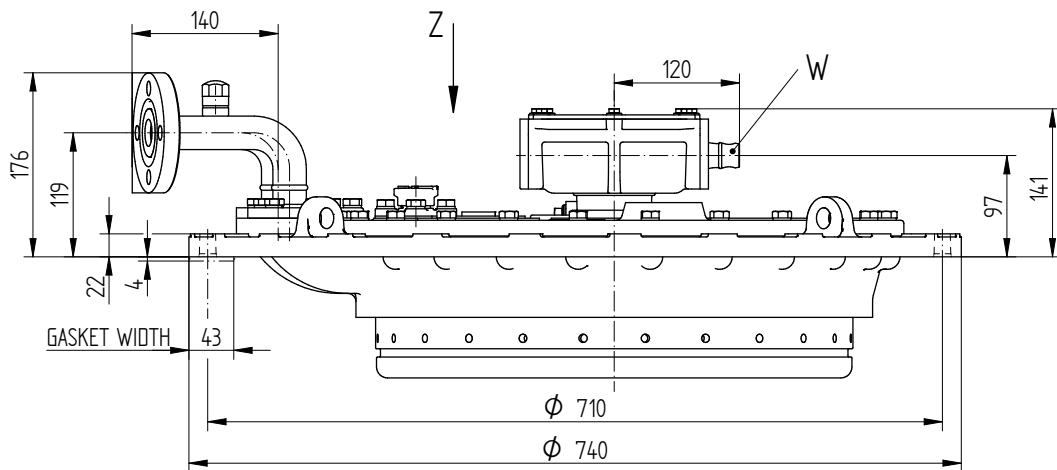
ON-LOAD TAP-CHANGER VACUTAP® VM®
 VM III 300 K - B - 0/W/G
 DIMENSION DRAWING

SERIAL NUMBER

MATERIAL NUMBER 7688512E SHEET 1/1

4.3 Cabeza del cambiador de tomas bajo carga

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- E1 = BLEEDING FACILITY FOR ON-LOAD TAP-CHANGER HEAD
 - E2 = BLEEDING FACILITY FOR SPACE UNDER THE HEAD OUTSIDE
 - THE TAP-CHANGER OIL COMPARTMENT (SAME PIPE CONNECTION AS R, S, Q OR BLEEDER SCREW CAN BE USED)
 - Q = CONNECTION FOR OIL RETURN PIPE OR TAP-CHANGE SUPERVISORY CONTROL
 - S = CONNECTION FOR SUCTION PIPE
 - R = CONNECTION FOR PROTECTIVE RELAY (EXCHANGEABLE WITH CONNECTION Q)
 - T = THERMOMETER BAG / TEMPERATURE SENSOR (OPTIONALLY)
 - SR = INSPECTION WINDOW, RIGHT
 - SL = INSPECTION WINDOW, LEFT
 - W = DRIVE SHAFT
 - (M) DRIVE SIDE OF SELECTOR
- CONNECTIONS SWIVELING
 DIMENSIONS AND SELECTION 899496: / 899497.

DOCUMENT NO.	DATE	NAME	CHANGE NO.	SCALE
SED 1661272 001 04	11.07.2018	BUTERUS		1:2,5
1086956	16.07.2018	WILHELM		
PRODASTSCHUK	16.07.2018			

DIMENSION
 IN mm
 EXCEPT AS
 NOTED

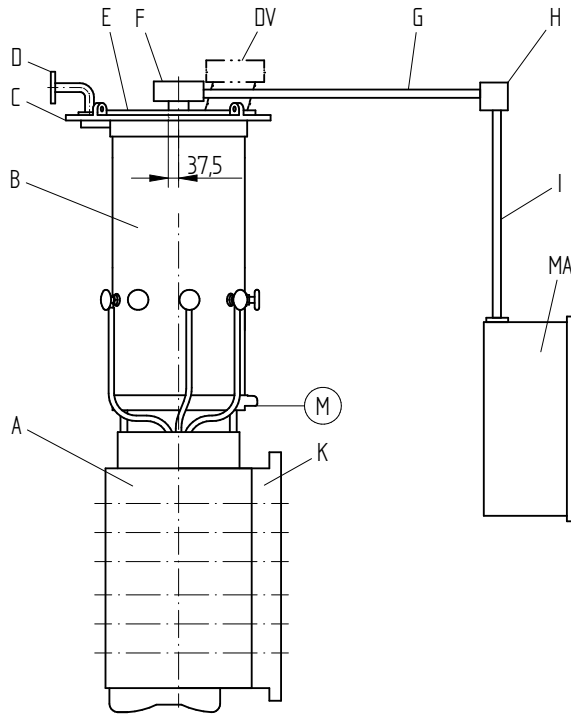


ON-LOAD TAP-CHANGER
 OILTAP® M, MS, R, RM AND VACUTAP® VR®, VM®, VMS®
 ON-LOAD TAP-CHANGER HEAD, CENTRIC DRIVE

SERIAL NUMBER

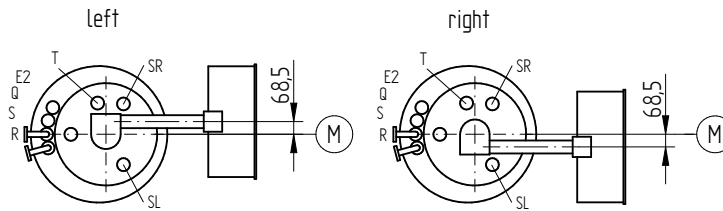
MATERIAL NUMBER
 893899FE

SHEET
 1/1

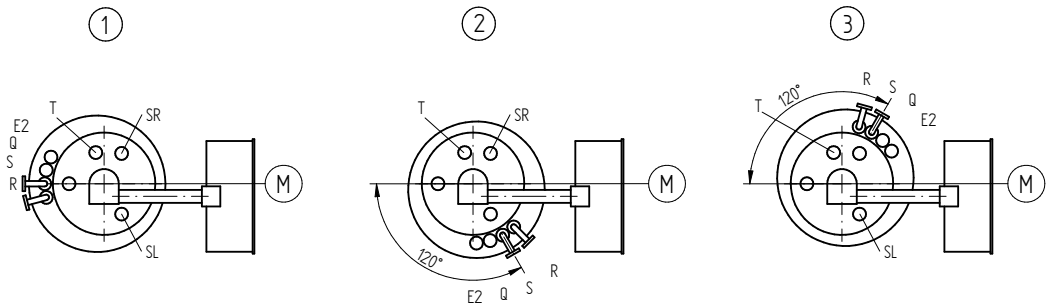


- A = selector
 - K = change-over selector
 - B = diverter switch oil compartment
 - C = on-load tap-changer head
 - D = pipe connections (R, S, Q, E2)
 - DV = pressure relief device
 - E = on-load tap-changer head cover
 - F = upper gear unit
 - G = drive shaft, horizontal
 - H = bevel gear
 - I = drive shaft, vertical
 - MA = motor-drive unit
 - (M) = drive side of selector
 - SR = inspection window on the right
 - SL = inspection window on the left
 - T = temperature sensor
- } represented
version
type M

Position of drive shaft of gear unit



Head variants



Swivel ranges

A considerable number of variants of the on-load tap-changer head are available for adapting the horizontal part of the drive shaft to the transformer tank.

The mounting position of the selector A and diverter switch oil compartment B is determined by the drive side of selector (M).

The on-load tap-changer head C together with its pipe connections D may be turned through 120 degrees clockwise or anti-clockwise. This results in the variants 1, 2 and 3.

The upper gear unit F can be turned continuously on its own axis. Table 720027: Lists the limitation of the swivel range for the particular head variant. The angle specifications refer to the center of rotation of the gear unit. Pay particular attention to the offset of the drive shaft.

DATE	11.07.2018	DOCUMENT NO.	SED 1063796 001 05
DATE	16.07.2018	NAME	BUTERUS
DATE	16.07.2018	NAME	WILHELM
DATE	16.07.2018	NAME	PRODASTSCHUK
CHG. NO.	1086956	SCALE	1

DIMENSION
IN mm
EXCEPT AS
NOTED



ON-LOAD TAP-CHANGER
OILTAP® MS, M, RM, R AND VACUTAP® VR®, VM®, VMS®
VARIANTS OF THE ON-LOAD TAP-CHANGER HEAD

SERIAL NUMBER

MATERIAL NUMBER
7200264E

SHEET
1/1

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DATE	NAME	DOCUMENT NO.
11.07.2018	BUTERUS	SED 1664686 001 04
16.07.2018	WILHELM	CHANGE NO. SCALE
16.07.2018	PRODASTSCHUK	1086956 1

SKETCH	HEAD VERSION COMPONENTS USED	LIMITATION OF THE SWIVEL RANGE
	DRIVE SHAFT RIGHT HEAD VERSION 1	-180° 0° 180°
	PIPE CONNECTION R	-168° 140°
	PIPE CONNECTION S	177°
	PIPE CONNECTION Q	162°
	PIPE CONNECTION E2	147° 174°
	PRESSURE RELIEF DEVICE DV	-150° -35°
	TEMPERATURE SENSOR T	96° 175°
INSPECTION WINDOW SL / SR	-64° SL -8° 56° SR 112°	
	DRIVE SHAFT RIGHT HEAD VERSION 2	-180° 0° 180°
	PIPE CONNECTION R	-48° -21°
	PIPE CONNECTION S	-63° -36°
	PIPE CONNECTION Q	-78° -51°
	PIPE CONNECTION E2	-93° -66°
	PRESSURE RELIEF DEVICE DV	-150° -35°
	TEMPERATURE SENSOR T	96° 175°
INSPECTION WINDOW SR	56° SR 112°	
	DRIVE SHAFT RIGHT HEAD VERSION 3	-180° 0° 180°
	PIPE CONNECTION R	72° 99°
	PIPE CONNECTION S	57° 84°
	PIPE CONNECTION Q	42° 69°
	PIPE CONNECTION E2	27° 54°
	PRESSURE RELIEF DEVICE DV	-150° -35°
	TEMPERATURE SENSOR T	96° 175°
INSPECTION WINDOW SL	-64° SL -8°	
	DRIVE SHAFT LEFT HEAD VERSION 1	-180° 0° 180°
	PIPE CONNECTION R	-162° 171°
	PIPE CONNECTION S	156°
	PIPE CONNECTION Q	141° 168°
	PIPE CONNECTION E2	126° 153°
	PRESSURE RELIEF DEVICE DV	35° 150°
	TEMPERATURE SENSOR T	34° 114°
INSPECTION WINDOW SL / SR	-112° SL -56° 8° SR 64°	
	DRIVE SHAFT LEFT HEAD VERSION 2	-180° 0° 180°
	PIPE CONNECTION R	-69° -42°
	PIPE CONNECTION S	-84° -57°
	PIPE CONNECTION Q	-99° -72°
	PIPE CONNECTION E2	-114° -87°
	PRESSURE RELIEF DEVICE DV	35° 150°
	TEMPERATURE SENSOR T	34° 114°
INSPECTION WINDOW SR	8° SR 64°	
	DRIVE SHAFT LEFT HEAD VERSION 3	-180° 0° 180°
	PIPE CONNECTION R	50° 78°
	PIPE CONNECTION S	35° 62°
	PIPE CONNECTION Q	21° 48°
	PIPE CONNECTION E2	6° 33°
	PRESSURE RELIEF DEVICE DV	35° 150°
	TEMPERATURE SENSOR T	34° 114°
INSPECTION WINDOW SL	-112° SL -56°	

- LIMITATION OF THE SWIVEL RANGE THROUGH PIPE CONNECTIONS R AND S
- LIMITATION OF THE SWIVEL RANGE THROUGH OPTIONAL EXISTING PIPE CONNECTIONS Q, E2 AND PRESSURE RELIEF DEVICE DV
- SWIVEL RANGE POSSIBLE, BUT THE TEMPERATURE SENSOR T AND THE INSPECTION WINDOW SL / SR ARE NOT VISIBLE

DIMENSION
IN mm
EXCEPT AS
NOTED

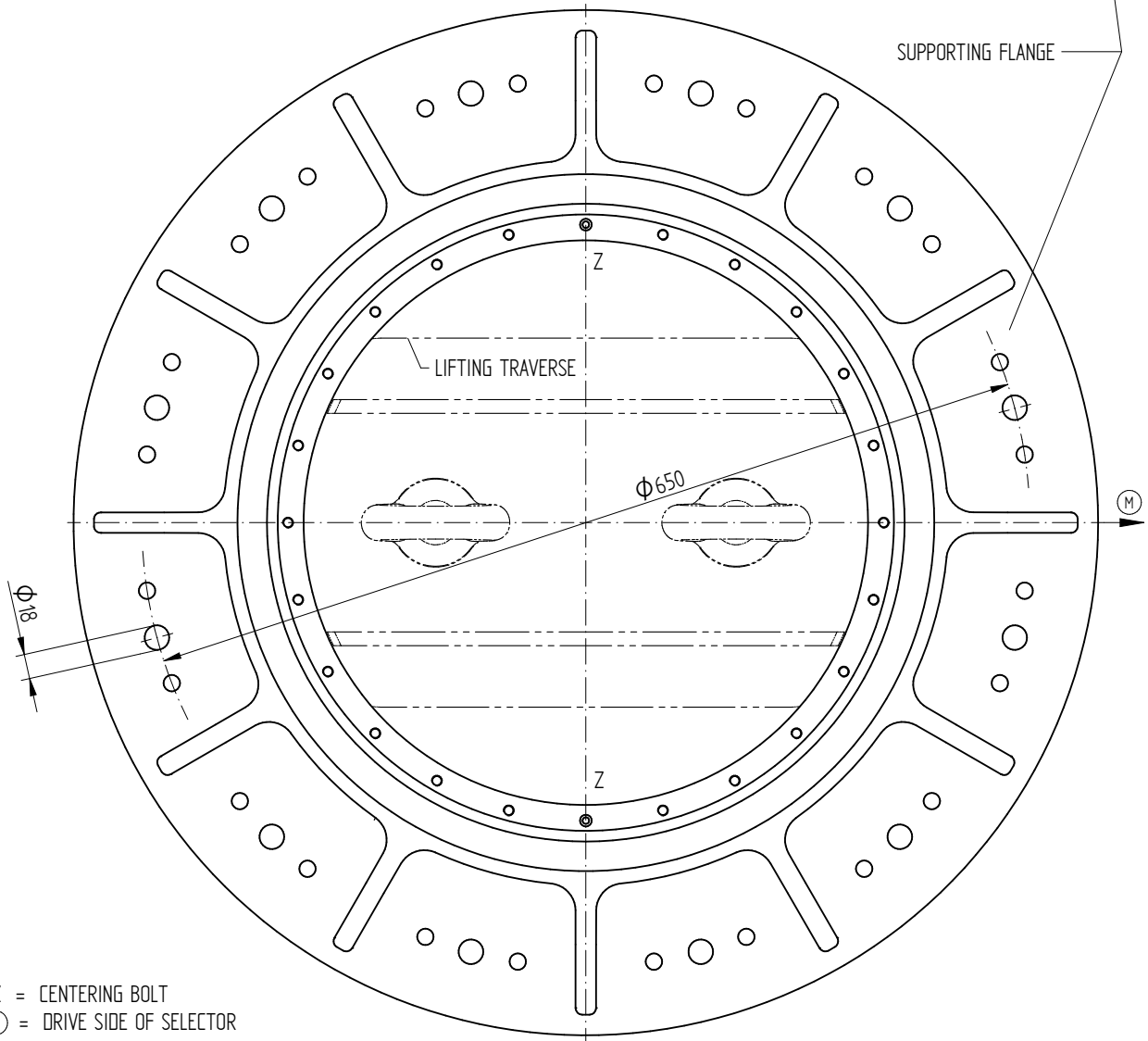
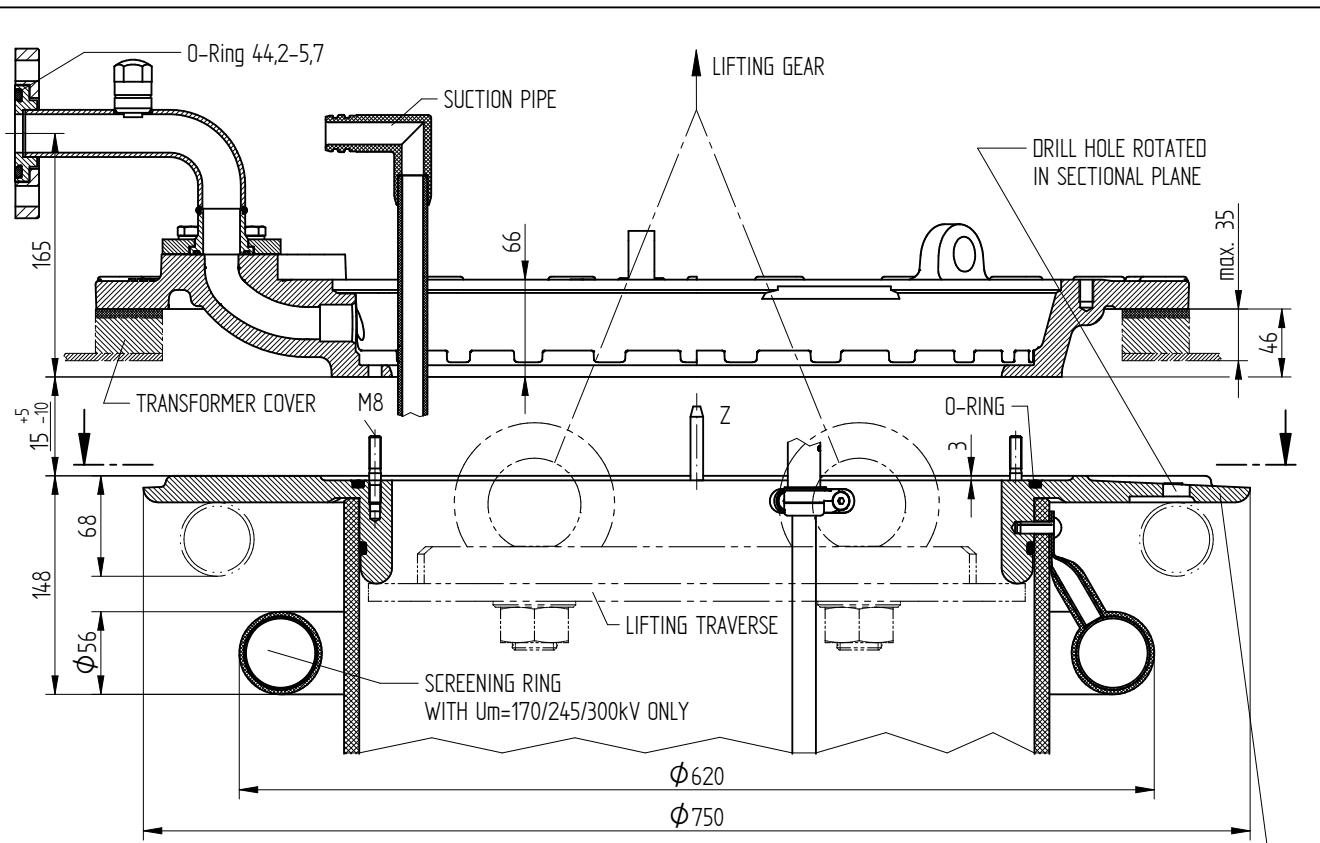


ON-LOAD TAP-CHANGER
 OILTAP® MS, M, RM, R AND VACUTAP® VR®, VM®, VMS®
 SWIVEL RANGE OF THE GEAR UNIT

SERIAL NUMBER

MATERIAL NUMBER	SHEET
7200276E	1/1

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Z = CENTERING BOLT
 M = DRIVE SIDE OF SELECTOR

DATE	NAME	DOCUMENT NO.
13.07.2018	BUTERUS	SED 1507378 000 04
16.07.2018	WILHELM	CHANGE NO.
16.07.2018	PRODASTSCHUK	1086956
		SCALE
		1:2,5

DIMENSION
 IN mm
 EXCEPT AS
 NOTED

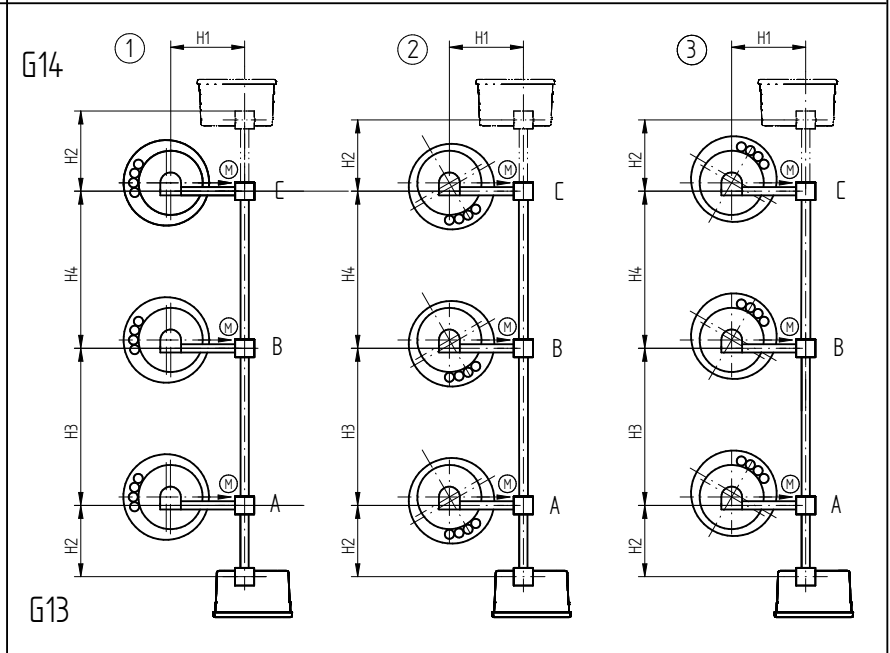
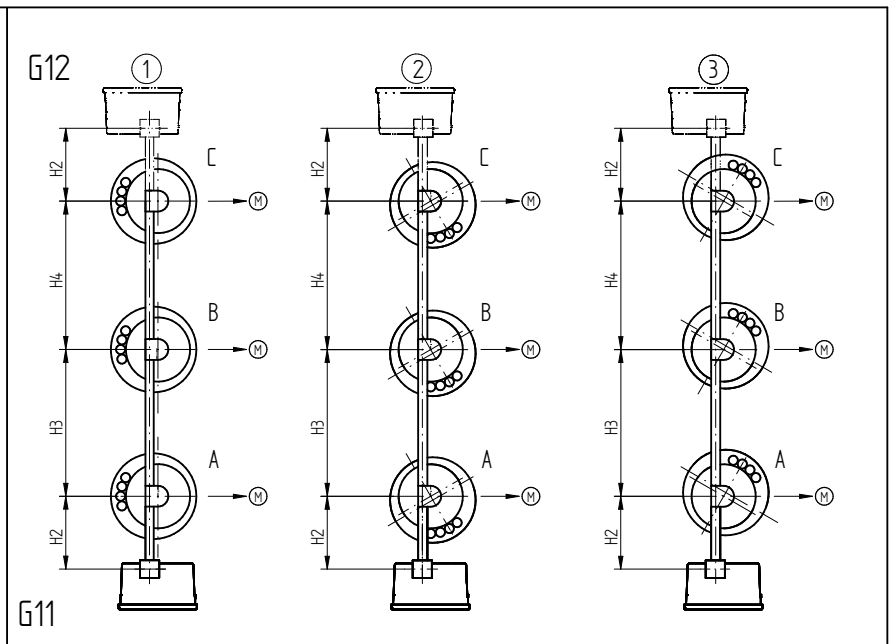
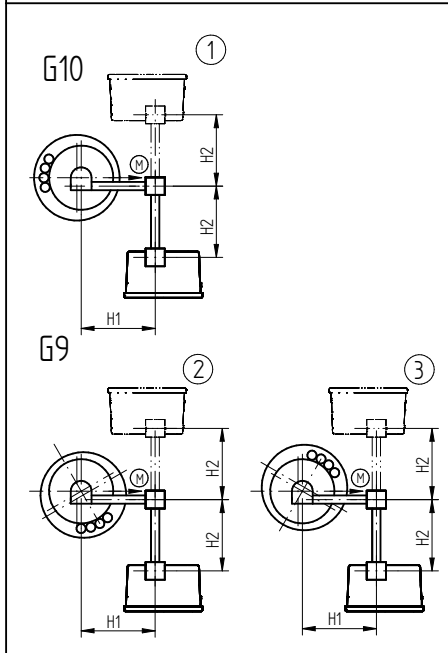
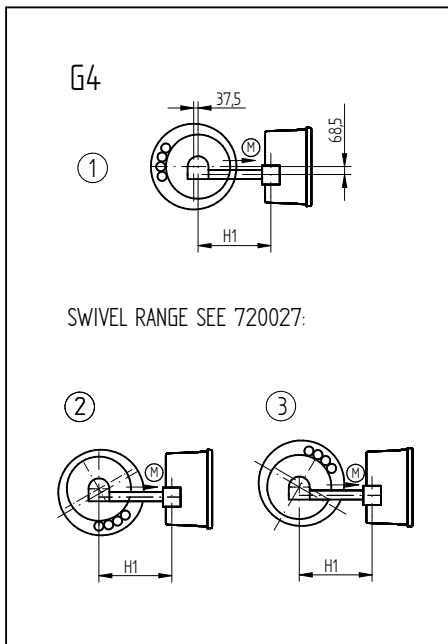


ON-LOAD TAP-CHANGER
 OILTAP® M, R, RM, MS AND VACUTAP® VM®, VMS®
 SPECIAL DESIGN BELL-TYPE TANK INSTALLATION FOR Um UP TO 300 kV

SERIAL NUMBER	
MATERIAL NUMBER	SHEET
896762CE	1/1

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DATE	NAME	DOCUMENT NO.
13.07.2018	BUTERUS	SED 1706827 001 05
16.07.2018	WILHELM	CHANGE NO.
16.07.2018	PRODASTSCHUK	1086956
CHKO.	SCALE	1



ARRANGEMENT	G4	G9, G10	G11, G12	G13, G14	
STANDARD DESIGN	■		■		
SPECIAL DESIGN		■		■	
MINIMUM DIMENSIONS ¹⁾ (DETERMINED FOR MECHANICAL REASONS; NECESSARY INSULATION SPACINGS NOT CONSIDERED!)	H1	535	545	-	545
	H2	-	323	515	323
	H3 ²⁾	-	-	840	840
	H4 ²⁾	-	-	840	840
NOTE: 1) FOR OLTCs WITH THE CHANGE-OVER SELECTOR ATTACHED Laterally, THE DIMENSIONS OF THE CHANGE-OVER SELECTOR AFTER INSTALLED IN POSITION HAVE TO BE TAKEN INTO ACCOUNT (SEE THE CORRESPONDING OLTC-DIMENSION DRAWING) 2) IN GENERAL DETERMINED BY THE INSULATION SPACING BETWEEN POLES A, B, C.					
INTERMEDIATE BEARING FOR	H1 >	2254	2309	-	2309
	H2 >	-	2259	2254	2259
	H3 >	-	-	2249	2259
	H4 >	-	-	2249	2259

① ② ③ - HEAD VERSION
 → (M) - DRIVE SIDE OF SELECTOR

DIMENSION IN mm EXCEPT AS NOTED



OLTC OILTAP® M, MS, RM, R / VACUTAP® VR®, VM®, VMS®
 HORIZONTAL DRIVE SHAFT, CENTRIC DRIVE (LIMIT DIMENSIONS)
 SELECTOR SIZE B/C/D/RC/RD/RDE

SERIAL NUMBER

MATERIAL NUMBER 893896DE
 SHEET 1/1

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DFTR.	DATE	NAME	DOCUMENT NO.
CHKD.	11.07.2018	BUTERUS	SED 1661250 001 03
STAND.	16.07.2018	WILHELM	CHANGE NO.
	16.07.2018	PRODASTSCHUK	1086956
			SCALE
			1:2,5

DIMENSION
 IN mm
 EXCEPT AS
 NOTED

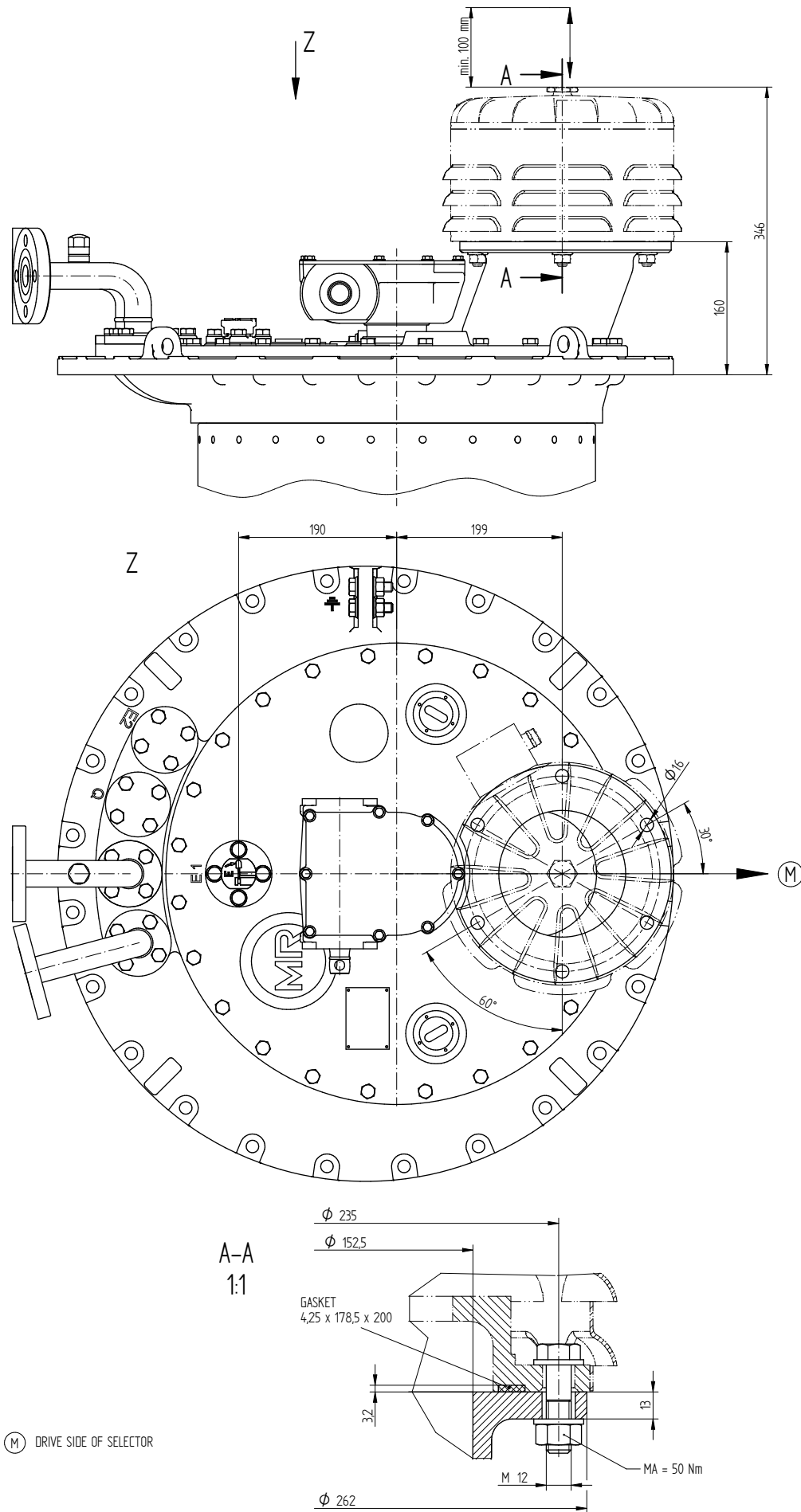


ON-LOAD TAP-CHANGER
 OILTAP® M, MS, R, RM AND VACUTAP® VR®, VM®, VMS®
 WITH MOUNTING FLANGE FOR PRESSURE RELIEF DEVICE

SERIAL NUMBER

MATERIAL NUMBER
 8951689E

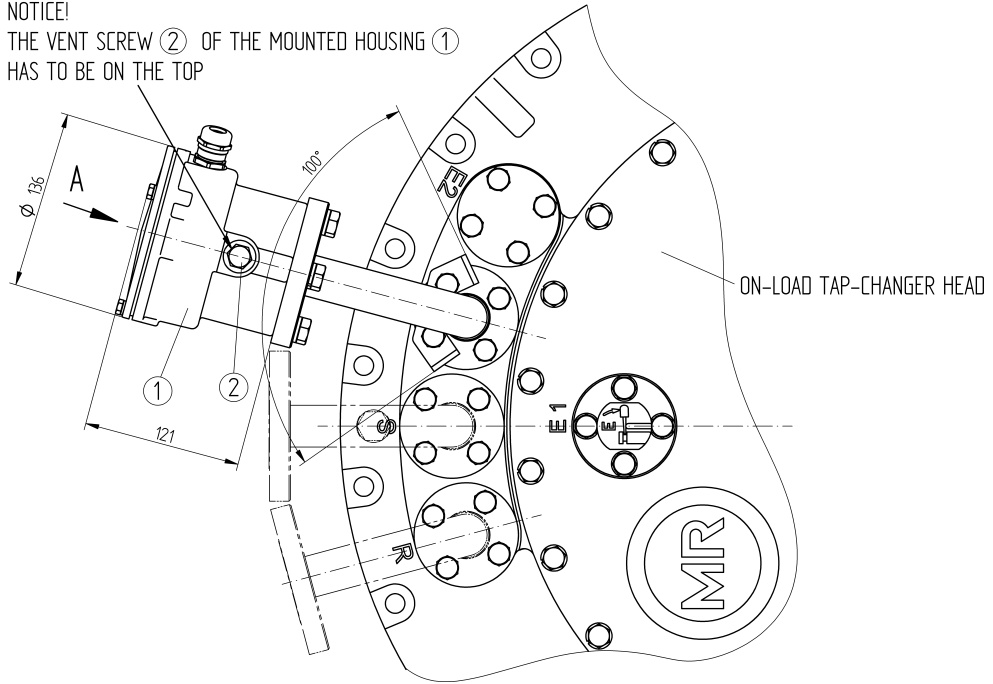
SHEET
 1/1



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PIPE CONNECTION WITH TAP-CHANGE SUPERVISORY CONTROL BUSHING WITHOUT OIL FILTER UNIT

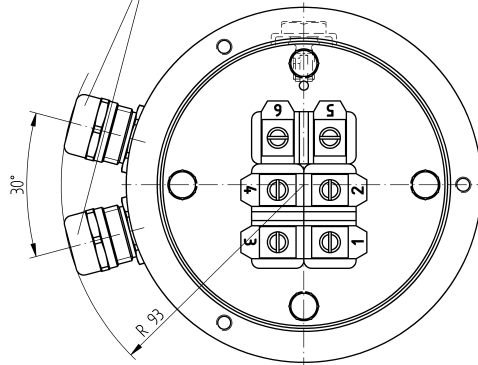
NOTICE!
 THE VENT SCREW ② OF THE MOUNTED HOUSING ① HAS TO BE ON THE TOP



A ↻ 1:1

REPRESENTED WITHOUT COVER

M20x1.5
 CLAMPING RANGE FOR CONNECTION CABLE:
 EXTERNAL DIAMETER: 7 - 13 mm



CONNECTION TERMINALS FOR TAP-CHANGE SUPERVISORY CONTROL

WIRING SEE CONNECTION DIAGRAM OF THE MOTOR-DRIVE UNIT

FUNCTION DIAGRAM FOR TAP-CHANGE SUPERVISORY CONTROL SEE MOTOR-DRIVE CONNECTION DIAGRAM

RATED CONTINUOUS CURRENT: 2A
 RATED VOLTAGE DC/AC (50HZ): 24V ... 250V
 DIELECTRIC STRENGTH: 1150V / 50HZ / 1 MIN.

DIELECTRIC TEST OF ALL VOLTAGE CARRYING TERMINALS TO GROUND:
 2000V AC , 50HZ , TEST-DURATION 1 MIN.

DATE	NAME	DOCUMENT NO.
03.11.2016	RAEDLINGER	SED 2425358 001 02
CHKD.	NERRETER	CHANGE NO.
04.11.2016	PRODASTSCHUK	1078202
STAND.		1:2

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER VACUTAP® VM, VR
 PIPE CONNECTION WITH TAP-CHANGE SUPERVISORY CONTROL

SERIAL NUMBER

MATERIAL NUMBER
 7661612E

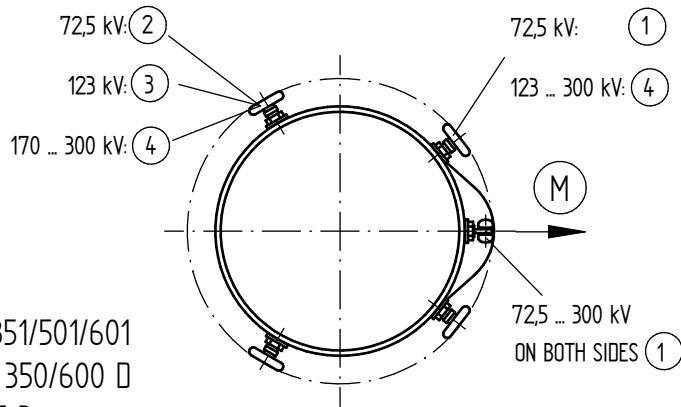
SHEET
 1/1

4.4 recipiente de aceite

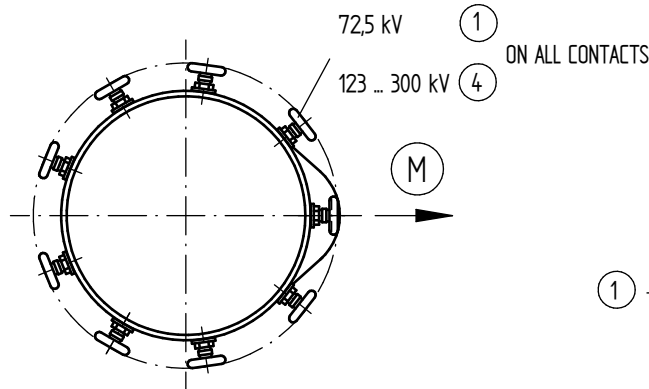
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DATE	DOCUMENT NO.
13.07.2018	SED 1668294_001 02
NAME	SCALE
BUTERUS	-
WILHELM	CHANGE NO.
PRODASTSCHUK	1086956
DATE	DOCUMENT NO.
16.07.2018	SED 1668294_001 02
NAME	SCALE
BUTERUS	-
WILHELM	CHANGE NO.
PRODASTSCHUK	1086956

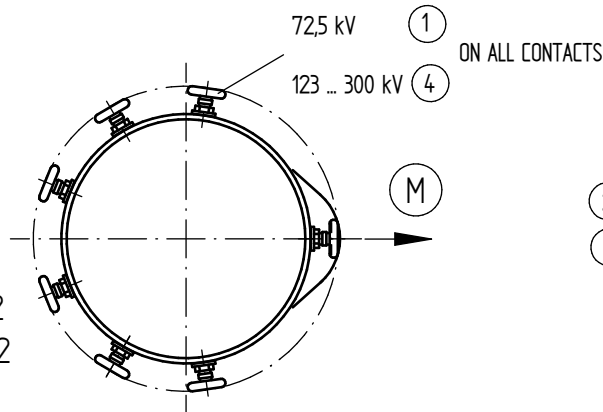
MI 351/501/601
 MIII 350/600 D
 POLE B
 VMI 351/501/651



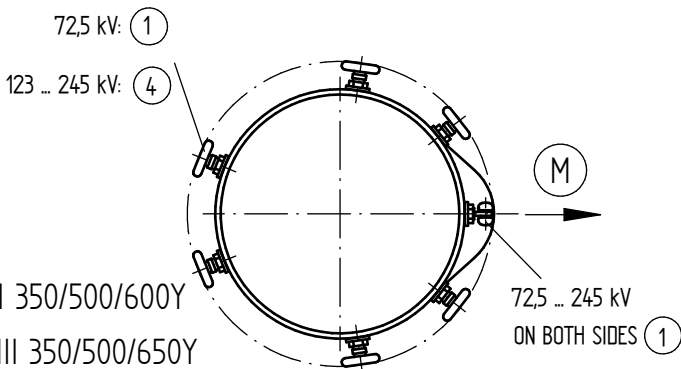
MI 603/803
 MI 1203/1503



VMI 653/803
 VMI 1203/1503

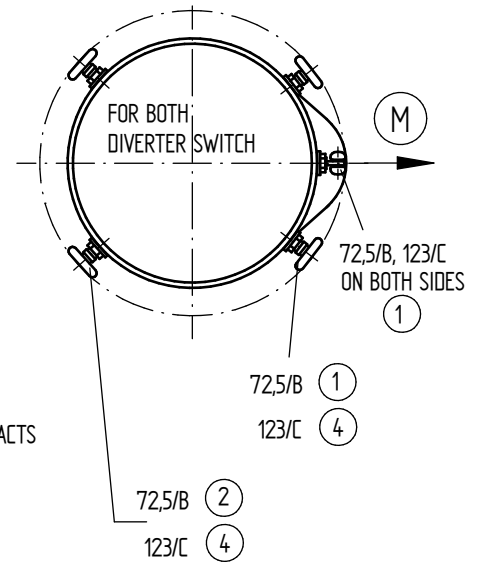


MI 502/602/802
 MII 352/502/602
 VMI 502/652/802
 VMII 352/502/652

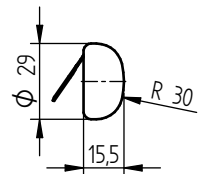


MIII 350/500/600Y
 VMIII 350/500/650Y
 VMSIII 400/650Y

MIII 350/500 D POLE A
 VMIII 350/500 D POLE A

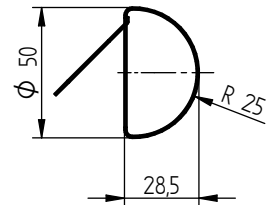


(1) - 056919 (UNCOATED)

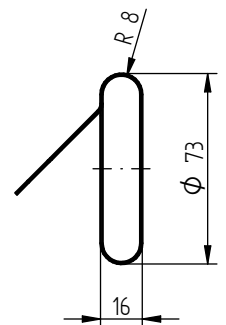
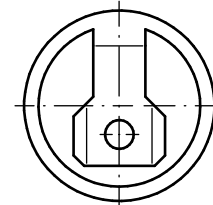


(2) - 016768 (UNCOATED)

(3) - 067620 (COATED)



(4) - 066845 (COATED)



WITH THE CURRENT TAKE-OFF RINGS SCREENING CAPS (1) ARE USED TO ATTACH THE LOWER SCREENING RING (170 ... 300 kV)

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER OILTAP® M / VACUTAP® VM®, VMS®
 SCREENINGS ON OIL COMPARTMENT TERMINALS

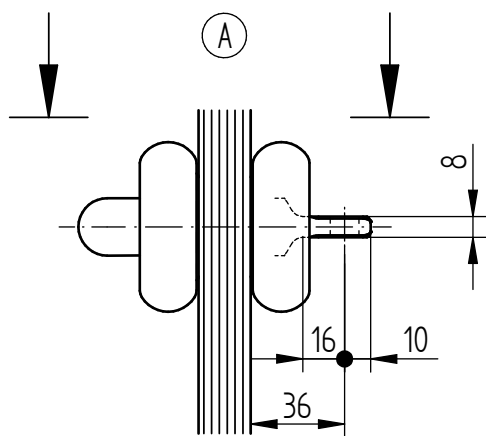
SERIAL NUMBER

MATERIAL NUMBER
 7303362E

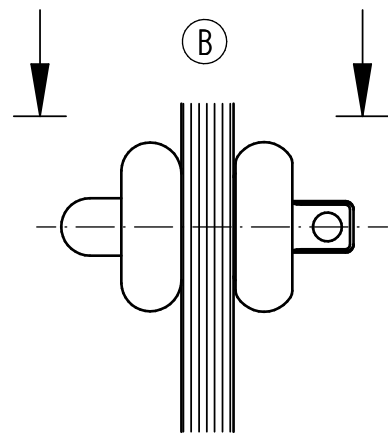
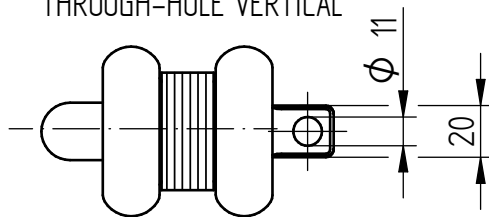
SHEET
 1 / 1

4.5 Selector

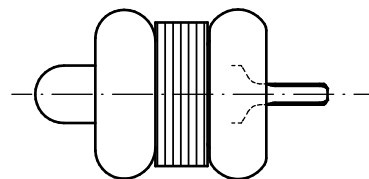
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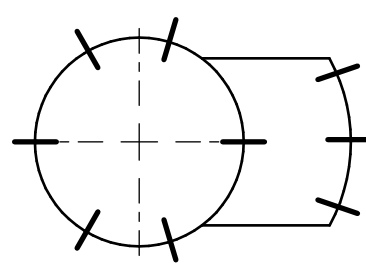
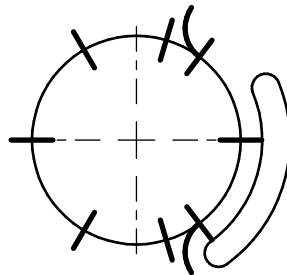
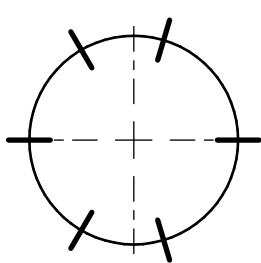
THROUGH-HOLE VERTICAL



THROUGH-HOLE HORIZONTAL



(A)

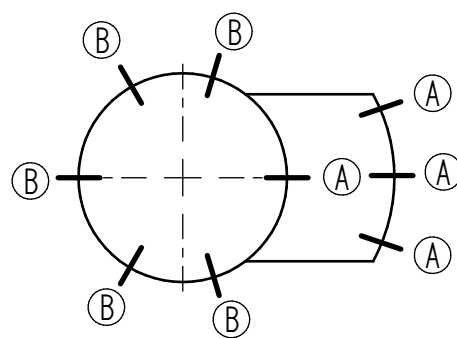
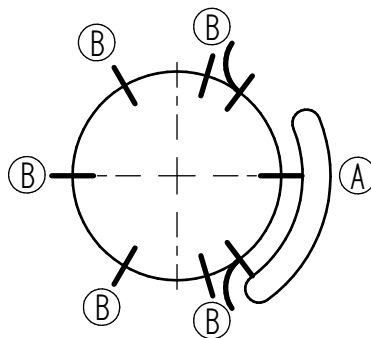
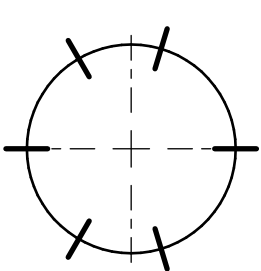


- M III 350 / 500 / 600Y - 0
- VM III 350 / 500 / 650Y - 0
- VMS III 400 / 650Y - C - 0
- M II 352 / 502 / 602 - 0
- VM II 352 / 502 / 652 - 0
- M I 351 / 501 / 601 - 0
- VM I 351 / 501 / 651 - 0

- M III 350 / 500 / 600Y - W
- VM III 350 / 500 / 650Y - W
- VMS III 400 / 650Y - C - W
- M II 352 / 502 / 602 - W
- VM II 352 / 502 / 652 - W
- M I 351 / 501 / 601 - W
- VM I 351 / 501 / 651 - W

- M III 350 / 500 / 600Y - G
- VM III 350 / 500 / 650Y - G
- VMS III 400 / 650Y - C - G
- M II 352 / 502 / 602 - G
- VM II 352 / 502 / 652 - G
- M I 351 / 501 / 601 - G
- VM I 351 / 501 / 651 - G

(B)



- M I 802 - 0
- VM I 802 - 0
- VM I 1002 - 0
- M I 1203 / 1503 - 0
- VM I 1203 / 1503 - 0

- M I 802 - W
- VM I 802 - W
- VM I 1002 - W
- M I 1203 / 1503 - W
- VM I 1203 / 1503 - W

- M I 802 - G
- VM I 802 - G
- VM I 1002 - G
- M I 1203 / 1503 - G
- VM I 1203 / 1503 - G

(A) + (B)

DATE	NAME	DOCUMENT NO.
13.07.2018	BUJERUS	SED 1706800 000 03
16.07.2018	WILHELM	CHANGE NO.
16.07.2018	PRODASTSCHUK	1086956
SCALE		1:2

DIMENSION
IN mm
EXCEPT AS
NOTED



OLTC OILTAP® M / VACUTAP® VM®, VMS®-C
 INSTALLATION POSITION OF SELECTOR CONNECTION CONTACTS
 M-SELECTOR SIZE B/C/D/E

SERIAL NUMBER

MATERIAL NUMBER
890477BE

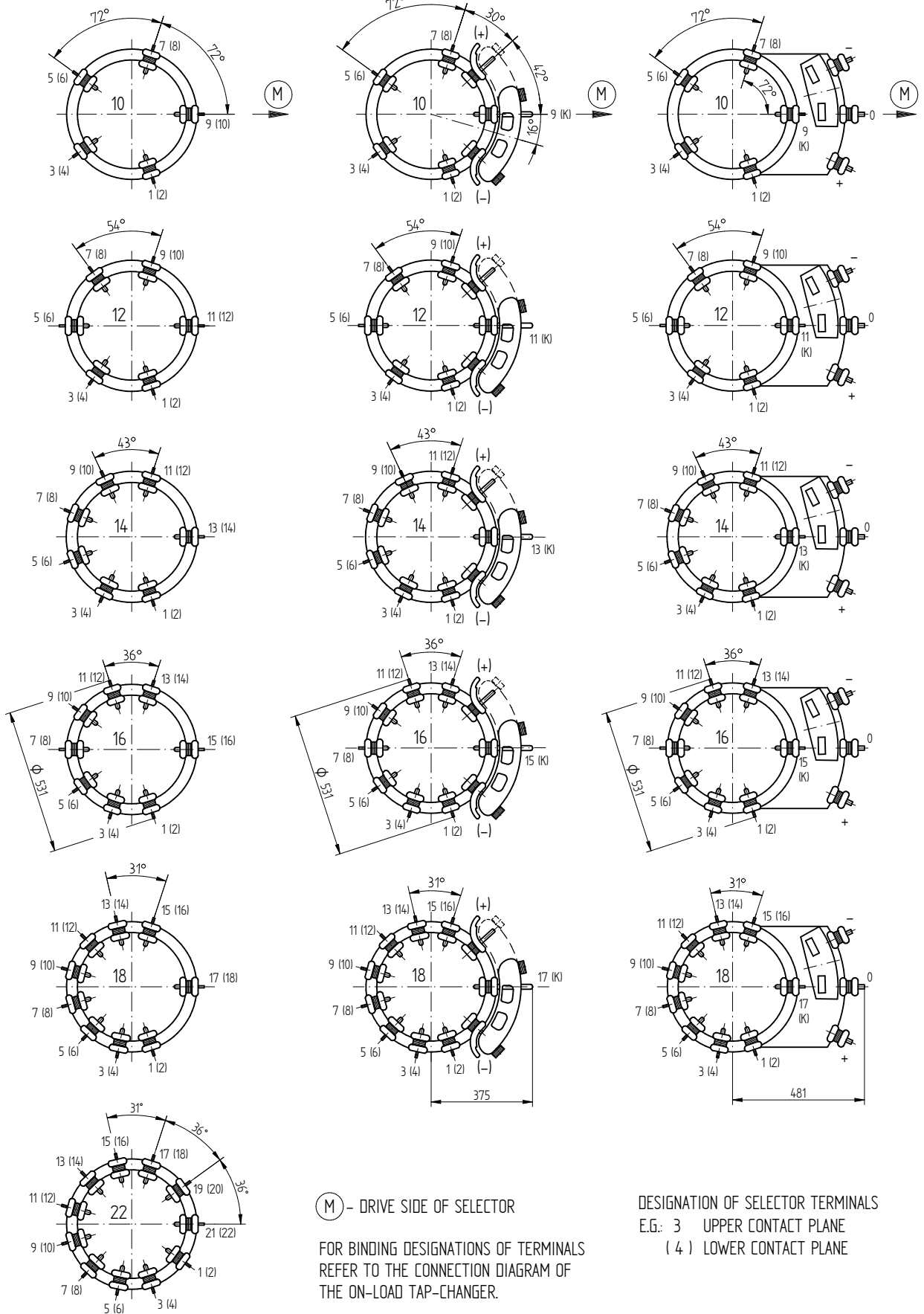
SHEET
1 / 1

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SELECTOR WITHOUT CHANGE-OVER SELECTOR:

SELECTOR WITH REVERSING CHANGE-OVER SELECTOR:
 REPRESENTATION APPLIES TO TYPES M/ VM®/ VMS®-C/ VRC/ VRE III Y AND M/ VM®/ VRC/ VRE II.
 THE UPPER AND LOWER SELECTOR PLANE ARE INTERCHANGED IN TYPES M/ VM®/ VRC/ VRE I AND VRC I HD/ VRE I HD.

SELECTOR WITH COARSE CHANGE-OVER SELECTOR:



(M) - DRIVE SIDE OF SELECTOR

FOR BINDING DESIGNATIONS OF TERMINALS
 REFER TO THE CONNECTION DIAGRAM OF
 THE ON-LOAD TAP-CHANGER.

DESIGNATION OF SELECTOR TERMINALS
 E.G.: 3 UPPER CONTACT PLANE
 (4) LOWER CONTACT PLANE

DATE	13.07.2018	DOCUMENT NO.	1050444 001 05
DFTR.	BUTERUS	NAME	SED
CHKD.	16.07.2018	WILHELM	CHANGE NO.
STAND.	16.07.2018	PRODASTSCHUK	1086956
		SCALE	1:10

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



OLTC OILTAP® M / VACUTAP® VM®, VMS®-C, VRC, VRE
 ARRANGEMENT OF CONTACTS AT SELECTOR
 M-SELECTOR SIZE B/C/D/DE - SELECTOR PITCH 10 ... 22

SERIAL NUMBER

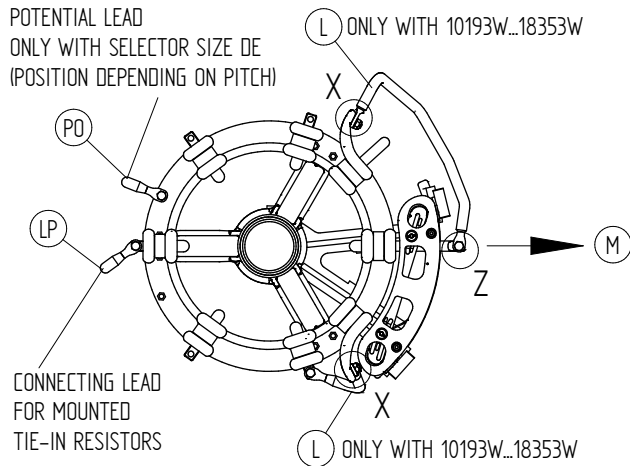
MATERIAL NUMBER
 8980136E

SHEET
 1/1

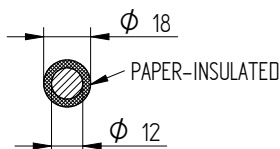
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REVERSING CHANGE-OVER SELECTOR

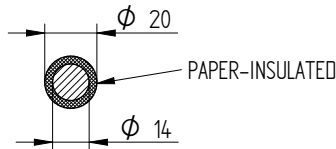
REPRESENTATION OF SELECTOR, 12-PITCH



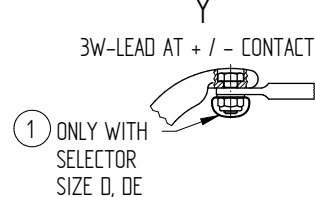
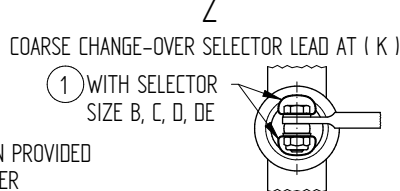
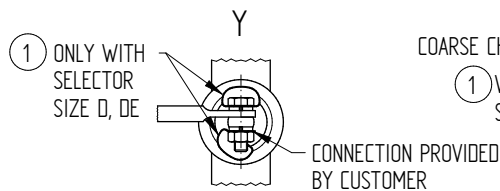
LEAD PROFILE (LP)



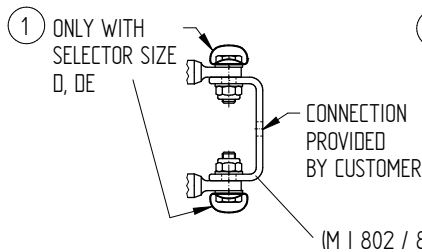
LEAD PROFILE (PO), (L) ONLY WITH SELECTOR SIZE DE



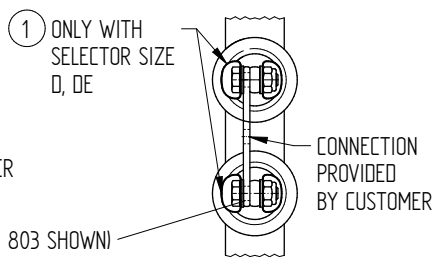
LEAD PROFILE (L) WITH SELECTOR SIZE B, C, D



PARALLEL BRIDGES ARRANGEMENT OF CONTACTS A



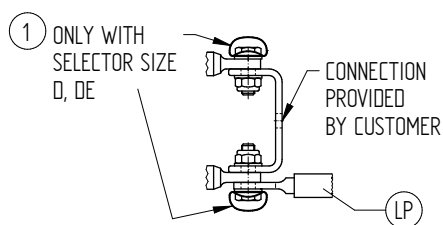
PARALLEL BRIDGES ARRANGEMENT OF CONTACTS B



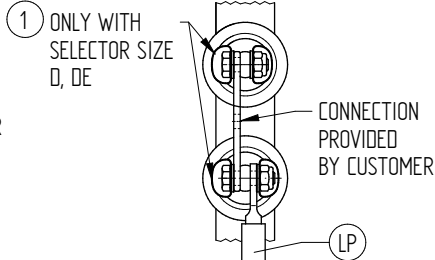
PARALLEL BRIDGES AT + / - CONTACT (WITH REVERSING CHANGE-OVER SELECTOR)



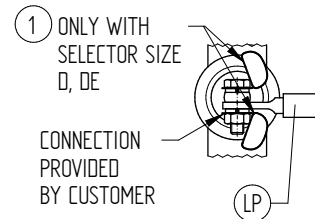
PARALLEL BRIDGES ARRANGEMENT OF CONTACTS A WITH (LP)



PARALLEL BRIDGES ARRANGEMENT OF CONTACTS B WITH (LP)



CONNECTION CONTACT (STANDARD) WITH (LP)



(M) DRIVE SIDE OF SELECTOR
 (LP) (PO) (L) CONNECTING LEADS

NOTICE: WITH SELECTOR SIZE D AND DE SCREENING CAPS 1 ARE UNMOUNTED DELIVERED TO ATTACH THE LEADS, PROVIDED BY CUSTOMER, TO THE TAPINGS OF THE TAP WINDING.

DOCUMENT NO.	DATE	NAME	CHANGE NO.	SCALE
1668279 001 03	13.07.2018	BUTERUS		
1086956	16.07.2018	WILHELM		
	16.07.2018	PRODASTSCHUK		

DIMENSION IN mm EXCEPT AS NOTED



OLTC OILTAP® M, RM / VACUTAP® VRC/VRE, VM®, VMS®-C
 SCREENINGS AT TAP SELECTOR AND CHANGE-OVER SELECTOR
 M-SELECTOR SIZE B/C/D/DE

SERIAL NUMBER

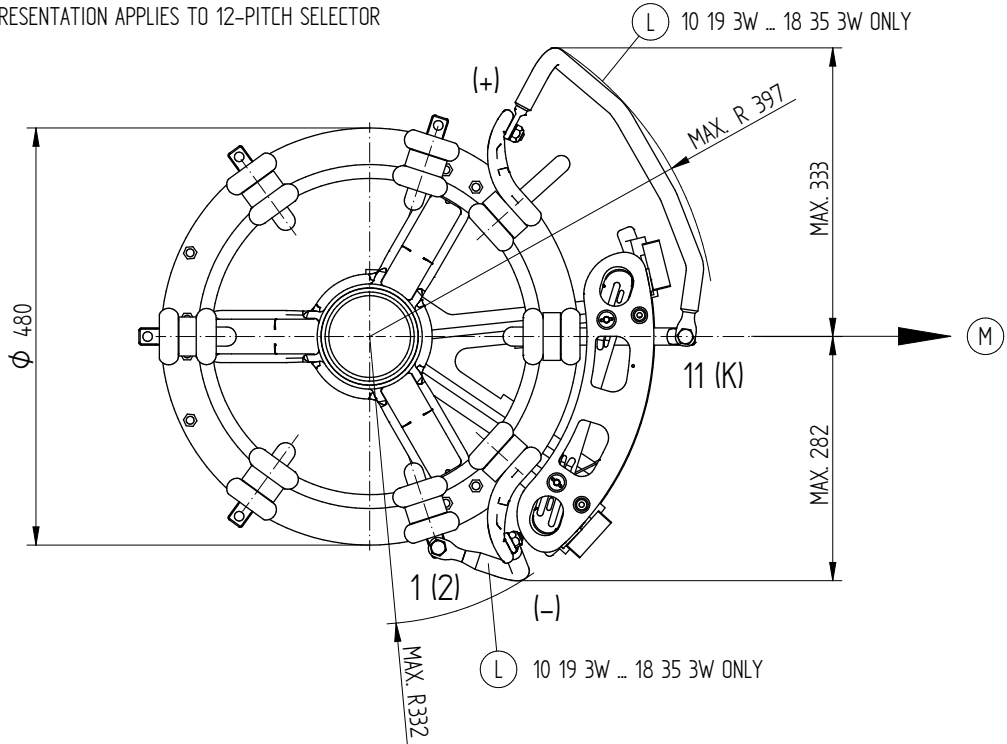
MATERIAL NUMBER 7303353E SHEET 1/1

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DATE	NAME	DOCUMENT NO.
DFTR. 13.07.2018	BUTERUS	SED 1474939 000 06
CHKD. 16.07.2018	WILHELM	CHANGE NO.
STAND. 16.07.2018	PRODASTSCHUK	1086956
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		1:3

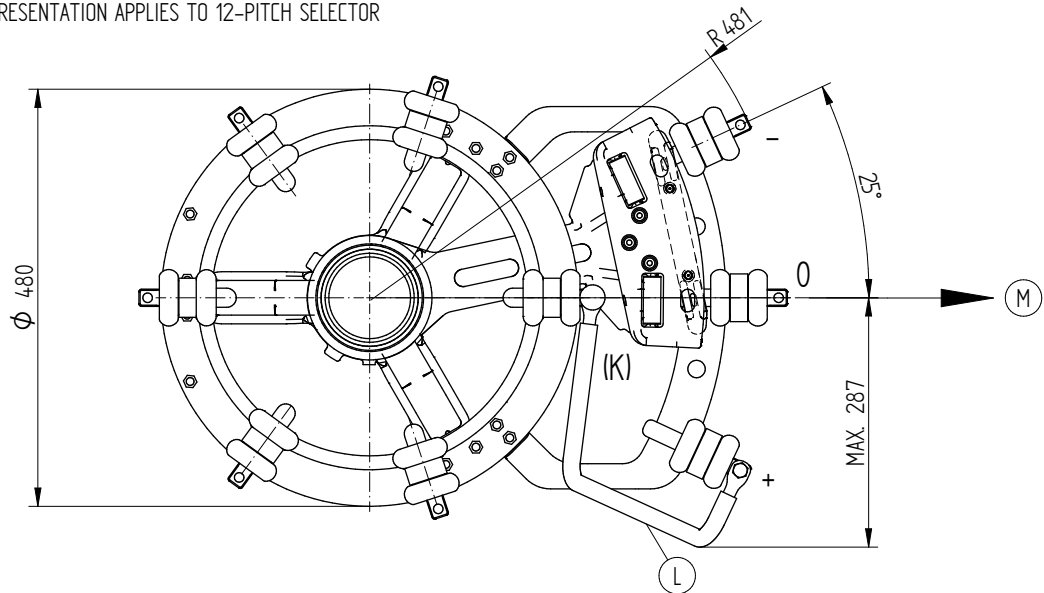
REVERSING CHANGE-OVER SELECTOR

E - F (TYPE M / VM / VMS-C) AND D - D (TYPE VRC / VRE / VRC I HD / VRE I HD / VRS / VRM)
 REPRESENTATION APPLIES TO 12-PITCH SELECTOR



COARSE CHANGE-OVER SELECTOR

G - H (TYPE M / VM / VMS-C) AND E - E (TYPE VRC / VRE / VRC I HD / VRE I HD / VRS / VRM)
 REPRESENTATION APPLIES TO 12-PITCH SELECTOR

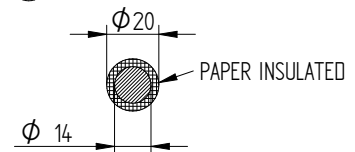
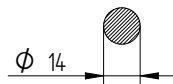


(L) SELECTOR SIZE B, C, D

(L) SELECTOR SIZE DE

(M) DRIVE SIDE OF SELECTOR

(L) CONNECTING LEADS



THE DETAILED CONNECTION DIAGRAM IS BINDING FOR THE DESIGNATION OF THE CONNECTION CONTACTS

DIMENSION
IN mm
EXCEPT AS
NOTED



OLT C OILTAP® M / VACUTAP® VM®, VMS®-C, VRC, VRE, VRS, VRM
 CONNECTING LEAD 3W AND 1G / 3G
 M-SELECTOR SIZE B/C/D/DE

SERIAL NUMBER

MATERIAL NUMBER
7235904E

SHEET
1/1

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DATE	NAME	DOCUMENT NO.
19.08.2015	RAEDLINGER	SED 26/13347_001 01
21.08.2015	TKBIRKMANN	CHANGE NO.
24.08.2015	KLEYN	1066507
		SCALE
		-

DIMENSION
 IN mm
 EXCEPT AS
 NOTED

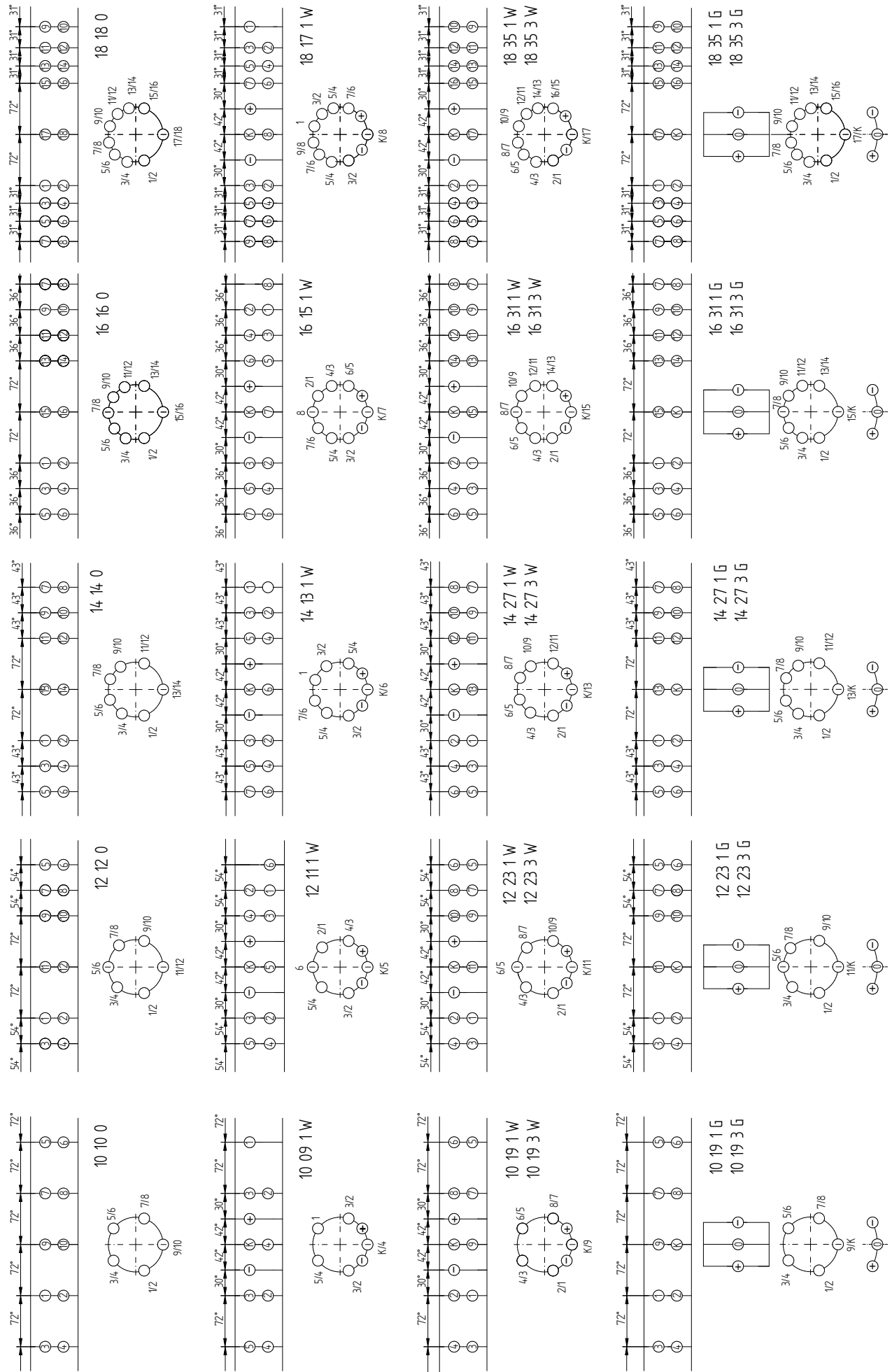


OLTC OILTAP® M | 351/501/601, RM | 601
 OLTC VACUTAP® VM | 351/501/651, VRC | 401/551/701, VRE | 701
 CONTACT ARRANGEMENT ON SELECTOR FOR SELECTOR SIZE B,C,D,DE

SERIAL NUMBER

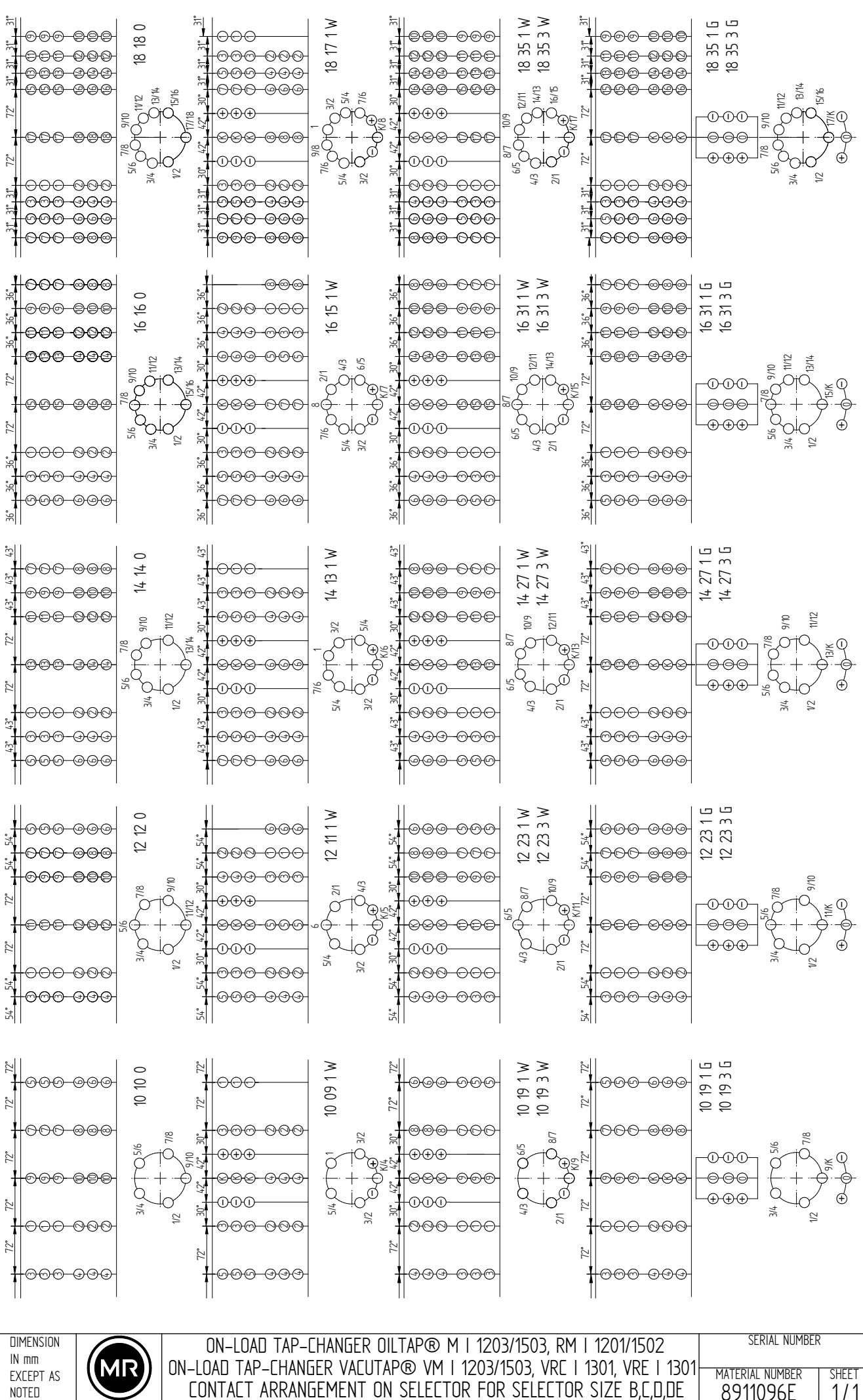
MATERIAL NUMBER
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SHEET
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DFTR.	19.08.2015	NAME	DOCUMENT NO.
CHKD.	21.08.2015	RAEDLINGER	SED 26/15953 001 01
STAND.	24.08.2015	TKBIRKMANN	CHANGE NO.
		KLEYN	1066507
			SCALE
			-



DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER OILTAP® M | 1203/1503, RM | 1201/1502
 ON-LOAD TAP-CHANGER VACUTAP® VM | 1203/1503, VRC | 1301, VRE | 1301
 CONTACT ARRANGEMENT ON SELECTOR FOR SELECTOR SIZE B,C,D,DE

SERIAL NUMBER	
MATERIAL NUMBER	SHEET
8911096E	1/1

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DATE	NAME	DOCUMENT NO.
DfTR. 13.07.2018	BUTERUS	SED 261976 001 02
CHKD. 16.07.2018	WILHELM	CHANGE NO.
SCALE		
STANDJ. 16.07.2018	PRODASTSCHUK	1086956

DIMENSION
IN mm
EXCEPT AS
NOTED

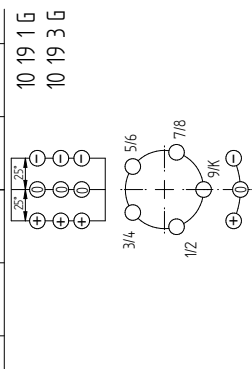
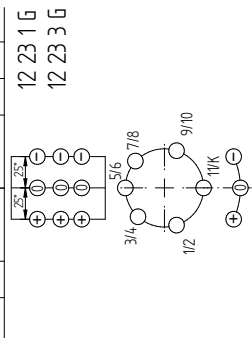
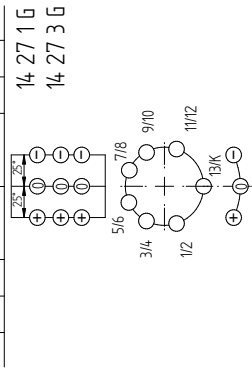
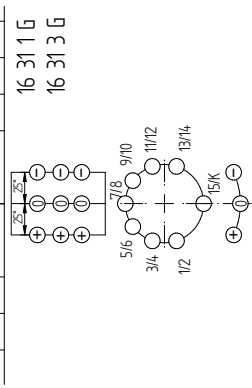
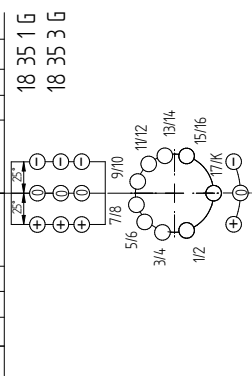
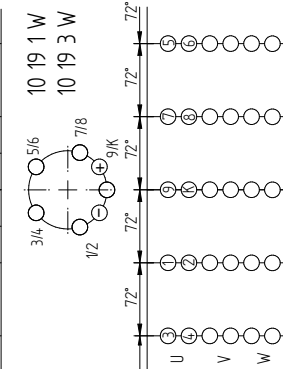
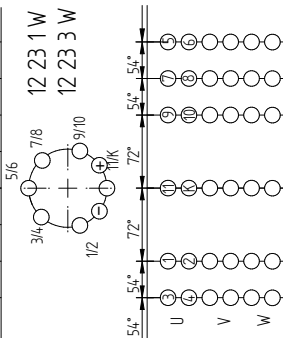
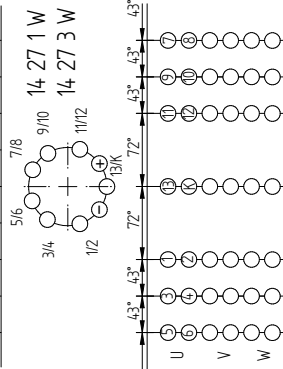
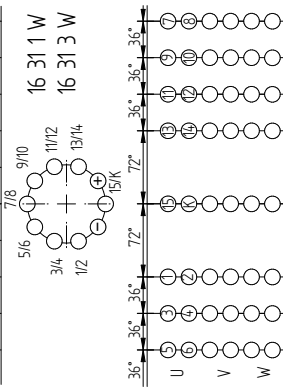
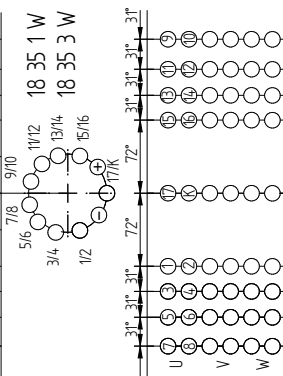
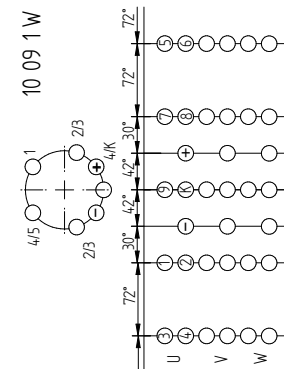
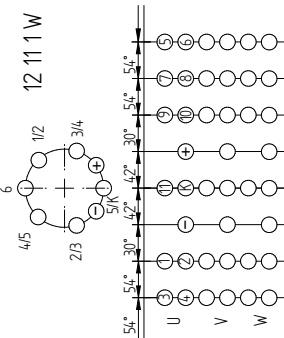
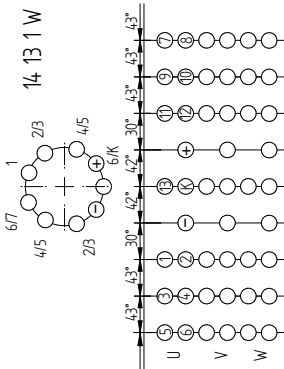
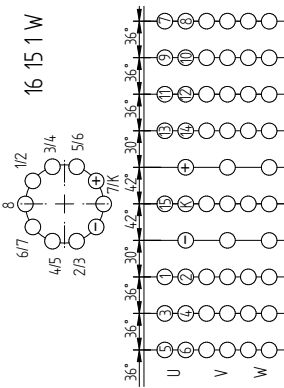
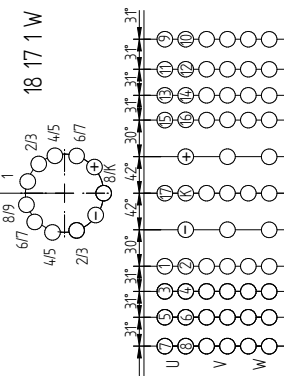
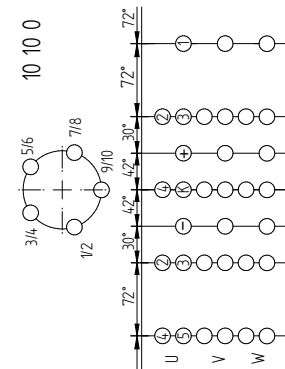
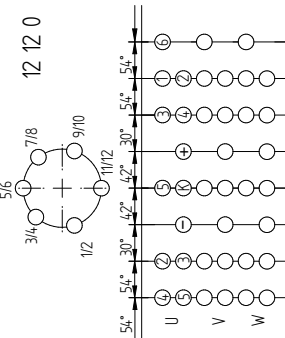
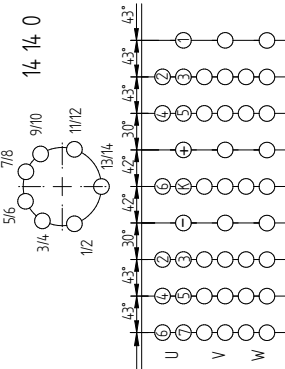
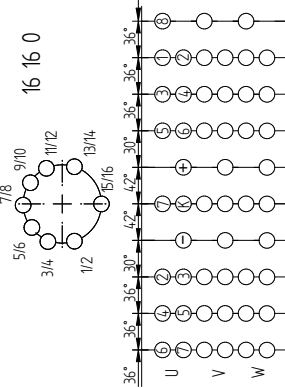
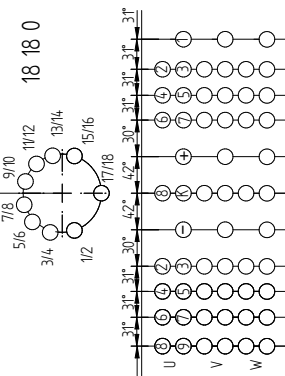
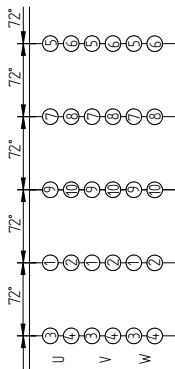
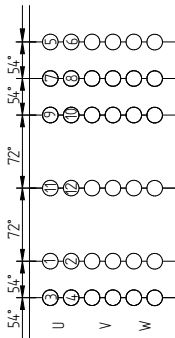
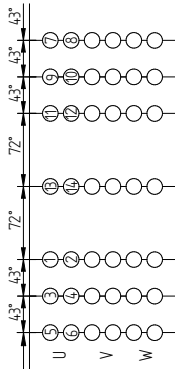
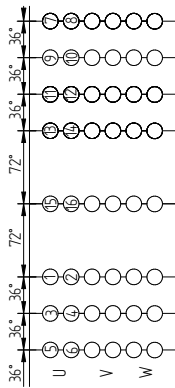
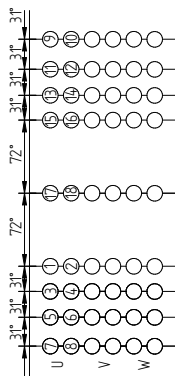


OLTC VACUTAP® VM® III 350/500/650, VMS® III 400/650 - C
VRC III 400/550/700, VRE III 700 / OILTAP® M III 350/500/600, RM III 600
CONTACT ARRANGEMENT M-SELECTOR SIZE B/C/D/DE

SERIAL NUMBER

MATERIAL NUMBER
8911076E

SHEET
1/1



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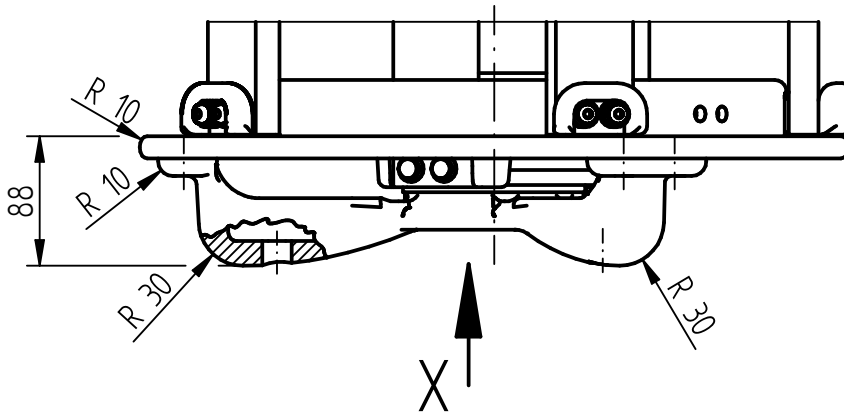
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DFT: 13.07.2018	BUTERUS	SED 1708618 000 03
CHKD: 16.07.2018	WILHELM	CHANGE NO. SCALE
STAND: 16.07.2018	PRODASTSCHUK	1086956 15

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



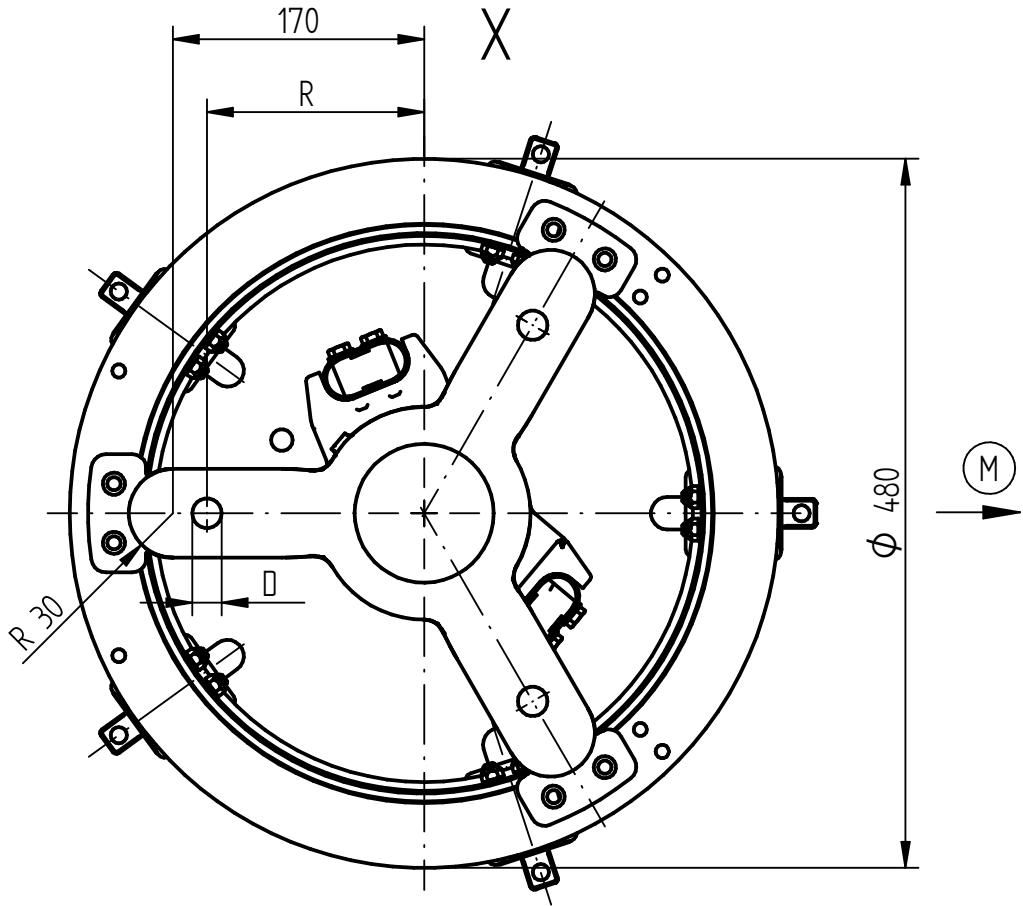
ON-LOAD TAP-CHANGER OILTAP® M / VACUTAP® VM®, VMS®-C
 SELECTOR BASE WITH HOLE Ø20 AND Ø13
 M-SELECTOR SIZE B/C/D/DE

SERIAL NUMBER	
MATERIAL NUMBER 7256494E	SHEET 1 / 1



(M) DRIVE SIDE OF SELECTOR

R	D	SELECTOR BASE
147	20	097251
160	13	097252



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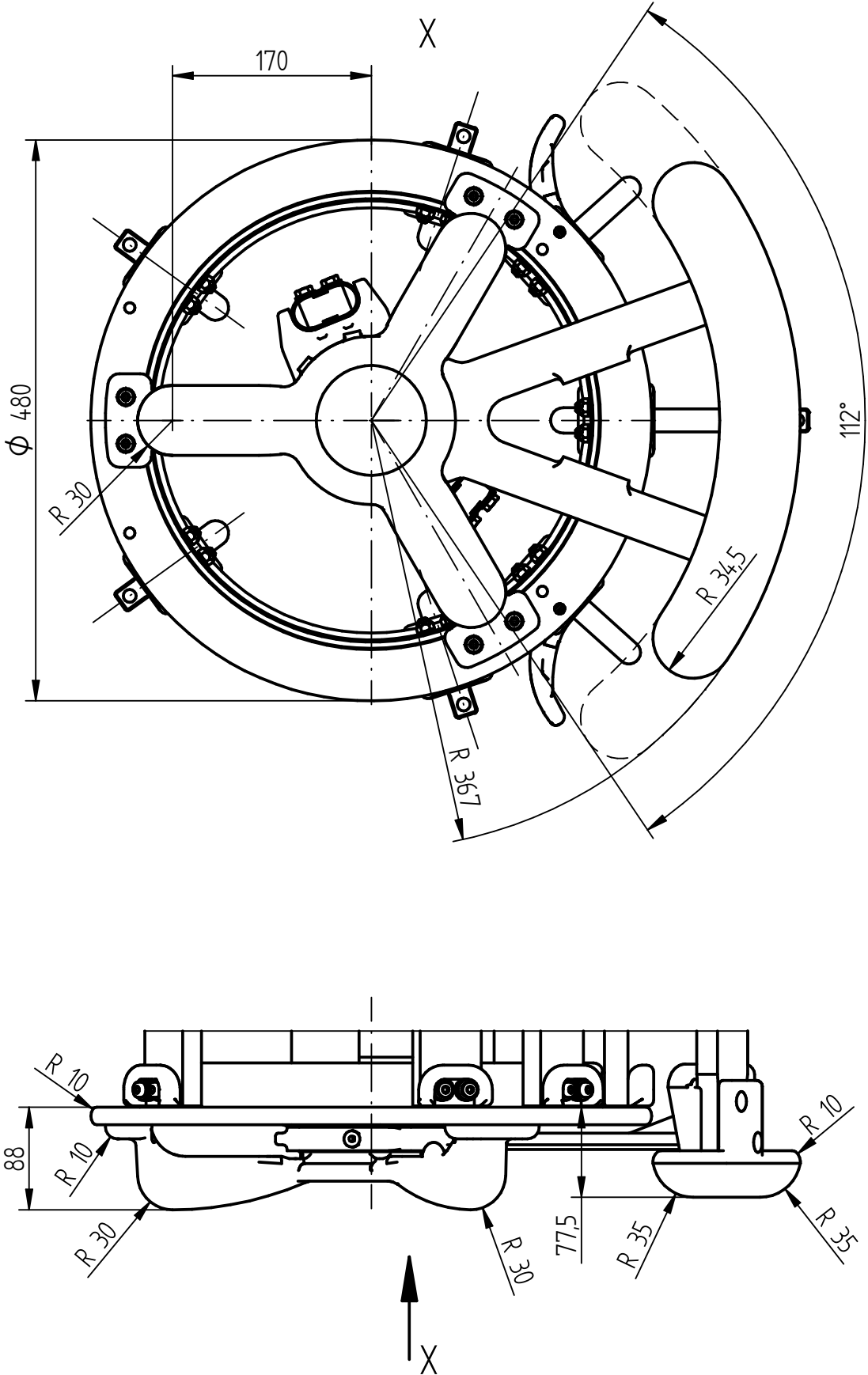
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CHKD. 16.07.2018	WILHELM	CHANGE NO. SCALE
STAND. 16.07.2018	PRODASTSCHUK	1086956 15

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



OLTC OILTAP® M / VACUTAP® VM®, VMS®-C, VRC, VRE
 ADDITIONAL SCREENING ON SELECT OR BASE - REVERSING COS
 M-SELECTOR SIZE B/C/D/DE

SERIAL NUMBER	
MATERIAL NUMBER 8939344E	SHEET 1 / 1



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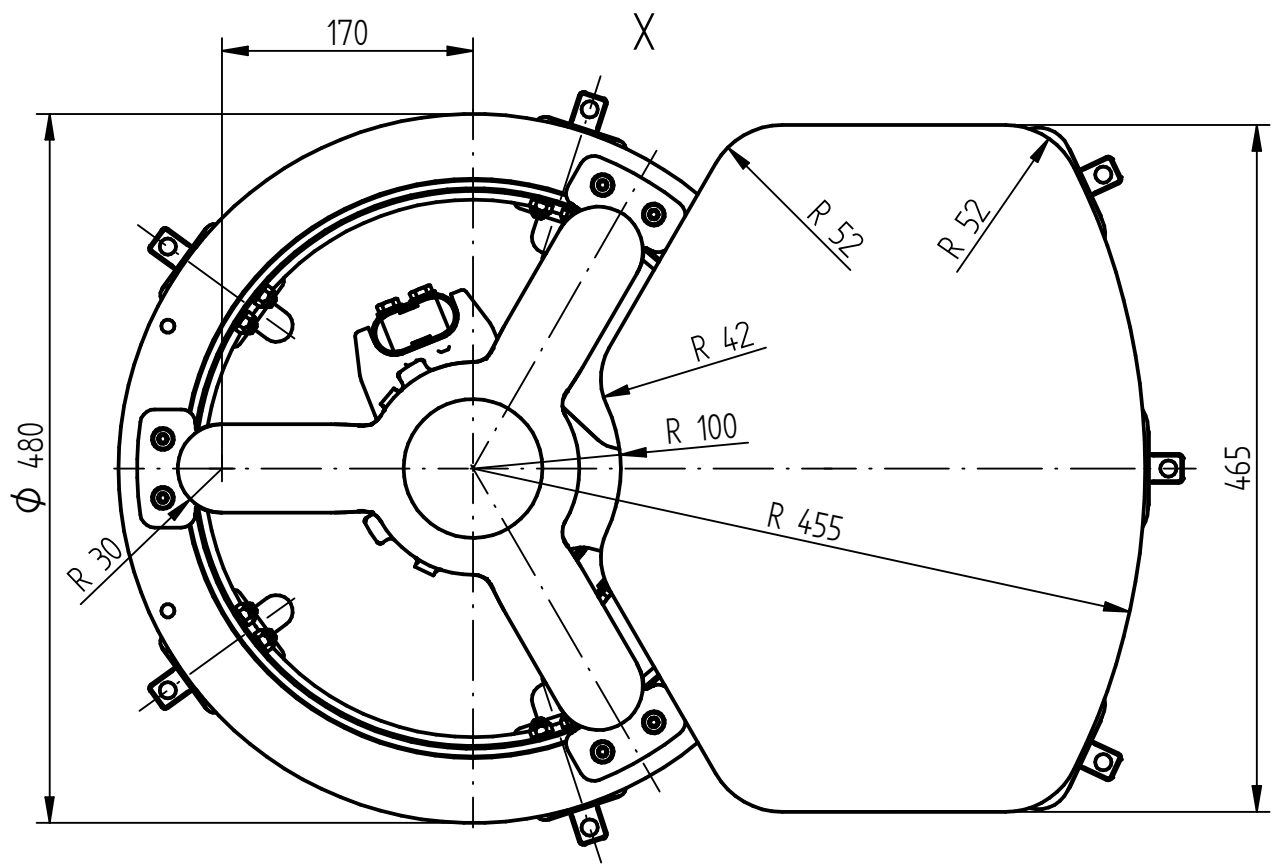
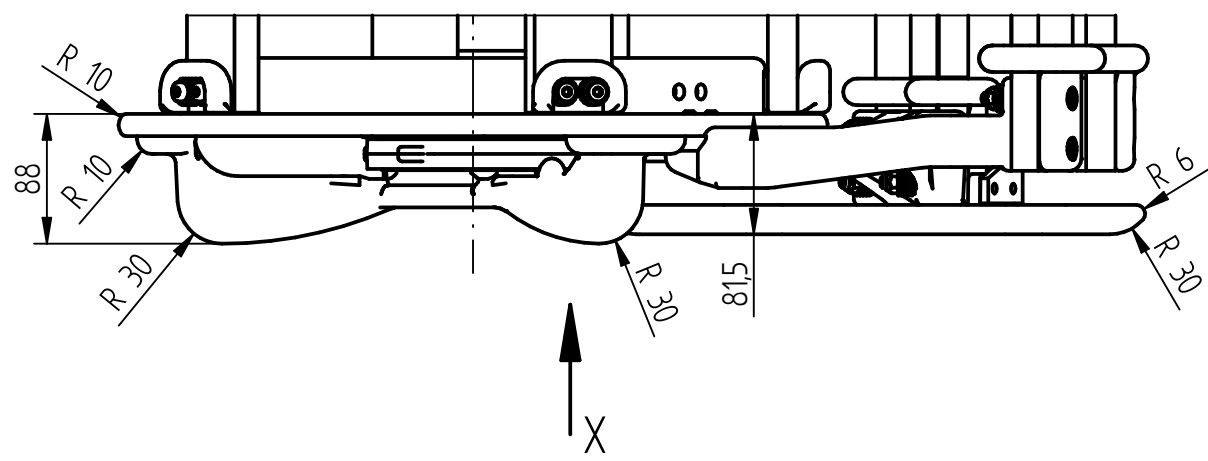
DATE	NAME	DOCUMENT NO.
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CHKD. 16.07.2018	WILHELM	CHANGE NO. SCALE
STAND. 16.07.2018	PRODASTSCHUK	1086956 15

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



OLTC OILTAP® M / VACUTAP® VM®, VMS®-C, VRC, VRE
 ADDITIONAL SCREENING ON SELECTOR BASE - COARSE COS
 M-SELECTOR SIZE B/C/D/DE

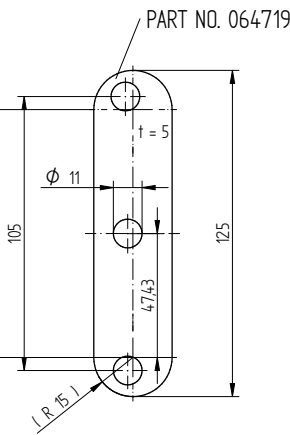
SERIAL NUMBER	
MATERIAL NUMBER 8939354E	SHEET 1 / 1



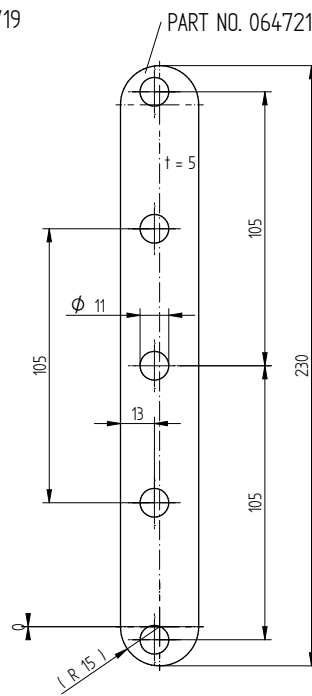
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ARRANGEMENT OF CONTACT B

M | 802 / 803
VM | 802 / 1002

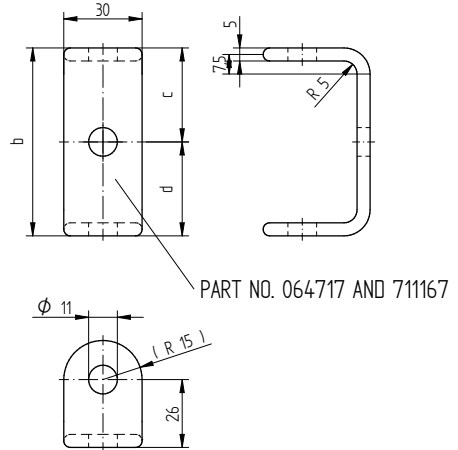


M | 1203 / 1503
VM | 1203 / 1503



ARRANGEMENT OF CONTACT A

M | 802 / 803 / 1203 / 1503
VM | 802 / 1002 / 1203 / 1503

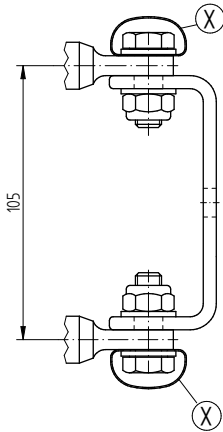


ARRANGEMENT OF CONTACT (see 890477:.)	PART NO.	DIMENSION b	DIMENSION c	DIMENSION d
A WITHOUT CONNECTING LEAD	064717	97	48,5	48,5
A WITH CONNECTING LEAD	711167	91	48,5	42,5

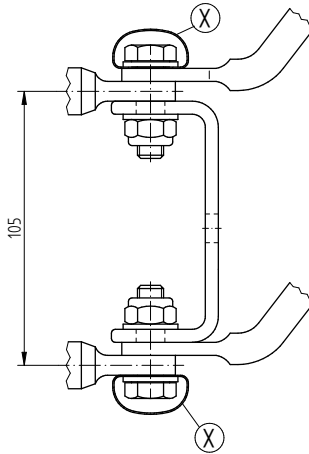
INSTALLATION OF PARALLEL BRIDGES FOR ARRANGEMENT OF CONTACT A WITHOUT AND WITH CONNECTING LEAD FOR 3W CONNECTION

M | 802 / 803
VM | 802 / 1002

WITHOUT CONNECTING LEAD

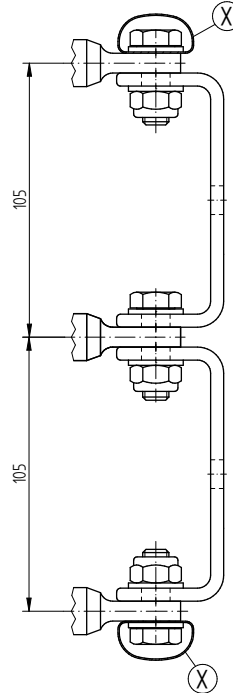


WITH CONNECTING LEAD

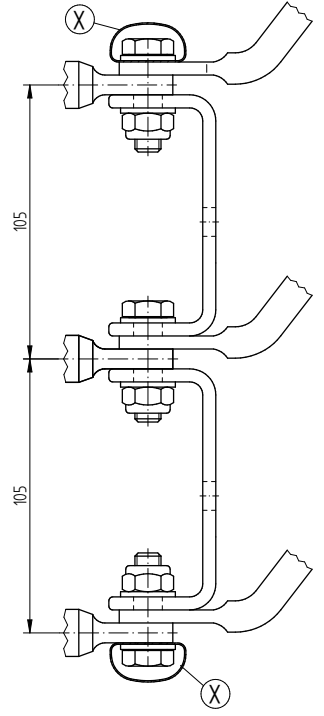


M | 1203 / 1503
VM | 1203 / 1503

WITHOUT CONNECTING LEAD



WITH CONNECTING LEAD



(X) ONLY FOR SELECTOR SIZE D AND DE

PLEASE NOTE: PARALLEL BRIDGES ARE NOT INCLUDED IN THE STANDARD DELIVERY.

DATE	NAME	DOCUMENT NO.
18.01.2016	RAEDLINGER	SED 1050471 000 05
25.02.2016	TKBIRKMAN	CHANGE NO.
25.02.2016	PRODASTSCHUK	1072100
		SCALE 1:1

DIMENSION IN mm EXCEPT AS NOTED



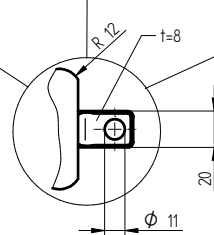
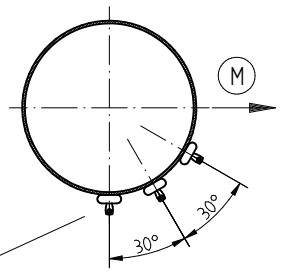
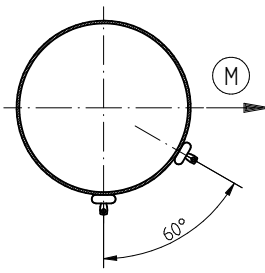
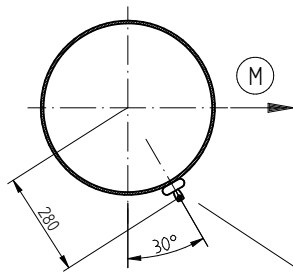
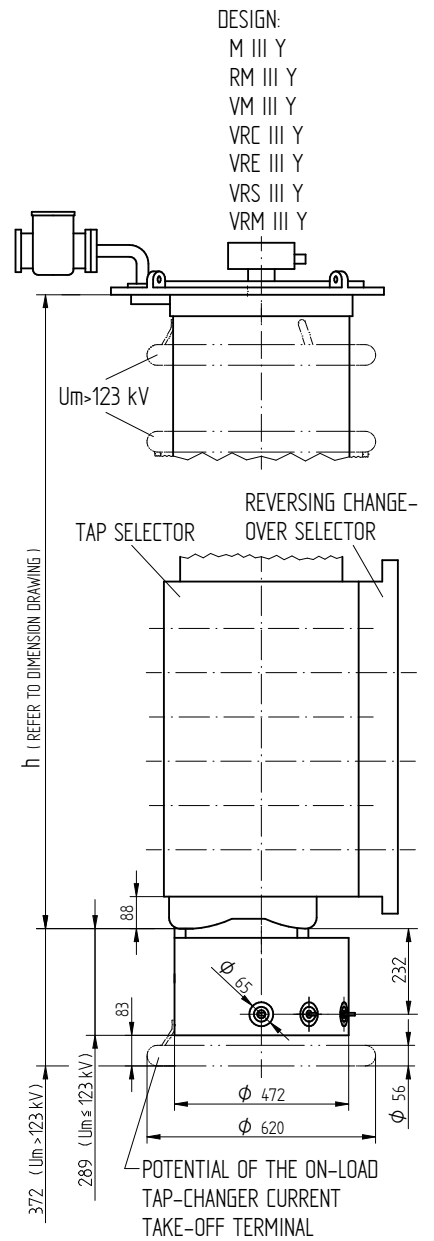
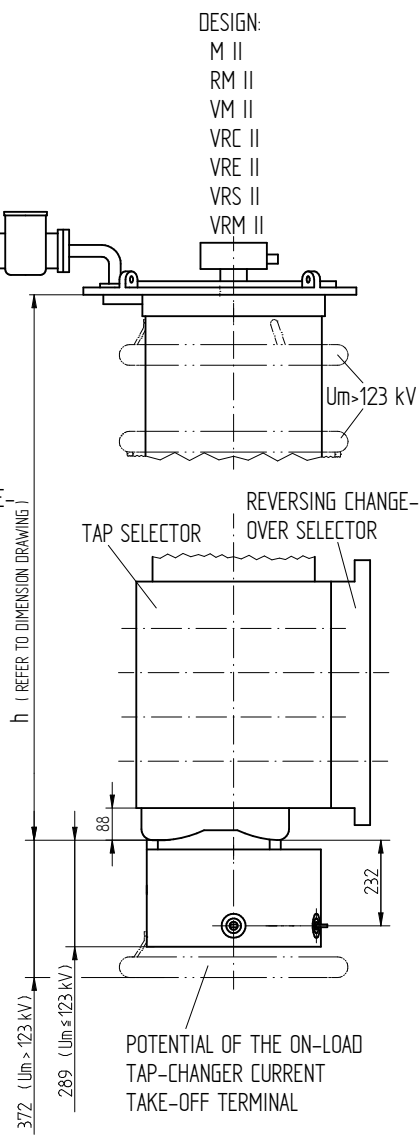
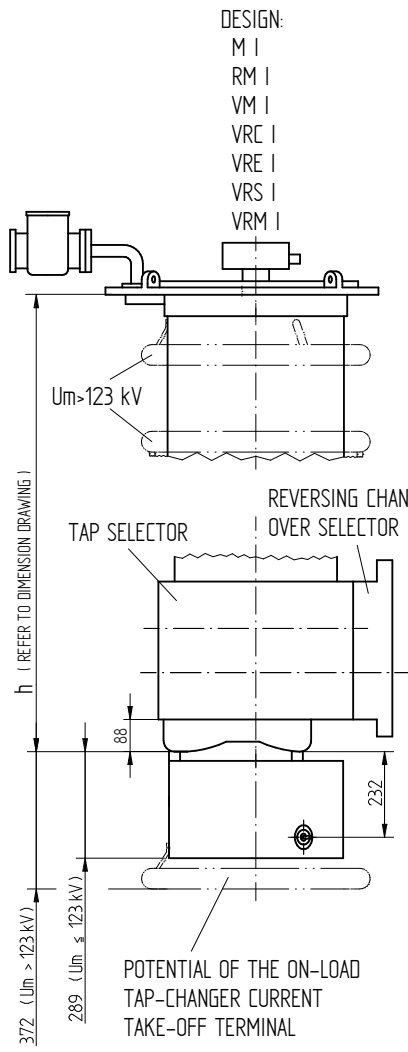
ON-LOAD TAP-CHANGER OILTAP® M | 802/803/1203/1503 AND VACUTAP® VM | 802/1002/1203/1503 - SELECTOR SIZE B/C/D/DE BRIDGES FOR PARALLEL CONNECTION OF SELECTOR CONN. CONT.

SERIAL NUMBER

MATERIAL NUMBER 8995984E SHEET 1/1

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DATE	18.10.2016	DOCUMENT NO.	SED 1050468 001 07
DFTR.	19.10.2016	NAME	CTETPRAKTIK2
CHKD.	20.10.2016	CHANGE NO.	HILTNER 1077668
STAND.		SCALE	1:10
		PRODASTSCHUK	



CONNECTION FOR EXTERNAL TIE-IN RESISTOR

(M) DRIVE SIDE OF SELECTOR

CONNECTING FROM TIE-IN SWITCH TO ON-LOAD TAP-CHANGER CURRENT TAKE-OFF TERMINAL IS CARRIED OUT BY MR THE DETAILED CONNECTION DIAGRAM IS BINDING FOR THE DESIGNATION OF THE CONNECTION CONTACTS AND PHASES

NOT APPLICABLE TO VM I 301, VM II 302 AND VM III 300 Y

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



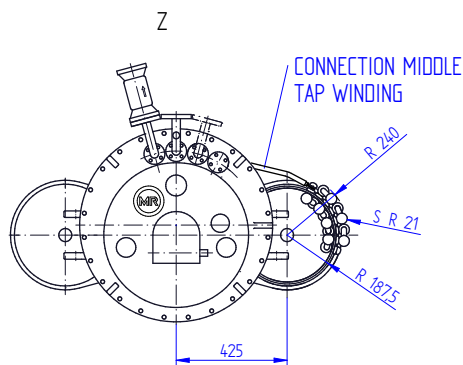
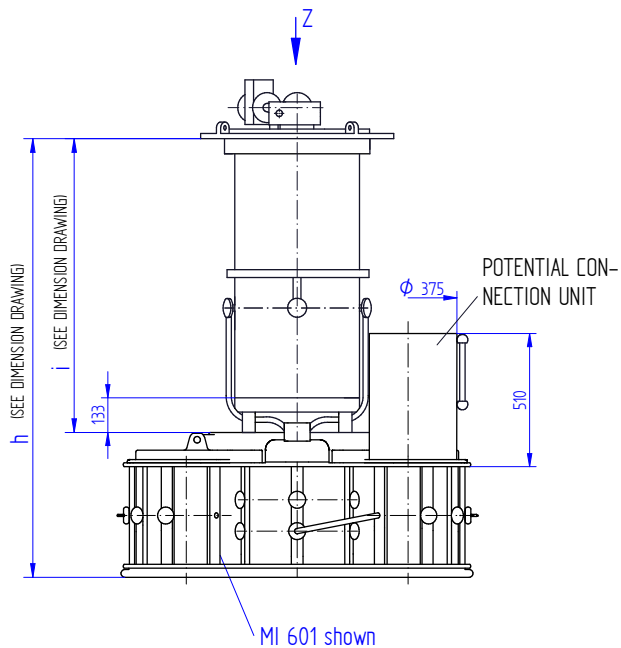
ON-LOAD TAP-CHANGER OILTAP®M, RM / VACUTAP® VM, VR
 M/RM/VM/VRC/VRE/VRS/VRM - REVERSING CHANGE-OVER SEL. - SIZE B/C/D/DE
 POTENTIAL CONNECTION UNIT WITH TIE-IN SWITCH WITHOUT TIE-IN RESISTORS

SERIAL NUMBER

MATERIAL NUMBER
 8988046E

SHEET
 1/1

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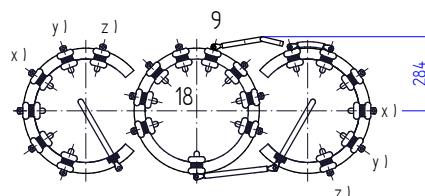
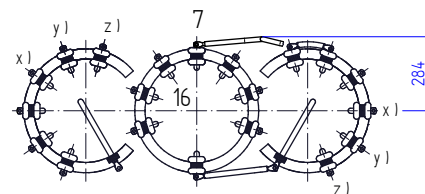
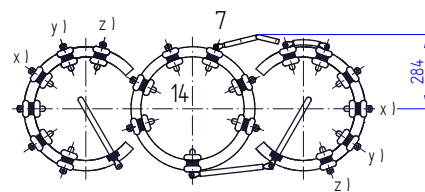
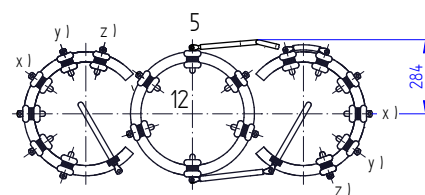
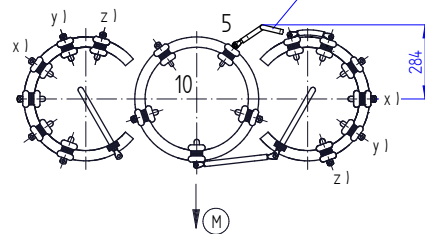
MAX. 7 RESISTOR ELEMENTS
(AS SHOWN)

ARRANGEMENT OF SELECTOR CONTACTS,
 2-5 COARSE TAP CONNECTIONS

(PLAN VIEW)

- x) FOR 3 COARSE TAP CONNECTIONS
- x) AND y) FOR 4 COARSE TAP CONNECTIONS
- x), y) AND z) FOR 5 COARSE TAP CONNECTIONS

CONNECTION MIDDLE TAP WINDING



FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

(M) DRIVE SIDE OF SELECTOR

DOCUMENT NO.	1062821 000 07
NAME	RAEDLINGER
DATE	19.04.2018
CHANGE NO.	HAUER
SCALE	1:10
STAND.	1087395
	PRODASTSCHUK
DATE	25.04.2018

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER OILTAP® M I AND VACUTAP® VM I, VRC I, VRS I, VRM I
 WITH MULTIPLE COARSE CHANGE-OVER SELECTOR
 MOUNTING OF TIE-IN RESISTORS - SELECTOR SIZE B/C/D

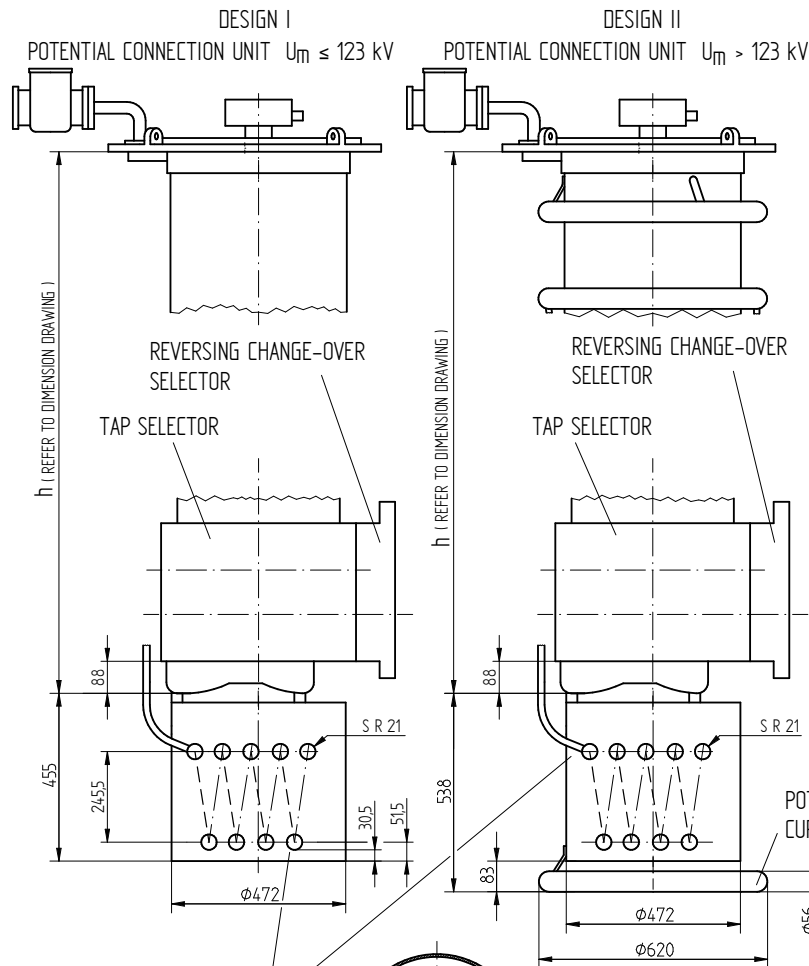
SERIAL NUMBER

MATERIAL NUMBER
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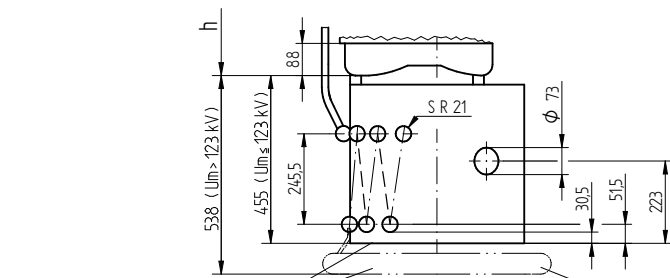
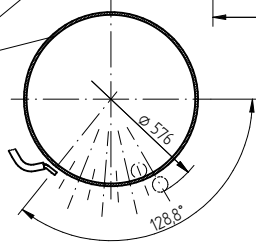
SHEET
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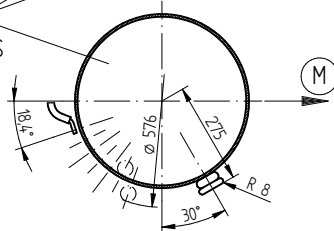
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STAND.	20.10.2016	CHANGE NO.	HILTNER
		SCALE	1:10
			1077668
			PRODASTSCHUK



WITHOUT TIE-IN SWITCH
 FOR MAX. 8 RESISTOR ELEMENTS
 (AS SHOWN)

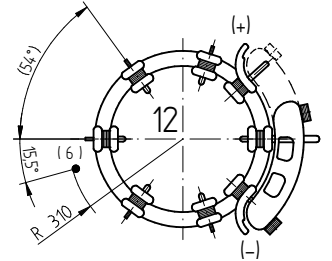
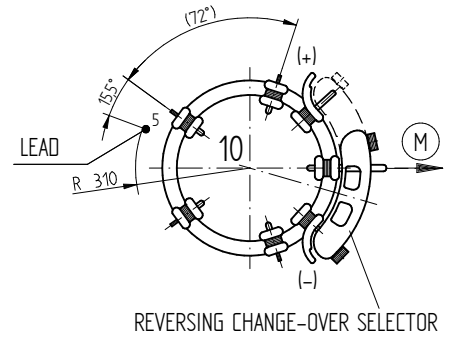


WITH TIE-IN SWITCH
 FOR MAX. 6 RESISTOR ELEMENTS
 (AS SHOWN)

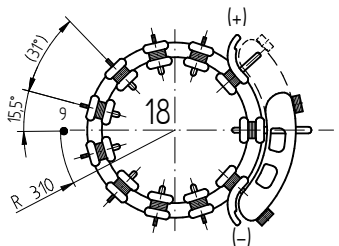
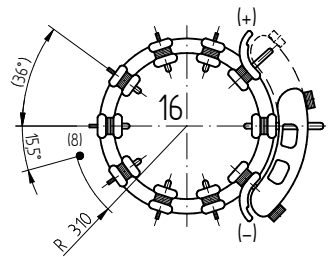
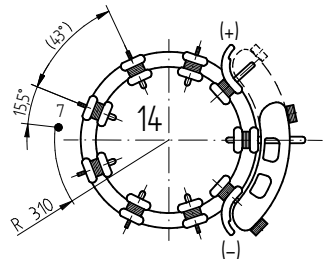


POTENTIAL OF THE MIDDLE
 OF THE TAP WINDING

ARRANGEMENT OF LEADS
 TIE-IN RESISTOR - SELECTOR
 FOR CONTACT LOCATION REFER TO
 RELEVANT DIMENSION DRAWING



POTENTIAL OF THE ON-LOAD TAP-CHANGER
 CURRENT TAKE-OFF TERMINAL



(M) DRIVE SIDE OF SELECTOR

THE DETAILED CONNECTION DIAGRAM IS BINDING FOR THE DESIGNATION OF THE CONNECTION CONTACTS AND PHASES
 CONNECTIONS FROM THE TIE-IN RESISTOR TO THE SELECTOR AND TO THE ON-LOAD TAP-CHANGER CURRENT TAKE-OFF TERMINAL ARE CARRIED OUT BY MR

NOT APPLICABLE TO VM I 301

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER OILTAP®M, RM / VACUTAP® VM, VR
 M/RM/VM/VRC/VRE/VRS/VRM I - REVERS. CHANGE-OVER SEL. - SIZE B/C/D/DE
 TIE-IN RESISTORS WITH/WITHOUT TIE-IN SWITCH

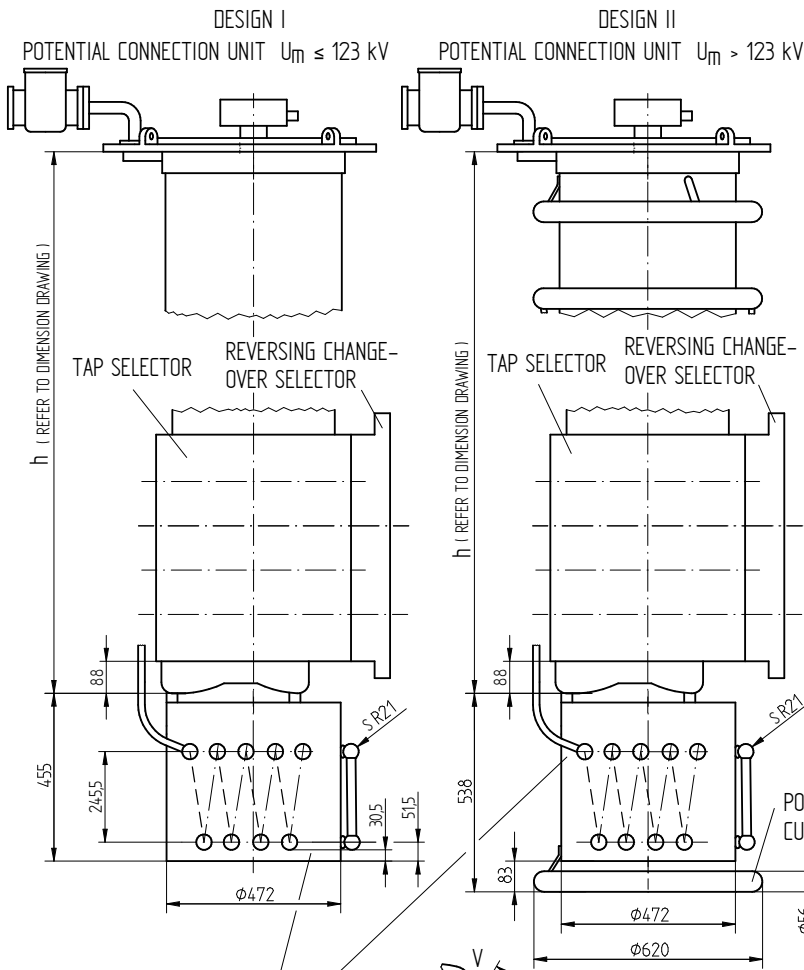
SERIAL NUMBER

MATERIAL NUMBER
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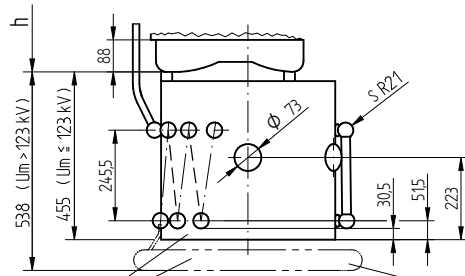
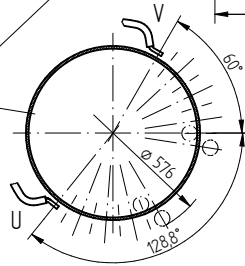
SHEET
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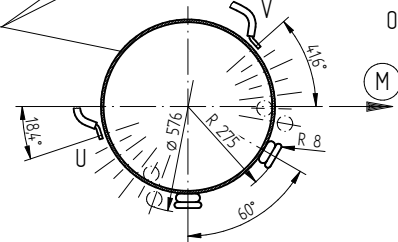
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CHKD.	20.10.2016	CHANGE NO.	HILTNER
STAND.	20.10.2016	SCALE	1:10
		1077668	PRODASTSCHUK



WITHOUT TIE-IN SWITCH
 FOR MAX. 8 RESISTOR
 ELEMENTS PER PHASE
 (AS SHOWN)



WITH TIE-IN SWITCH
 FOR MAX. 6 RESISTOR
 ELEMENTS PER PHASE
 (AS SHOWN)

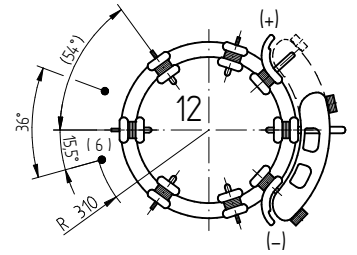
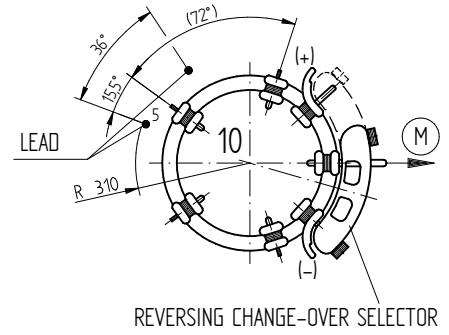


(M) DRIVE SIDE OF SELECTOR

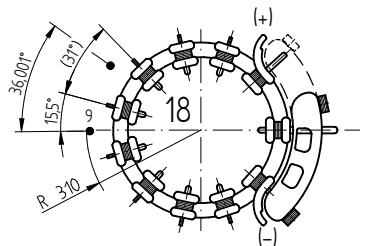
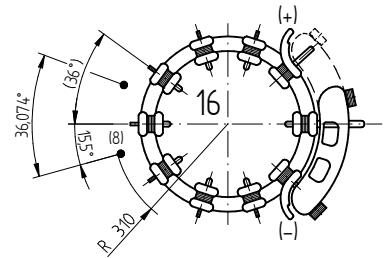
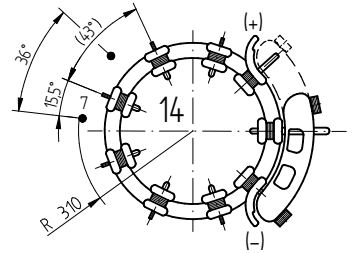
THE DETAILED CONNECTION DIAGRAM IS BINDING FOR THE DESIGNATION OF THE CONNECTION CONTACTS AND PHASES
 CONNECTIONS FROM THE TIE-IN RESISTOR TO THE SELECTOR AND TO THE ON-LOAD TAP-CHANGER CURRENT TAKE-OFF TERMINAL ARE CARRIED OUT BY MR

NOT APPLICABLE TO VM II 302

ARRANGEMENT OF LEADS
 TIE-IN RESISTOR - PHASE
 FOR CONTACT LOCATION REFER TO
 RELEVANT DIMENSION DRAWING



POTENTIAL OF THE ON-LOAD TAP-CHANGER
 CURRENT TAKE-OFF TERMINAL



DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER OILTAP®M, RM / VACUTAP® VM, VR
 M/RM/VM/VRC/VRE/VRS/VRM II- REVERS. CHANGE-OVER SEL- SIZE B/C/D/DE
 TIE-IN RESISTORS WITH/WITHOUT TIE-IN SWITCH

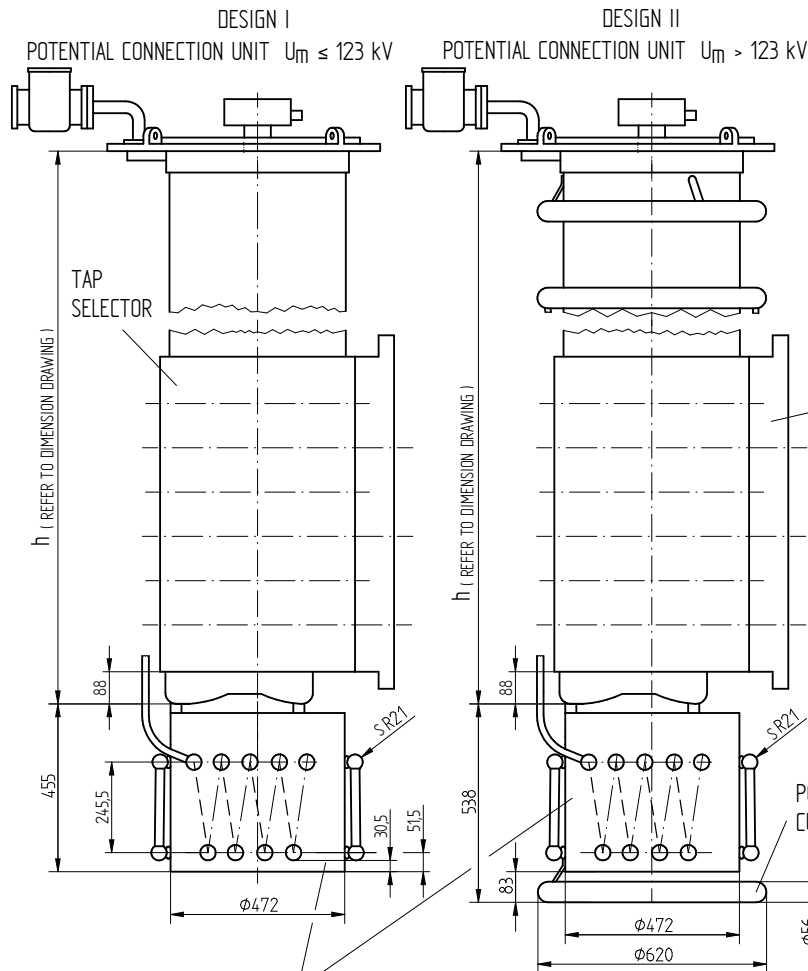
SERIAL NUMBER

MATERIAL NUMBER
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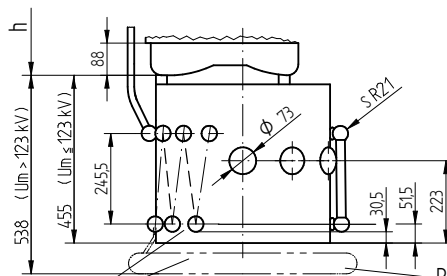
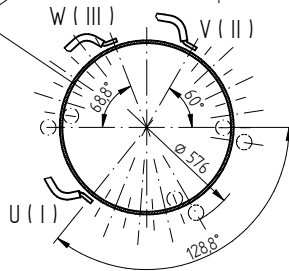
SHEET
 1/1

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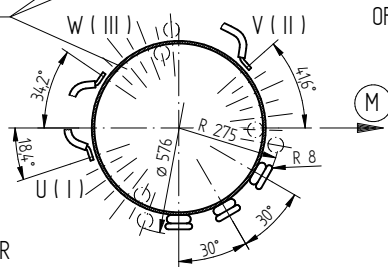
DATE	DOCUMENT NO.	NAME	SCALE
12.07.2018	SED 1665139 000 06	BUTERUS	1:10
CHKO. 16.07.2018	CHANGE NO.	WILHELM	
STAND. 16.07.2018	1086956	PRODASTSCHUK	



WITHOUT TIE-IN SWITCH
 FOR MAX. 8 RESISTOR
 ELEMENTS PER PHASE
 (AS SHOWN)



WITH TIE-IN SWITCH
 FOR MAX. 6 RESISTOR
 ELEMENTS PER PHASE
 (AS SHOWN)

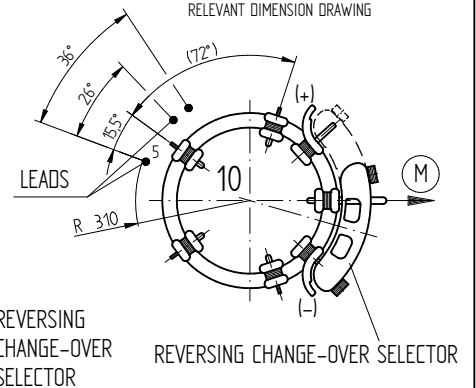


(M) DRIVE SIDE OF SELECTOR

THE DETAILED CONNECTION DIAGRAM IS BINDING FOR THE DESIGNATION OF THE CONNECTION CONTACTS AND PHASES
 CONNECTIONS FROM THE TIE-IN RESISTOR TO THE SELECTOR AND TO THE ON-LOAD TAP-CHANGER CURRENT TAKE-OFF TERMINAL ARE CARRIED OUT BY MR

NOT APPLICABLE TO VMS III 400 Y - B

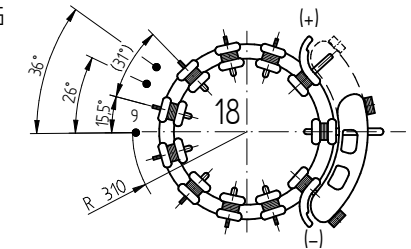
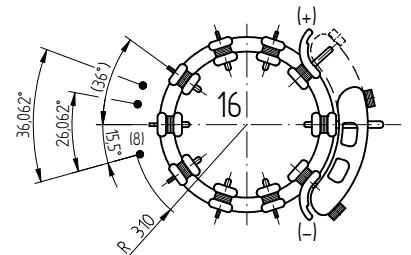
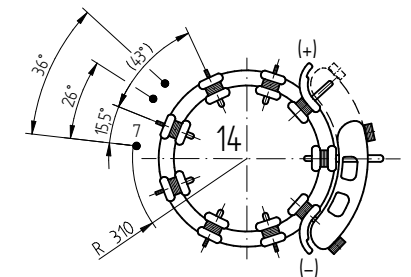
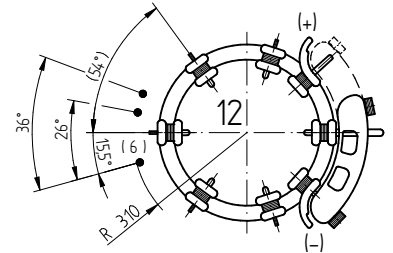
ARRANGEMENT OF LEADS
 TIE-IN RESISTOR - PHASE
 FOR CONTACT LOCATION REFER TO
 RELEVANT DIMENSION DRAWING



REVERSING
 CHANGE-OVER
 SELECTOR

REVERSING CHANGE-OVER SELECTOR

POTENTIAL OF THE ON-LOAD TAP-CHANGER
 CURRENT TAKE-OFF TERMINAL



DIMENSION
 IN mm
 EXCEPT AS
 NOTED



OLTC OILTAP® M, RM / VACUTAP® VM®, VMS®-C, VR®
 M/RM/VM/VMS/VRC/VRE/VRS/VRM III Y - REV. COS - M-SEL. SIZE B/C/D/DE
 TIE-IN RESISTORS WITH / WITHOUT TIE-IN SWITCH

SERIAL NUMBER

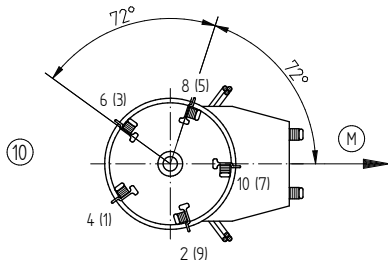
MATERIAL NUMBER
 8986926E

SHEET
 1/1

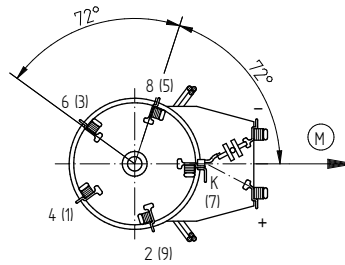
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DATE	NAME	DOCUMENT NO.
DFTR. 11.07.2018	BUTERUS	SED 6181604-001 00
CHKD. 16.07.2018	WILHELM	SCALE
STAND. 16.07.2018	PRODASTSCHUK	CHANGE NO. 1086956
		18

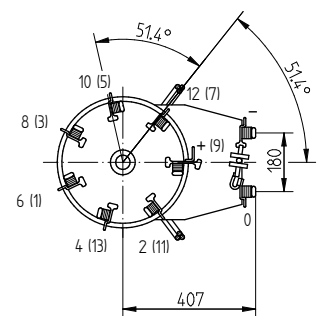
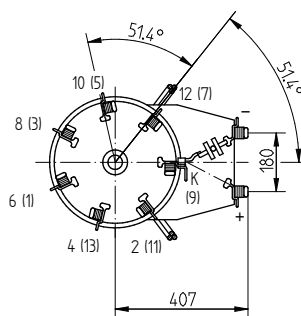
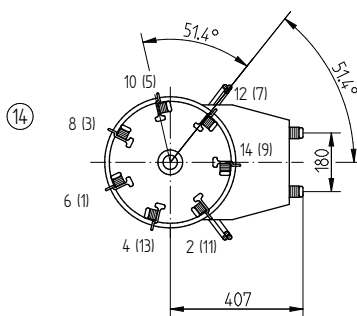
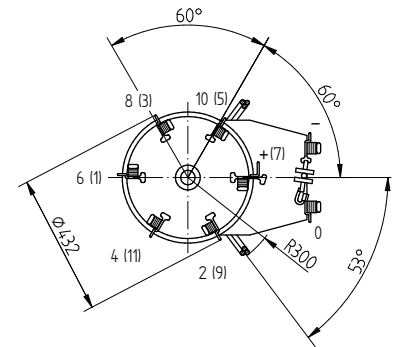
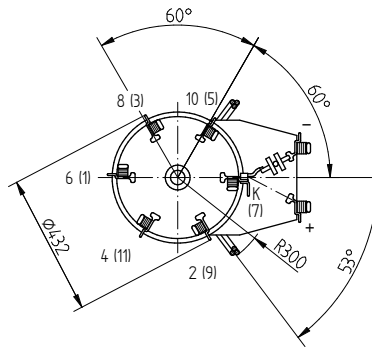
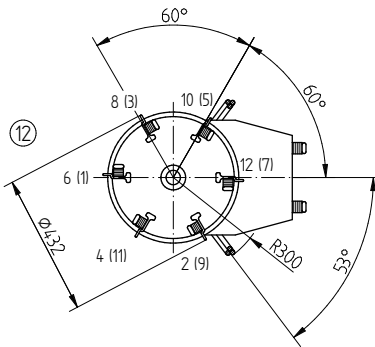
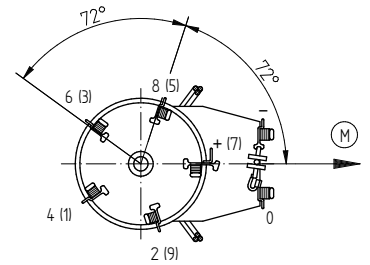
SELECTOR WITHOUT CHANGE-OVER SELECTOR



SELECTOR WITH REVERSING CHANGE-OVER SELECTOR



SELECTOR WITH COARSE CHANGE-OVER SELECTOR



DESIGNATION OF SELECTOR TERMINALS
 E. G.: 4 UPPER CONTACT PLANE
 (13) LOWER CONTACT PLANE

(M) DRIVE SIDE OF SELECTOR
 (10) (12) (14) SELECTOR PITCH

FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

DIMENSION IN mm EXCEPT AS NOTED



ON-LOAD TAP-CHANGER VACUTAP® VMS®
ARRANGEMENT OF CONTACTS AT SELECTOR
SELECTOR SIZE B

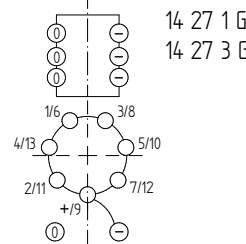
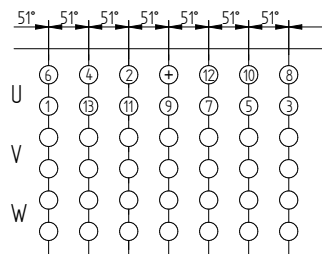
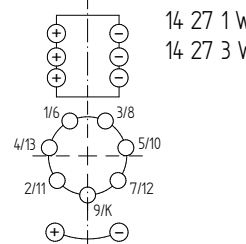
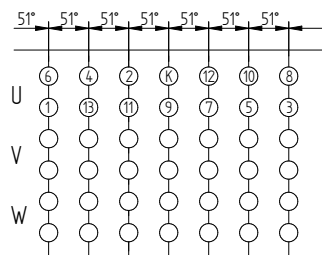
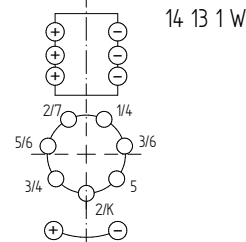
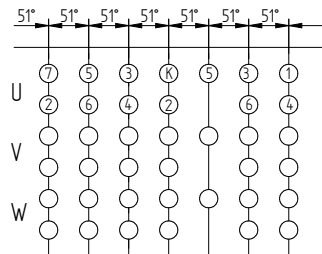
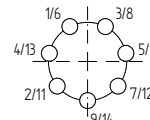
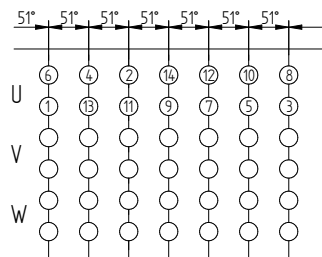
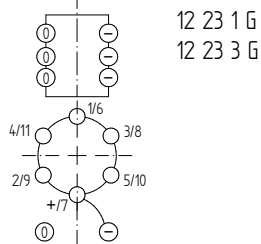
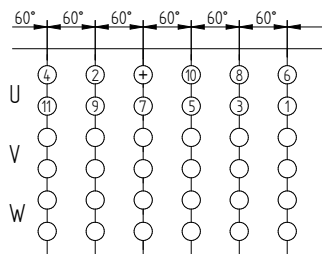
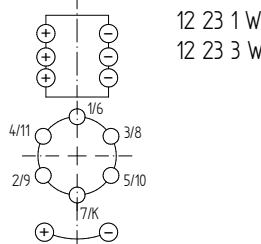
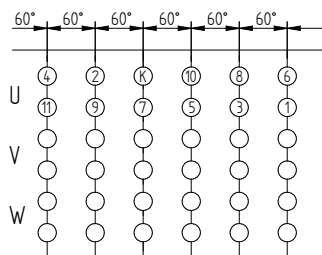
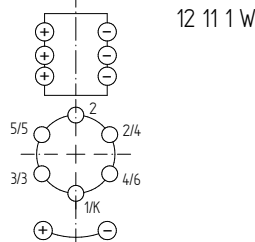
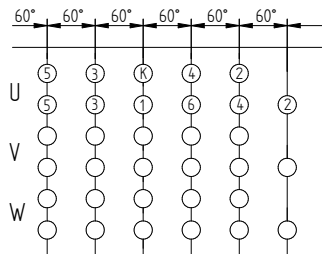
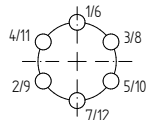
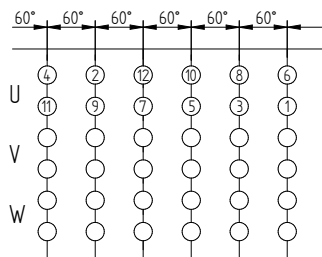
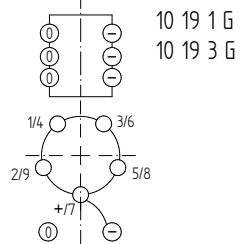
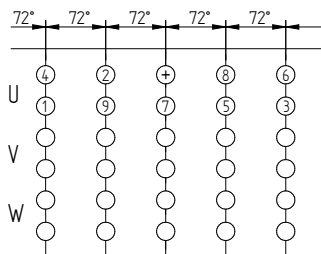
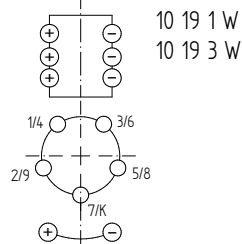
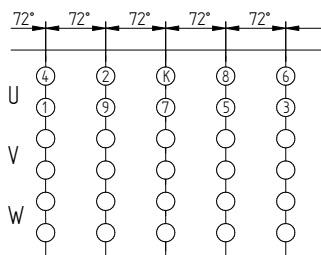
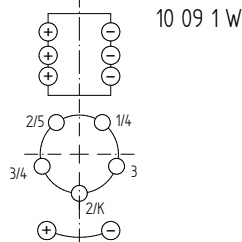
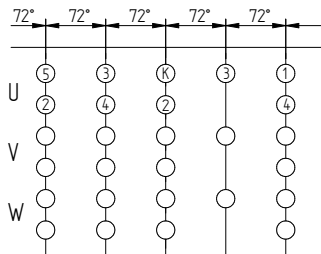
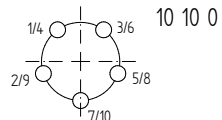
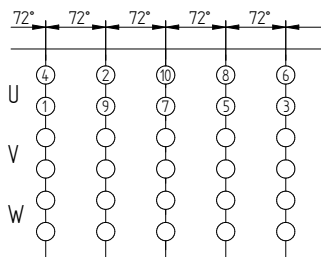
SERIAL NUMBER

MATERIAL NUMBER
101170250E

SHEET
1/1

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DATE	NAME	DOCUMENT NO.
DFTR. 11.07.2018	BUTERUS	SED 6181620 001 00
CHKD. 16.07.2018	WILHELM	SCALE
STAND. 16.07.2018	PRODASTSCHUK	CHANGE NO. 1086956



DIMENSION
IN mm
EXCEPT AS
NOTED



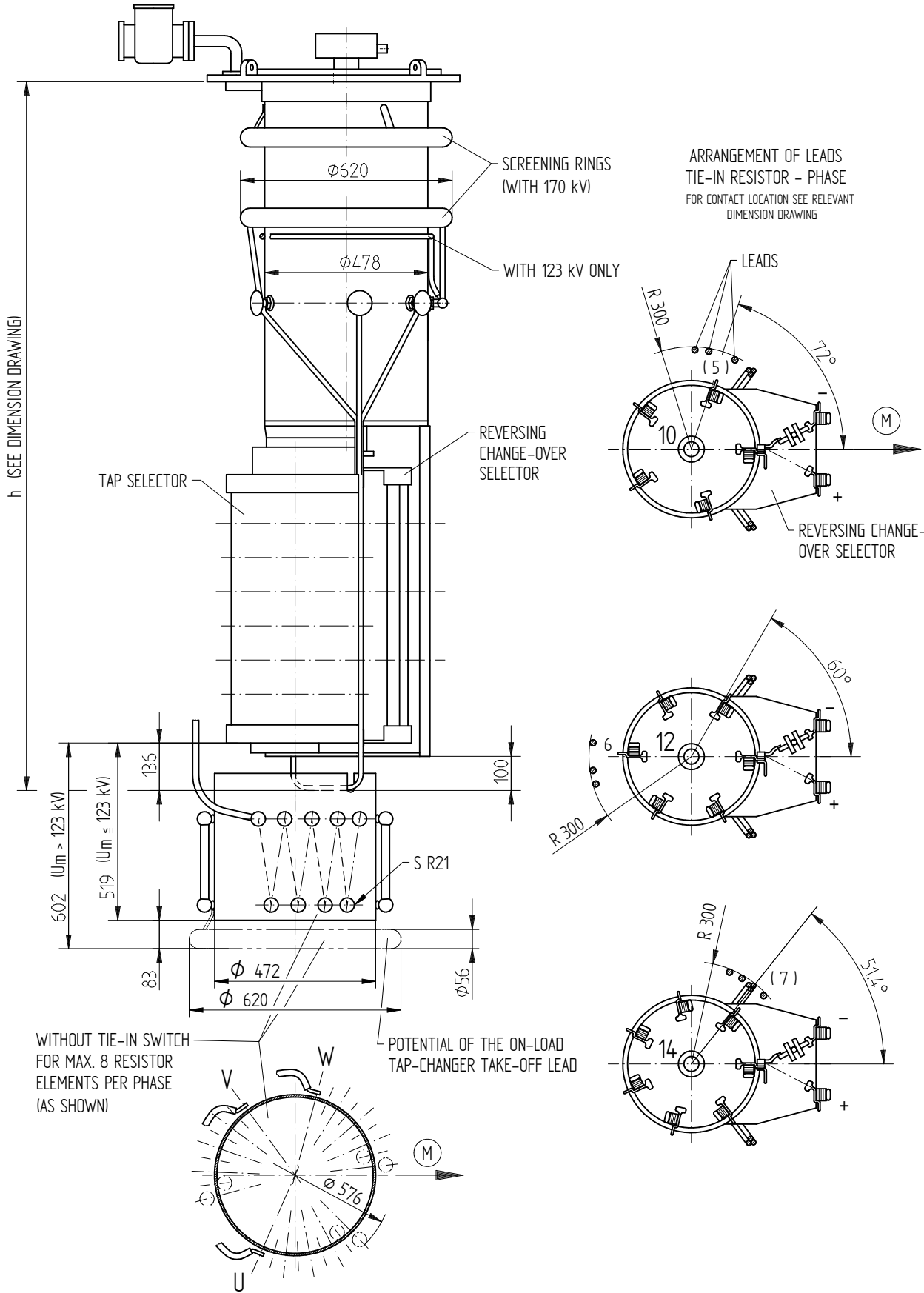
ON-LOAD TAP-CHANGER VACUTAP® VMS®
CONTACT ARRANGEMENT ON SELECTOR
SELECTOR SIZE B

SERIAL NUMBER

MATERIAL NUMBER
101170290E

SHEET
1/1

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(M) - DRIVE SIDE OF SELECTOR

THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER IS BINDING FOR THE DESIGNATION OF THE TERMINALS AND PHASES.

DATE	NAME	DOCUMENT NO.
11.07.2018	BUTERUS	SED 601874 001 00
16.07.2018	WILHELM	CHANGE NO.
16.07.2018	PRODASTSCHUK	1086956
SCALE		1:8

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER VACUTAP® VMS®
 VMSIII400Y - B - TIE-IN RESISTORS WITHOUT TIE-IN SWITCH
 DIMENSION DRAWING

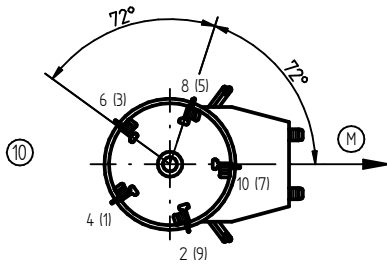
SERIAL NUMBER

MATERIAL NUMBER
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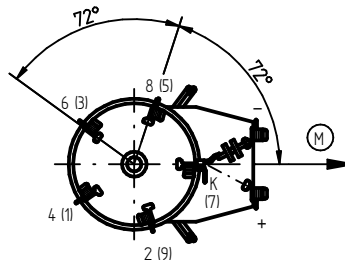
SHEET
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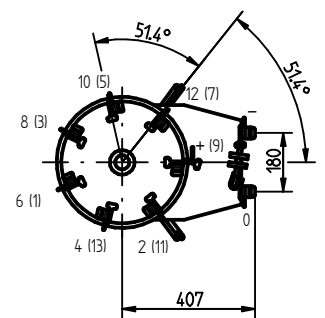
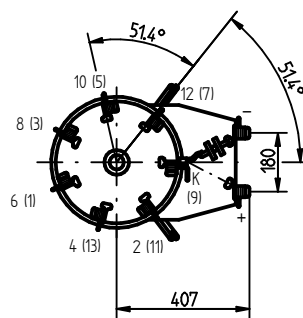
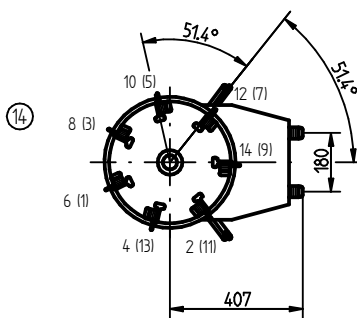
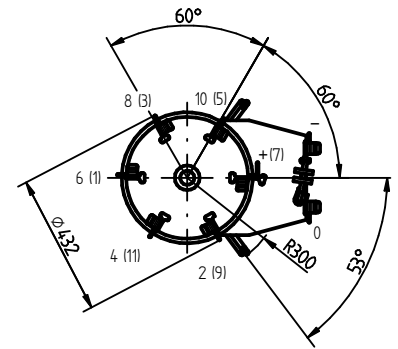
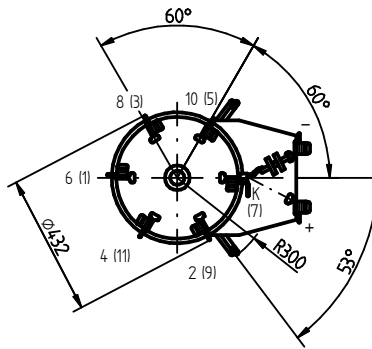
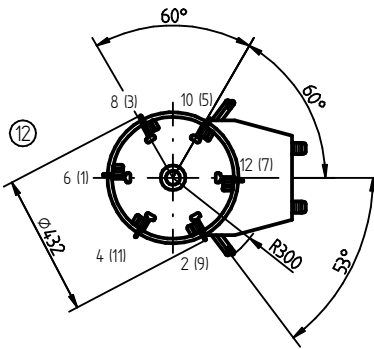
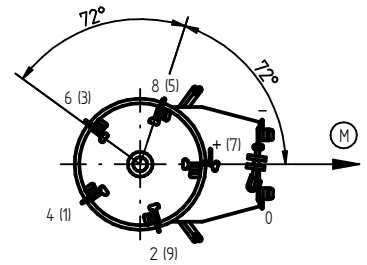
SELECTOR WITHOUT CHANGE-OVER SELECTOR



SELECTOR WITH REVERSING CHANGE-OVER SELECTOR



SELECTOR WITH COARSE CHANGE-OVER SELECTOR



DESIGNATION OF SELECTOR TERMINALS
 E. G.: 4 UPPER CONTACT PLANE
 (13) LOWER CONTACT PLANE

(M) DRIVE SIDE OF SELECTOR
 (10) (12) (14) SELECTOR PITCH

FOR BINDING DESIGNATIONS OF TERMINALS AND PHASES REFER TO THE CONNECTION DIAGRAM OF THE ON-LOAD TAP-CHANGER.

DATE	NAME	DOCUMENT NO.
26.01.2016	RAEDLINGER	SED 1050454-001 02
CHKD.	TKBIRKMAN	SCALE
25.02.2016	PRODASTSCHUK	CHANGE NO.
25.02.2016		18

DIMENSION IN mm EXCEPT AS NOTED



ON-LOAD TAP-CHANGER OILTAP® MS / VACUTAP® VM 300
ARRANGEMENT OF CONTACTS AT SELECTOR
SELECTOR SIZE B

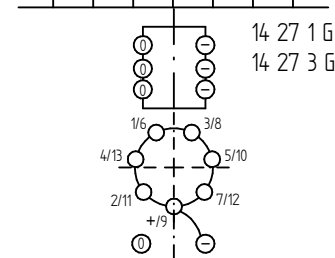
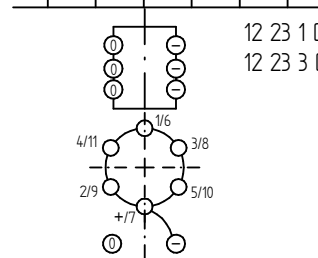
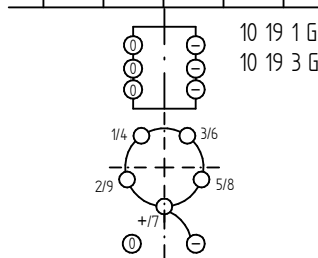
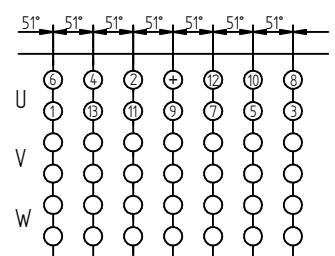
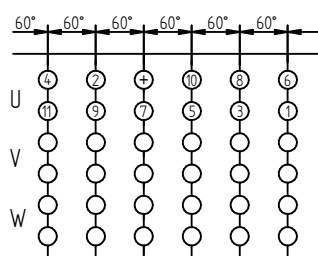
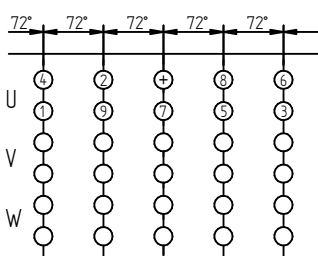
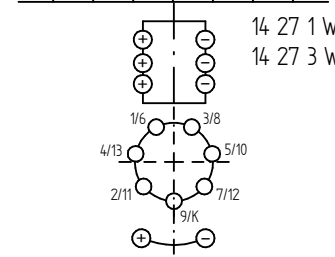
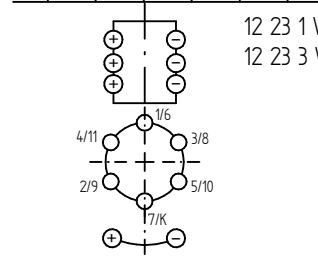
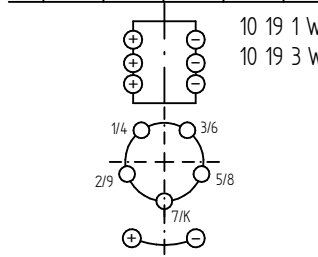
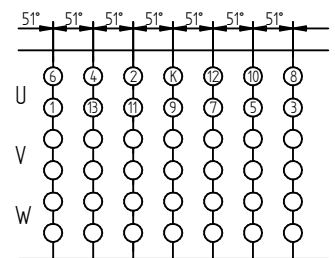
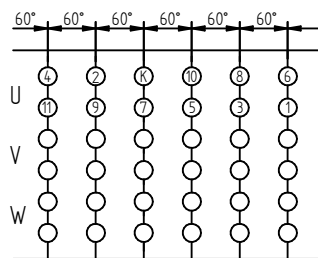
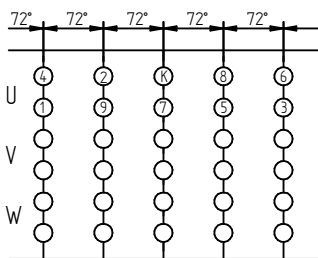
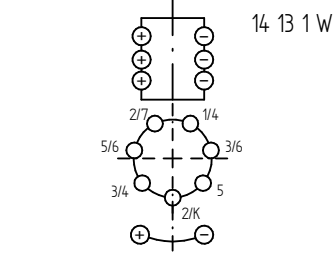
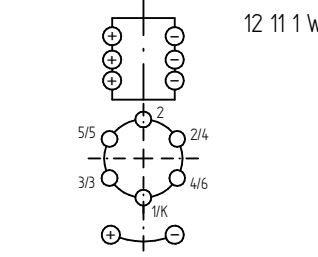
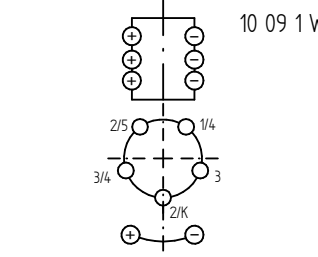
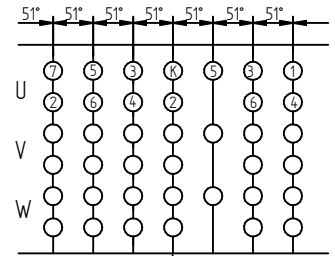
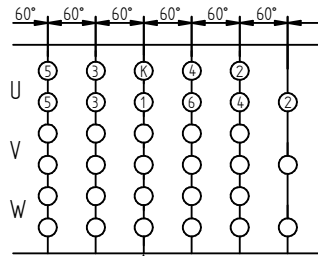
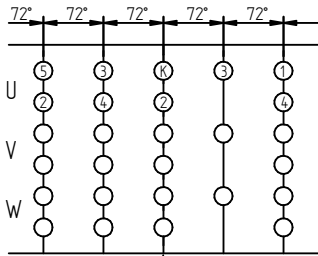
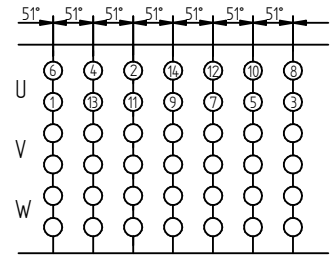
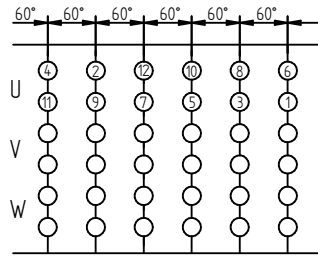
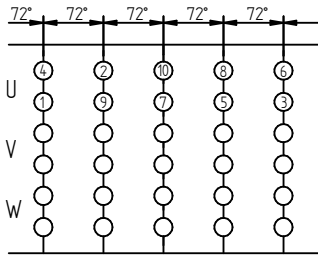
SERIAL NUMBER

MATERIAL NUMBER
8980414E

SHEET
1/1

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DATE	NAME	DOCUMENT NO.
26.01.2016	RAEDLINGER	SED 2617011 001 01
25.02.2016	TKBIRKMAN	SCALE
25.02.2016	PRODASTSCHUK	CHANGE NO.
		1072100



DIMENSION IN mm EXCEPT AS NOTED



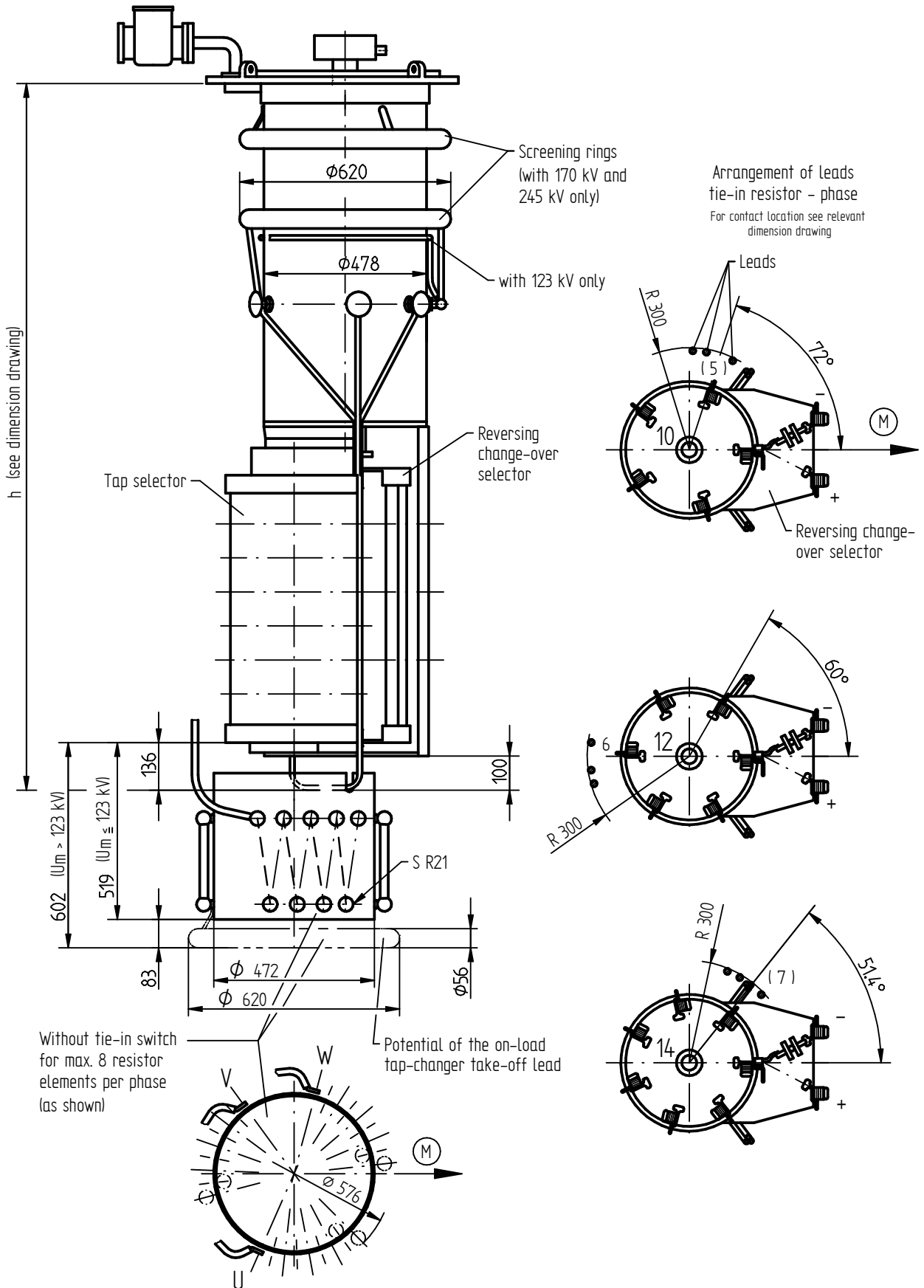
ON-LOAD TAP-CHANGER OILTAP® MS / VACUTAP® VM 300 CONTACT ARRANGEMENT ON SELECTOR FOR SELECTOR SIZE B

SERIAL NUMBER

MATERIAL NUMBER 8911145E

SHEET 1/1

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Without tie-in switch for max. 8 resistor elements per phase (as shown)

Potential of the on-load tap-changer take-off lead

(M) - Drive side of selector

The connection diagram of the on-load tap-changer is binding for the designation of the terminals and phases.

DATE	NAME	DOCUMENT NO.
23.03.2016	RAEDLINGER	SED 1050467 001 04
CHKD. 11.04.2016	MENZELS	CHANGE NO.
STAND. 11.04.2016	PRODASTSCHUK	1073378
		SCALE
		1:8

DIMENSION IN mm EXCEPT AS NOTED



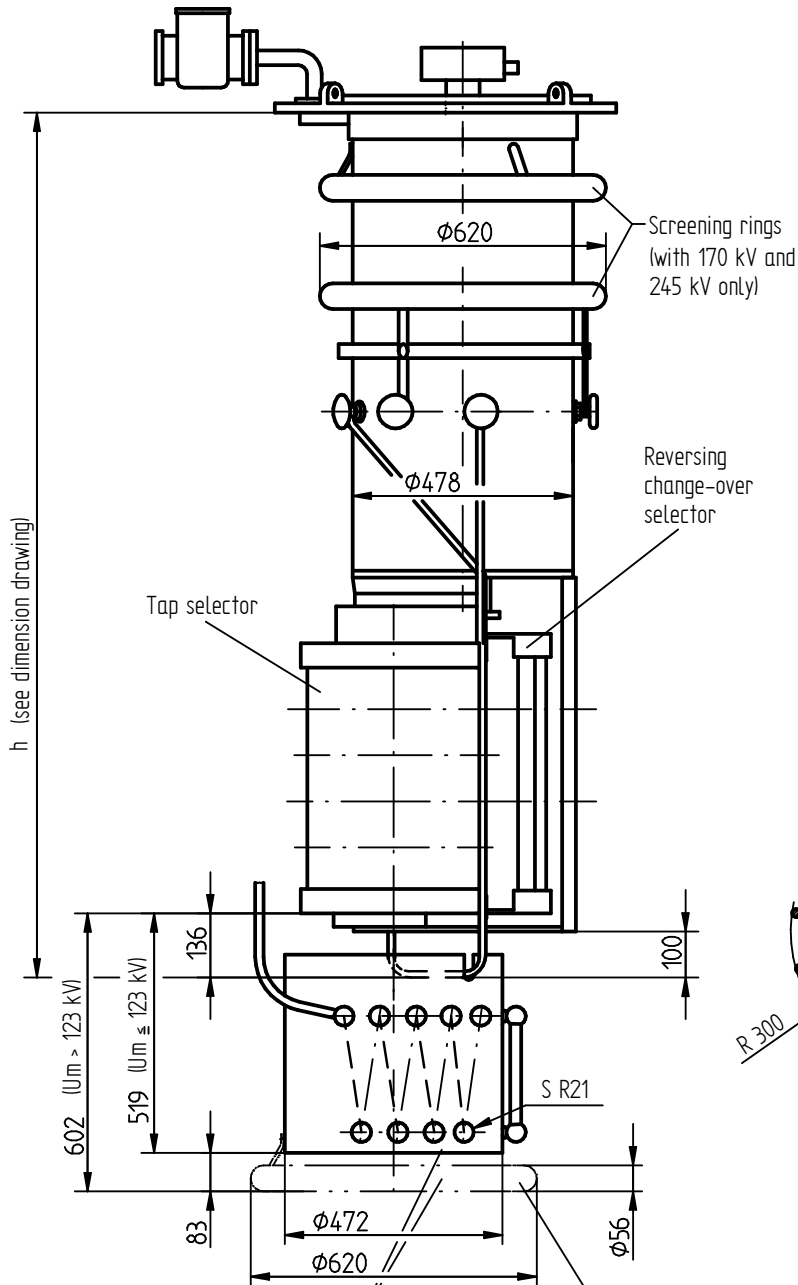
ON-LOAD TAP-CHANGER OILTAP® MS AND VACUTAP® VM®
 MS III / VM III 300 - SELECTOR SIZE B
 TIE-IN RESISTORS WITHOUT TIE-IN SWITCH

SERIAL NUMBER

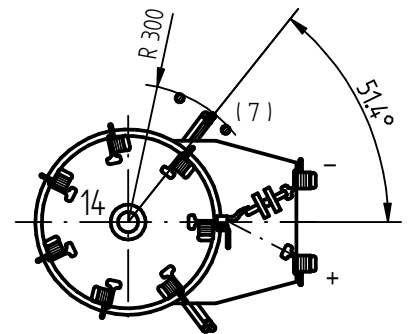
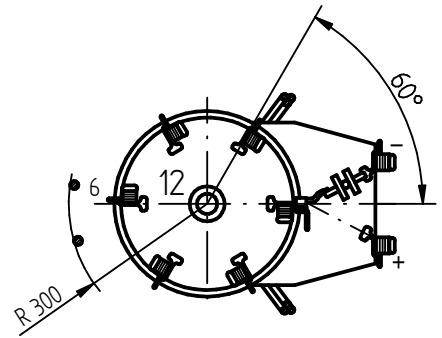
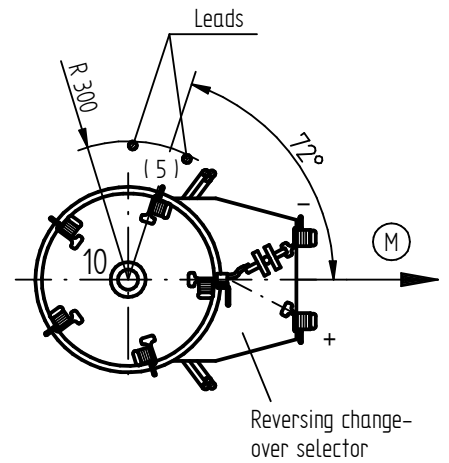
MATERIAL NUMBER
8986954E

SHEET
1/1

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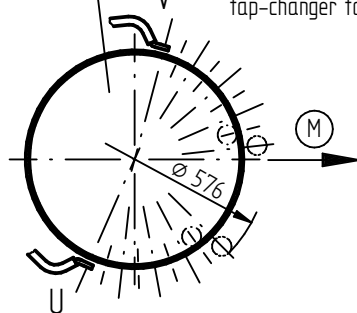


Arrangement of leads
 tie-in resistor - phase
 For contact location see relevant
 dimension drawing



Without tie-in switch
 for max. 8 resistor
 elements per phase
 (as shown)

Potential of the on-load
 tap-changer take-off terminal



(M) - Drive side of selector

The connection diagram of the on-load tap-changer is binding for the designation of the terminals and phases.

DATE	NAME	DOCUMENT NO.
23.03.2016	RAEDLINGER	SED 1050465 001 03
CHKO. 11.04.2016	MENZELS	CHANGE NO.
STAND. 11.04.2016	PRODASTSCHUK	1073378
		SCALE 1:8

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER OILTAP® MS AND VACUTAP® VM®
 MS II / VM II 302 - SELECTOR SIZE B
 TIE-IN RESISTORS WITHOUT TIE-IN SWITCH

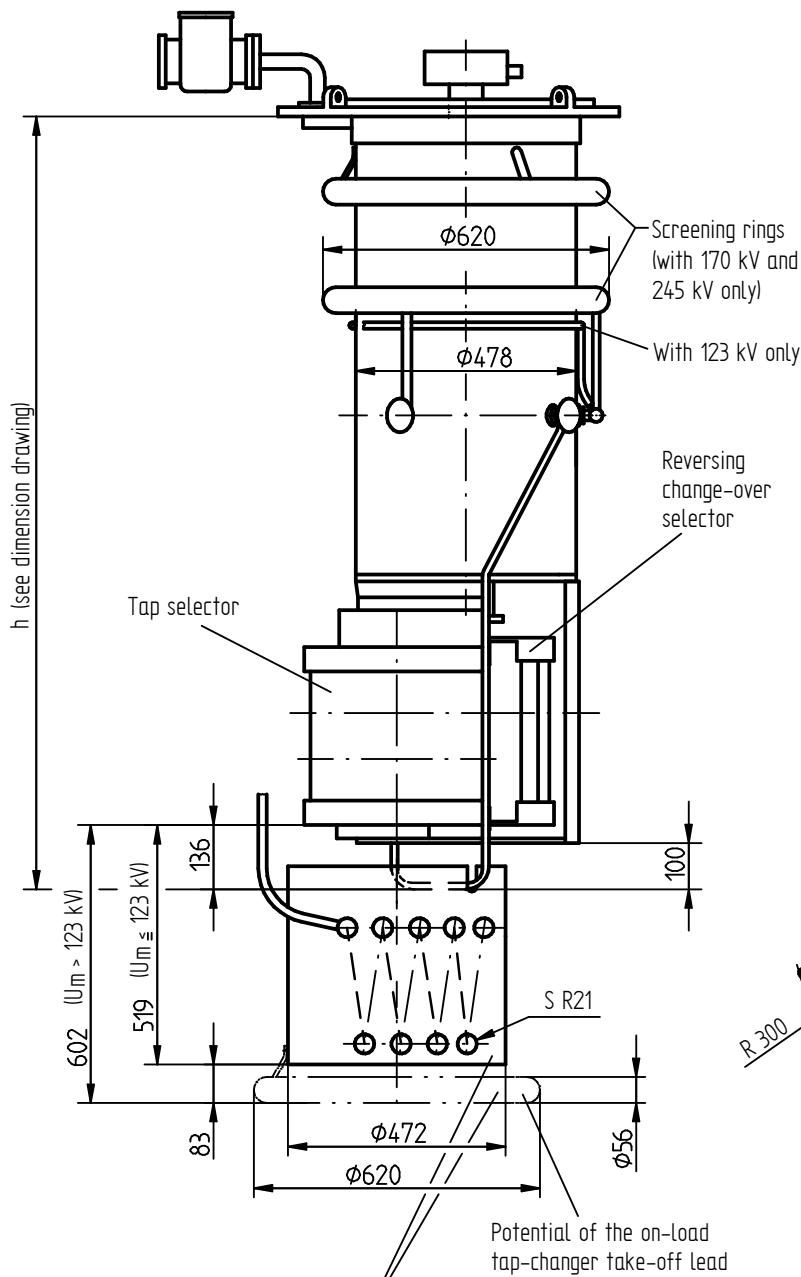
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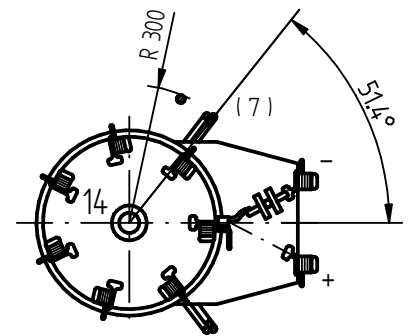
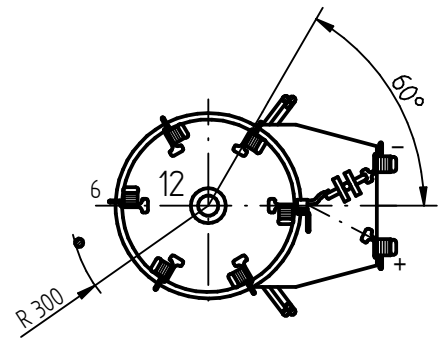
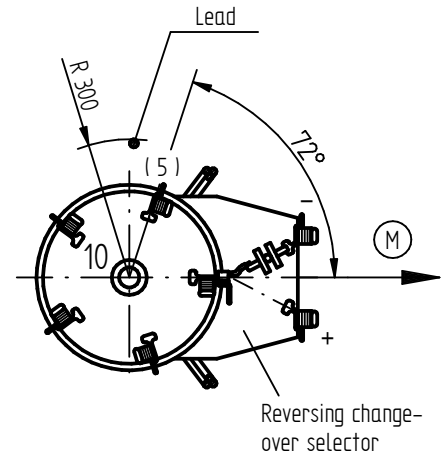
SHEET
 1/1

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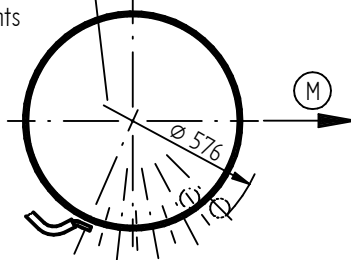
DATE	NAME	DOCUMENT NO.
22.03.2016	RAEDLINGER	SED 1050463 001 03
CHKO. 11.04.2016	MENZELS	CHANGE NO.
STAND. 11.04.2016	PRODASTSCHUK	1073378
		SCALE
		1:8



Arrangement of leads tie-in resistor - selector
 For contact location see relevant dimension drawing



Without tie-in switch for max. 8 resistor elements (as shown)



(M) - Drive side of selector

The connection diagram of the on-load tap-changer is binding for the designation of the terminals.

DIMENSION
 IN mm
 EXCEPT AS
 NOTED



ON-LOAD TAP-CHANGER OILTAP® MS AND VACUTAP® VM®
 MS I / VM I 301 - SELECTOR SIZE B
 TIE-IN RESISTORS WITHOUT TIE-IN SWITCH

SERIAL NUMBER

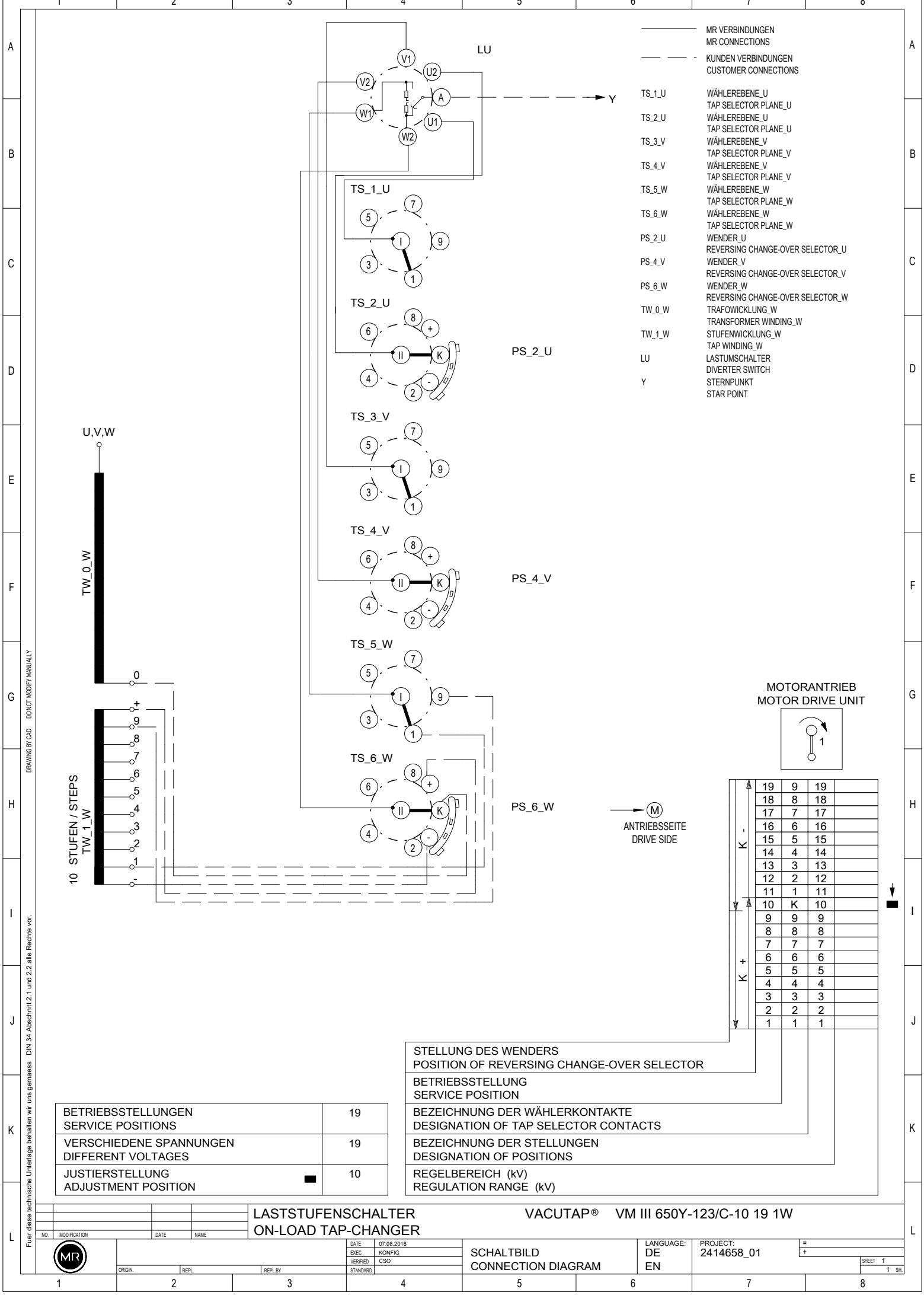
MATERIAL NUMBER
 8986934E

SHEET
 1/1

4.6 Esquemas de conexiones (ejemplos)

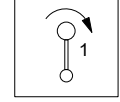
A continuación, encontrará ejemplos sobre los esquemas de conexiones.

El esquema de conexiones específico del pedido se le entrega con el suministro.



- MR VERBINDUNGEN
MR CONNECTIONS
- KUNDEN VERBINDUNGEN
CUSTOMER CONNECTIONS
- TS_1_U WÄHLEREBENE_U
TAP SELECTOR PLANE_U
- TS_2_U WÄHLEREBENE_U
TAP SELECTOR PLANE_U
- TS_3_V WÄHLEREBENE_V
TAP SELECTOR PLANE_V
- TS_4_V WÄHLEREBENE_V
TAP SELECTOR PLANE_V
- TS_5_W WÄHLEREBENE_W
TAP SELECTOR PLANE_W
- TS_6_W WÄHLEREBENE_W
TAP SELECTOR PLANE_W
- PS_2_U WENDER_U
REVERSING CHANGE-OVER SELECTOR_U
- PS_4_V WENDER_V
REVERSING CHANGE-OVER SELECTOR_V
- PS_6_W WENDER_W
REVERSING CHANGE-OVER SELECTOR_W
- TW_0_W TRAFOWICKLUNG_W
TRANSFORMER WINDING_W
- TW_1_W STUFENWICKLUNG_W
TAP WINDING_W
- LU LASTUMSCHALTER
DIVERTER SWITCH
- Y STERNPUNKT
STAR POINT

MOTORANTRIEB
MOTOR DRIVE UNIT



19	9	19
18	8	18
17	7	17
16	6	16
15	5	15
14	4	14
13	3	13
12	2	12
11	1	11
10	K	10
9	9	9
8	8	8
7	7	7
6	6	6
5	5	5
4	4	4
3	3	3
2	2	2
1	1	1

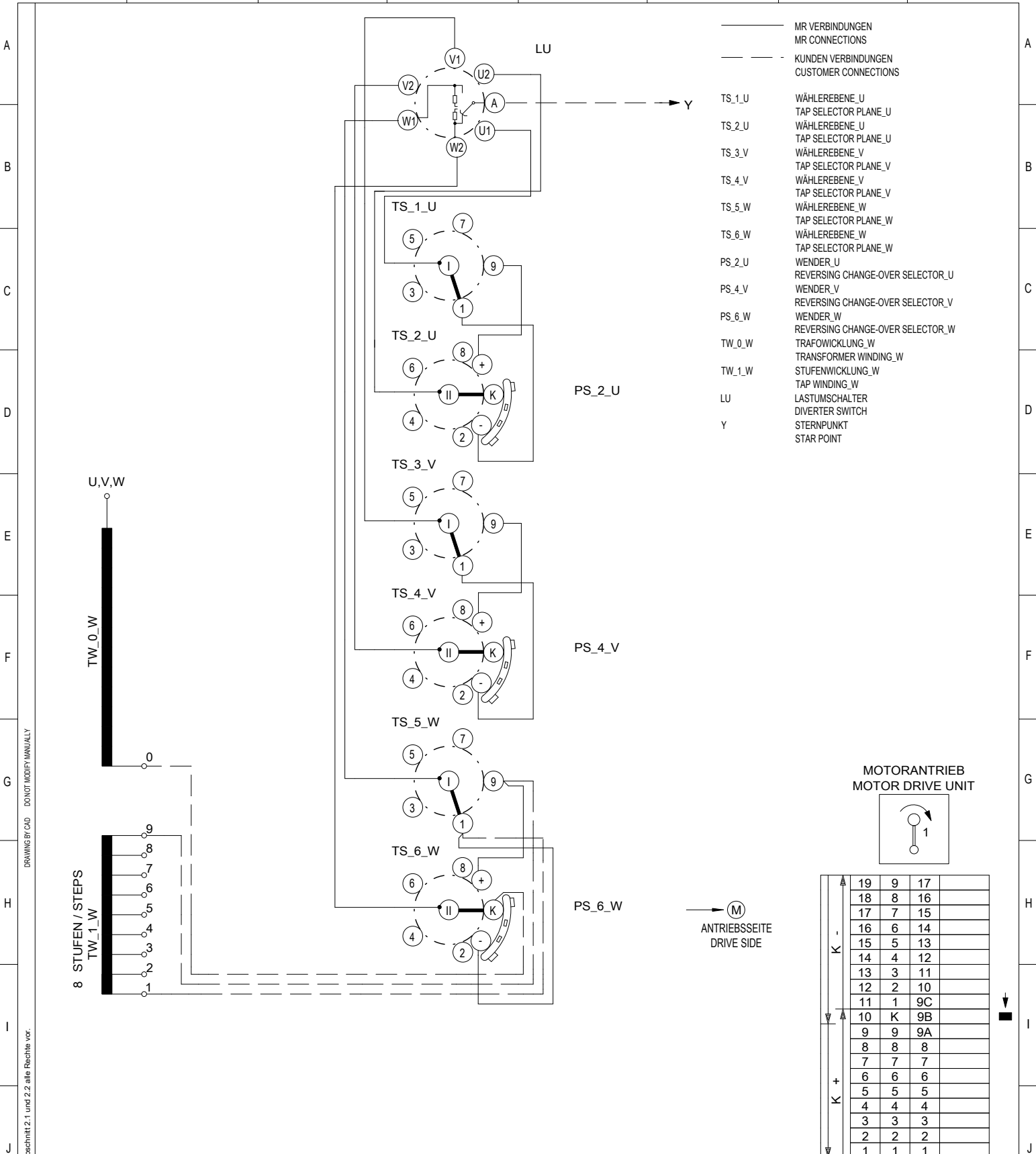
(M) ANTRIEBSSEITE
DRIVE SIDE

STELLUNG DES WENDERS POSITION OF REVERSING CHANGE-OVER SELECTOR
BETRIEBSSTELLUNG SERVICE POSITION
BEZEICHNUNG DER WÄHLERKONTAKTE DESIGNATION OF TAP SELECTOR CONTACTS
BEZEICHNUNG DER STELLUNGEN DESIGNATION OF POSITIONS
REGELBEREICH (kV) REGULATION RANGE (kV)

BETRIEBSSTELLUNGEN SERVICE POSITIONS	19
VERSCHIEDENE SPANNUNGEN DIFFERENT VOLTAGES	19
JUSTIERSTELLUNG ADJUSTMENT POSITION	10

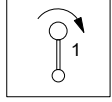
LASTSTUFENSCHALTER VACUTAP® VM III 650Y-123/C-10 19 1W
ON-LOAD TAP-CHANGER

FÜR DIESE TECHNISCHE UNTERLAGE BEHALTEN WIR UNS GEMÄSS DIN 34 ABSCHNITT 2.1 UND 2.2 ALLE RECHTE VOR.
 DRAWING BY CAD DO NOT MODIFY MANUALLY



- MR VERBINDUNGEN
MR CONNECTIONS
- KUNDEN VERBINDUNGEN
CUSTOMER CONNECTIONS
- TS_1_U WÄHLEREbene_U
TAP SELECTOR PLANE_U
- TS_2_U WÄHLEREbene_U
TAP SELECTOR PLANE_U
- TS_3_V WÄHLEREbene_V
TAP SELECTOR PLANE_V
- TS_4_V WÄHLEREbene_V
TAP SELECTOR PLANE_V
- TS_5_W WÄHLEREbene_W
TAP SELECTOR PLANE_W
- TS_6_W WÄHLEREbene_W
TAP SELECTOR PLANE_W
- PS_2_U WENDER_U
REVERSING CHANGE-OVER SELECTOR_U
- PS_4_V WENDER_V
REVERSING CHANGE-OVER SELECTOR_V
- PS_6_W WENDER_W
REVERSING CHANGE-OVER SELECTOR_W
- TW_0_W TRAFOWICKLUNG_W
TRANSFORMER WINDING_W
- TW_1_W STUFENWICKLUNG_W
TAP WINDING_W
- LU LASTUMSCHALTER
DIVERTER SWITCH
- Y STERNPUNKT
STAR POINT

MOTORANTRIEB
MOTOR DRIVE UNIT



19	9	17	
18	8	16	
17	7	15	
16	6	14	
15	5	13	
14	4	12	
13	3	11	
12	2	10	
11	1	9C	
10	K	9B	
9	9	9A	
8	8	8	
7	7	7	
6	6	6	
5	5	5	
4	4	4	
3	3	3	
2	2	2	
1	1	1	

(M)
ANTRIEBSSEITE
DRIVE SIDE

STELLUNG DES WENDERS POSITION OF REVERSING CHANGE-OVER SELECTOR
BETRIEBSSTELLUNG SERVICE POSITION
BEZEICHNUNG DER WÄHLERKONTAKTE DESIGNATION OF TAP SELECTOR CONTACTS
BEZEICHNUNG DER STELLUNGEN DESIGNATION OF POSITIONS
REGELBEREICH (kV) REGULATION RANGE (kV)

BETRIEBSSTELLUNGEN SERVICE POSITIONS	19
VERSCHIEDENE SPANNUNGEN DIFFERENT VOLTAGES	17
JUSTIERSTELLUNG ADJUSTMENT POSITION	9B

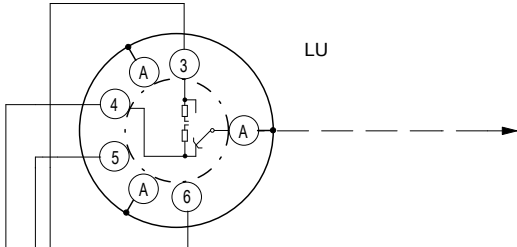
LASTSTUFENSCHALTER VACUTAP® VM III 650Y-123/C-10 19 3W
ON-LOAD TAP-CHANGER

NO.	MODIFICATION	DATE	NAME

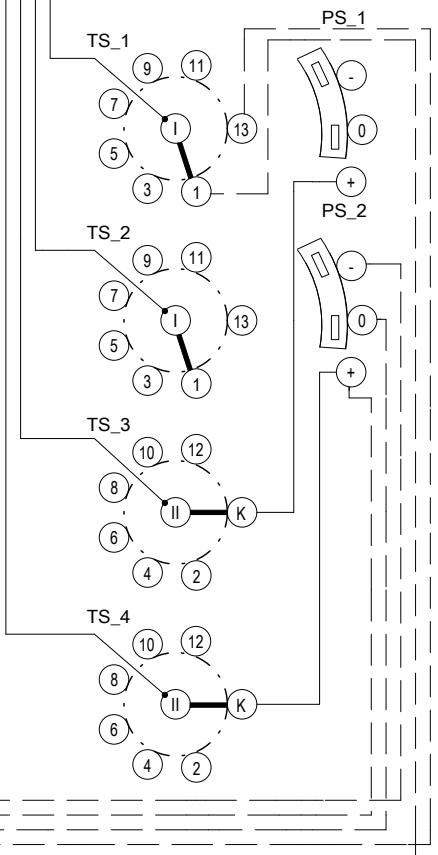
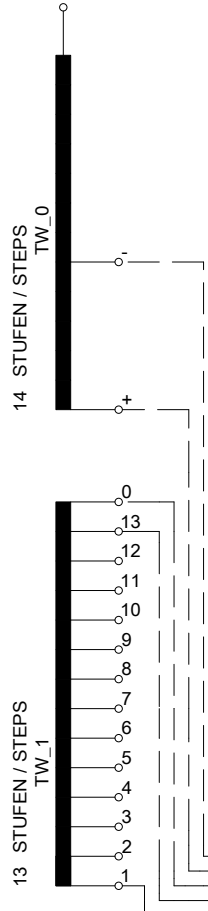
FÜR DIESE TECHNISCHE UNTERLAGE GELTEN DIE VORGESCHRIEBENEN MASSSTÄBE: DIN 34, ABSCHNITT 2.1 UND 2.2, ALLE RECHTE VORRESERVIERT.
 DRAWING BY CAD - DO NOT MODIFY MANUALLY

ACHTUNG
 PARALLELBRÜCKEN VON MR NICHT ANGEBAUT
 VON TS_1 (PS_1) NACH TS_2 (PS_2)
 VON TS_3 NACH TS_4

ATTENTION !
 PARALLEL BRIDGES ARE NOT INSTALLED BY MR
 FROM TS_1 (PS_1) TO TS_2 (PS_2)
 FROM TS_3 TO TS_4



- MR VERBINDUNGEN
MR CONNECTIONS
- - - KUNDEN VERBINDUNGEN
CUSTOMER CONNECTIONS
- TS_1 WÄHLEREBENE
TAP SELECTOR PLANE
- TS_2 WÄHLEREBENE
TAP SELECTOR PLANE
- TS_3 WÄHLEREBENE
TAP SELECTOR PLANE
- TS_4 WÄHLEREBENE
TAP SELECTOR PLANE
- PS_1 GROBWÄHLER
COARSE TAP SELECTOR
- PS_2 GROBWÄHLER
COARSE TAP SELECTOR
- TW_0 TRAFOWICKLUNG
TRANSFORMER WINDING
- TW_1 STUFENWICKLUNG
TAP WINDING
- LU LASTUMSCHALTER
DIVERTER SWITCH



27	13	27	
26	12	26	
25	11	25	
24	10	24	
23	9	23	
22	8	22	
21	7	21	
20	6	20	
19	5	19	
18	4	18	
17	3	17	
16	2	16	
15	1	15	
14	K	14	
13	13	13	
12	12	12	
11	11	11	
10	10	10	
9	9	9	
8	8	8	
7	7	7	
6	6	6	
5	5	5	
4	4	4	
3	3	3	
2	2	2	
1	1	1	

➔ (M)
 ANTRIEBSSEITE
 DRIVE SIDE

STELLUNG DES GROBWÄHLERS POSITION OF COARSE TAP SELECTOR
BETRIEBSSTELLUNG SERVICE POSITION
BEZEICHNUNG DER WÄHLERKONTAKTE DESIGNATION OF TAP SELECTOR CONTACTS
BEZEICHNUNG DER STELLUNGEN DESIGNATION OF POSITIONS
REGELBEREICH (kV) REGULATION RANGE (kV)

BETRIEBSSTELLUNGEN SERVICE POSITIONS	27
VERSCHIEDENE SPANNUNGEN DIFFERENT VOLTAGES	27
JUSTIERSTELLUNG ADJUSTMENT POSITION	14

LASTSTUFENSCHALTER VACUTAP® VM I 802-123/D-14 27 1G
ON-LOAD TAP-CHANGER

NO.	MODIFICATION	DATE	NAME

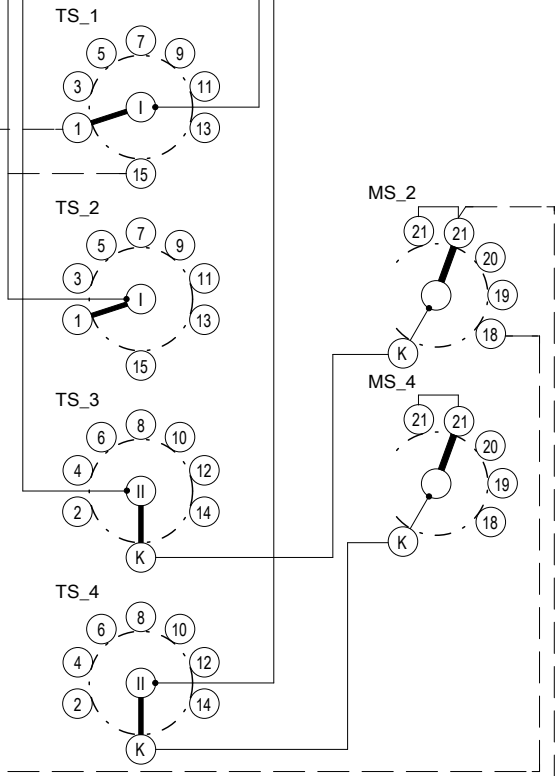
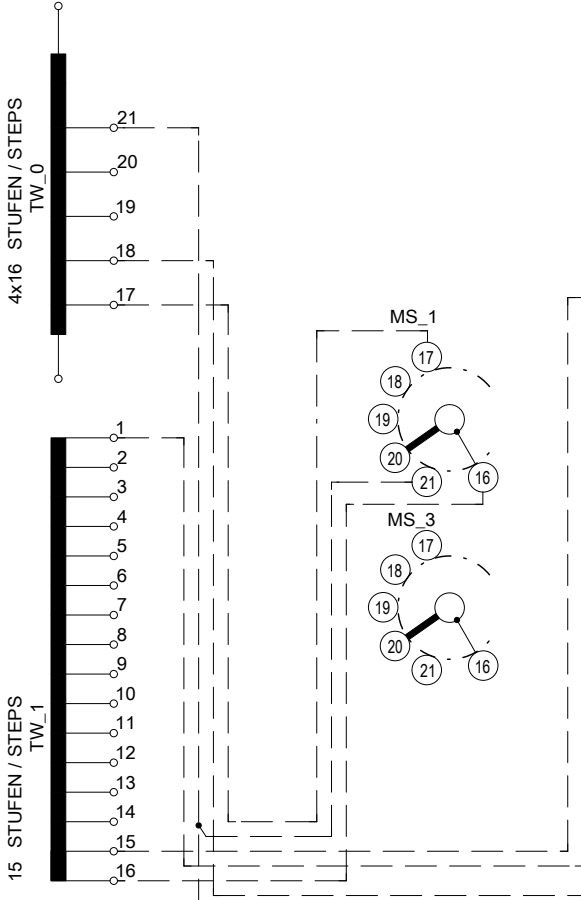
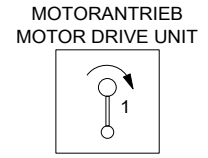
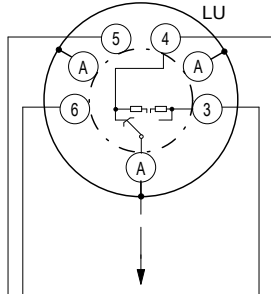
DATE	07.08.2018
ERIC	KONFIG
VERIFIED	CSO
STANDARD	

SCHALTBILD
 CONNECTION DIAGRAM

LANGUAGE:
 DE PROJECT: 2414631_01
 EN

FÜR DIESE TECHNISCHE UNTERLAGE BEHALTEN WIR UNS GEMÄSS DIN 34 ABSCHNITT 2.1 UND 2.2 ALLE RECHTE VOR.
 DRAWING BY CAD DO NOT MODIFY MANUALLY

- MR VERBINDUNGEN
MR CONNECTIONS
- - - KUNDEN VERBINDUNGEN
CUSTOMER CONNECTIONS
- TS_1 - TS_4 WÄHLEREBENEN
TAP SELECTOR PLANES
- MS_1 - MS_4 MEHRFACHGROBWÄHLER
MULTIPLE COARSE TAP SELECTOR
- TW_0 TRAFOWICKLUNG
TRANSFORMER WINDING
- TW_1 STUFENWICKLUNG
TAP WINDING
- LU LASTUMSCHALTER
DIVERTER SWITCH



79	15	79
78	14	78
77	13	77
76	12	76
75	11	75
74	10	74
73	9	73
72	8	72
71	7	71
70	6	70
69	5	69
68	4	68
67	3	67
66	2	66
65	1	65
64	K	64
63	15	63
62	14	62
61	13	61
60	12	60
59	11	59
58	10	58
57	9	57
56	8	56
55	7	55
54	6	54
53	5	53
52	4	52
51	3	51
50	2	50
49	1	49
48	K	48
47	15	47
46	14	46
45	13	45
44	12	44
43	11	43
42	10	42
41	9	41
40	8	40
39	7	39
38	6	38
37	5	37
36	4	36
35	3	35
34	2	34
33	1	33
32	K	32
31	15	31
30	14	30
29	13	29
28	12	28
27	11	27
26	10	26
25	9	25
24	8	24
23	7	23
22	6	22
21	5	21
20	4	20
19	3	19
18	2	18
17	1	17
16	K	16
15	15	15
14	14	14
13	13	13
12	12	12
11	11	11
10	10	10
9	9	9
8	8	8
7	7	7
6	6	6
5	5	5
4	4	4
3	3	3
2	2	2
1	1	1

ACHTUNG
PARALLELBÜCKEN VON MR NICHT ANGEBAUT
VON TS_1 NACH TS_2
VON TS_3 NACH TS_4
VON MS_1 NACH MS_3
VON MS_2 NACH MS_4

ATTENTION !
PARALLEL BRIDGES ARE NOT INSTALLED BY MR
FROM TS_1 TO TS_2
FROM TS_3 TO TS_4
FROM MS_1 TO MS_3
FROM MS_2 TO MS_4



STELLUNG DES GROBWÄHLERS POSITION OF COARSE TAP SELECTOR
BETRIEBSSTELLUNG SERVICE POSITION
BEZEICHNUNG DER WÄHLERKONTAKTE DESIGNATION OF TAP SELECTOR CONTACTS
BEZEICHNUNG DER STELLUNGEN DESIGNATION OF POSITIONS

BETRIEBSSTELLUNGEN SERVICE POSITIONS	79
VERSCHIEDENE SPANNUNGEN DIFFERENT VOLTAGES	79
JUSTIERSTELLUNG ADJUSTMENT POSITION	16

LASTSTUFENSCHALTER VACUTAP® VM I 802-123/C-16 79 1G
ON-LOAD TAP-CHANGER

NO.	MODIFICATION	DATE	NAME



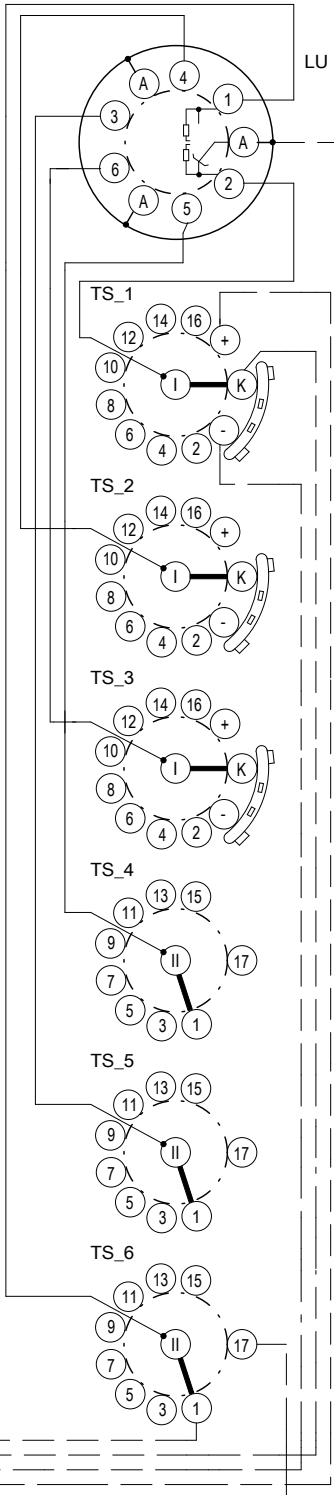
DATE	07.08.2018
ERIC	KONFIG
VERIFIED	CSO
STANDARD	

SCHALTBILD
CONNECTION DIAGRAM

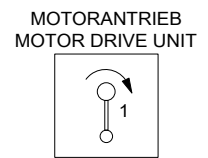
LANGUAGE:	DE
EN	
PROJECT:	2407535_01

ACHTUNG
 PARALLELBRÜCKEN VON MR NICHT ANGEBAUT
 VON TS_1 (PS_1) NACH TS_2 (PS_2) NACH TS_3 (PS_3)
 VON TS_4 NACH TS_5 NACH TS_6

ATTENTION !
 PARALLEL BRIDGES ARE NOT INSTALLED BY MR
 FROM TS_1 (PS_1) TO TS_2 (PS_2) TO TS_3 (PS_3)
 FROM TS_4 TO TS_5 TO TS_6

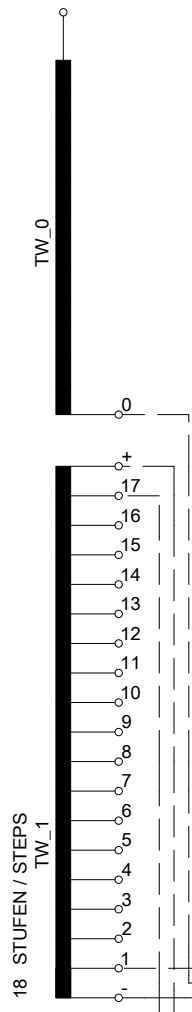


- MR VERBINDUNGEN
MR CONNECTIONS
- - - KUNDEN VERBINDUNGEN
CUSTOMER CONNECTIONS
- TS_1 WÄHLEREBENE
TAP SELECTOR PLANE
- TS_2 WÄHLEREBENE
TAP SELECTOR PLANE
- TS_3 WÄHLEREBENE
TAP SELECTOR PLANE
- TS_4 WÄHLEREBENE
TAP SELECTOR PLANE
- TS_5 WÄHLEREBENE
TAP SELECTOR PLANE
- TS_6 WÄHLEREBENE
TAP SELECTOR PLANE
- PS_1 WENDER
REVERSING CHANGE-OVER SELECTOR
- PS_2 WENDER
REVERSING CHANGE-OVER SELECTOR
- PS_3 WENDER
REVERSING CHANGE-OVER SELECTOR
- TW_0 TRAFOWICKLUNG
TRANSFORMER WINDING
- TW_1 STUFENWICKLUNG
TAP WINDING
- LU LASTUMSCHALTER
DIVERTER SWITCH



35	17	35
34	16	34
33	15	33
32	14	32
31	13	31
30	12	30
29	11	29
28	10	28
27	9	27
26	8	26
25	7	25
24	6	24
23	5	23
22	4	22
21	3	21
20	2	20
19	1	19
18	K	18
17	17	17
16	16	16
15	15	15
14	14	14
13	13	13
12	12	12
11	11	11
10	10	10
9	9	9
8	8	8
7	7	7
6	6	6
5	5	5
4	4	4
3	3	3
2	2	2
1	1	1

(M) ANTRIEBSSEITE
 DRIVE SIDE



STELLUNG DES WENDERS
 POSITION OF REVERSING CHANGE-OVER SELECTOR

BETRIEBSSTELLUNG
 SERVICE POSITION

BEZEICHNUNG DER WÄHLERKONTAKTE
 DESIGNATION OF TAP SELECTOR CONTACTS

BEZEICHNUNG DER STELLUNGEN
 DESIGNATION OF POSITIONS

REGELBEREICH (kV)
 REGULATION RANGE (kV)

BETRIEBSSTELLUNGEN SERVICE POSITIONS	35
VERSCHIEDENE SPANNUNGEN DIFFERENT VOLTAGES	35
JUSTIERSTELLUNG ADJUSTMENT POSITION	18

LASTSTUFENSCHALTER VACUTAP® VM I 1203-123/C-18 35 1W
ON-LOAD TAP-CHANGER

NO.	MODIFICATION	DATE	NAME



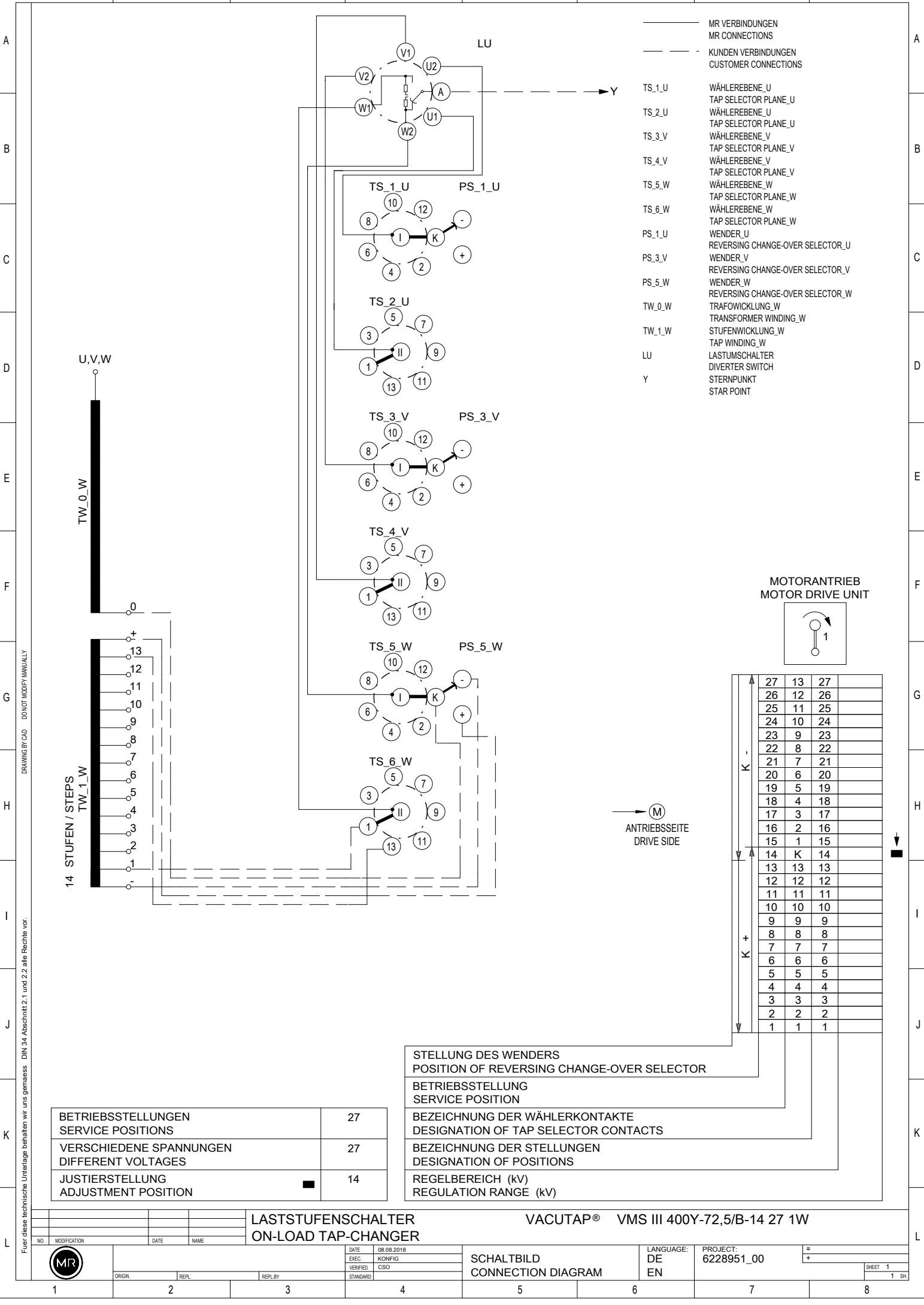
DATE	07.08.2018
ERIC	KONFIG
VERIFIED	CSO
STANDARD	

SCHALTBILD
 CONNECTION DIAGRAM

LANGUAGE:
 DE
 EN

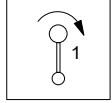
PROJECT:
 2414636_01

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 Für diese technische Unterlage behalten wir uns gemäss DIN 34 Abschnitt 2.1 und 2.2 alle Rechte vor.



- MR VERBINDUNGEN
MR CONNECTIONS
- - - KUNDEN VERBINDUNGEN
CUSTOMER CONNECTIONS
- TS_1_U WÄHLEREbene_U
TAP SELECTOR PLANE_U
- TS_2_U WÄHLEREbene_U
TAP SELECTOR PLANE_U
- TS_3_V WÄHLEREbene_V
TAP SELECTOR PLANE_V
- TS_4_V WÄHLEREbene_V
TAP SELECTOR PLANE_V
- TS_5_W WÄHLEREbene_W
TAP SELECTOR PLANE_W
- TS_6_W WÄHLEREbene_W
TAP SELECTOR PLANE_W
- PS_1_U WENDER_U
REVERSING CHANGE-OVER SELECTOR_U
- PS_3_V WENDER_V
REVERSING CHANGE-OVER SELECTOR_V
- PS_5_W WENDER_W
REVERSING CHANGE-OVER SELECTOR_W
- TW_0_W TRAFOWICKLUNG_W
TRANSFORMER WINDING_W
- TW_1_W STUFENWICKLUNG_W
TAP WINDING_W
- LU LASTUMSCHALTER
DIVERTER SWITCH
- Y STERNPUNKT
STAR POINT

**MOTORANTRIEB
MOTOR DRIVE UNIT**



27	13	27	
26	12	26	
25	11	25	
24	10	24	
23	9	23	
22	8	22	
21	7	21	
20	6	20	
19	5	19	
18	4	18	
17	3	17	
16	2	16	
15	1	15	
14	K	14	
13	13	13	
12	12	12	
11	11	11	
10	10	10	
9	9	9	
8	8	8	
7	7	7	
6	6	6	
5	5	5	
4	4	4	
3	3	3	
2	2	2	
1	1	1	

→ (M)
ANTRIEBSSEITE
DRIVE SIDE

STELLUNG DES WENDERS
POSITION OF REVERSING CHANGE-OVER SELECTOR

BETRIEBSSTELLUNG
SERVICE POSITION

BEZEICHNUNG DER WÄHLERKONTAKTE
DESIGNATION OF TAP SELECTOR CONTACTS

BEZEICHNUNG DER STELLUNGEN
DESIGNATION OF POSITIONS

REGELBEREICH (kV)
REGULATION RANGE (kV)

BETRIEBSSTELLUNGEN SERVICE POSITIONS	27
VERSCHIEDENE SPANNUNGEN DIFFERENT VOLTAGES	27
JUSTIERSTELLUNG ADJUSTMENT POSITION	14

LASTSTUFENSCHALTER VACUTAP® VMS III 400Y-72,5/B-14 27 1W
ON-LOAD TAP-CHANGER

NO.	MODIFICATION	DATE	NAME



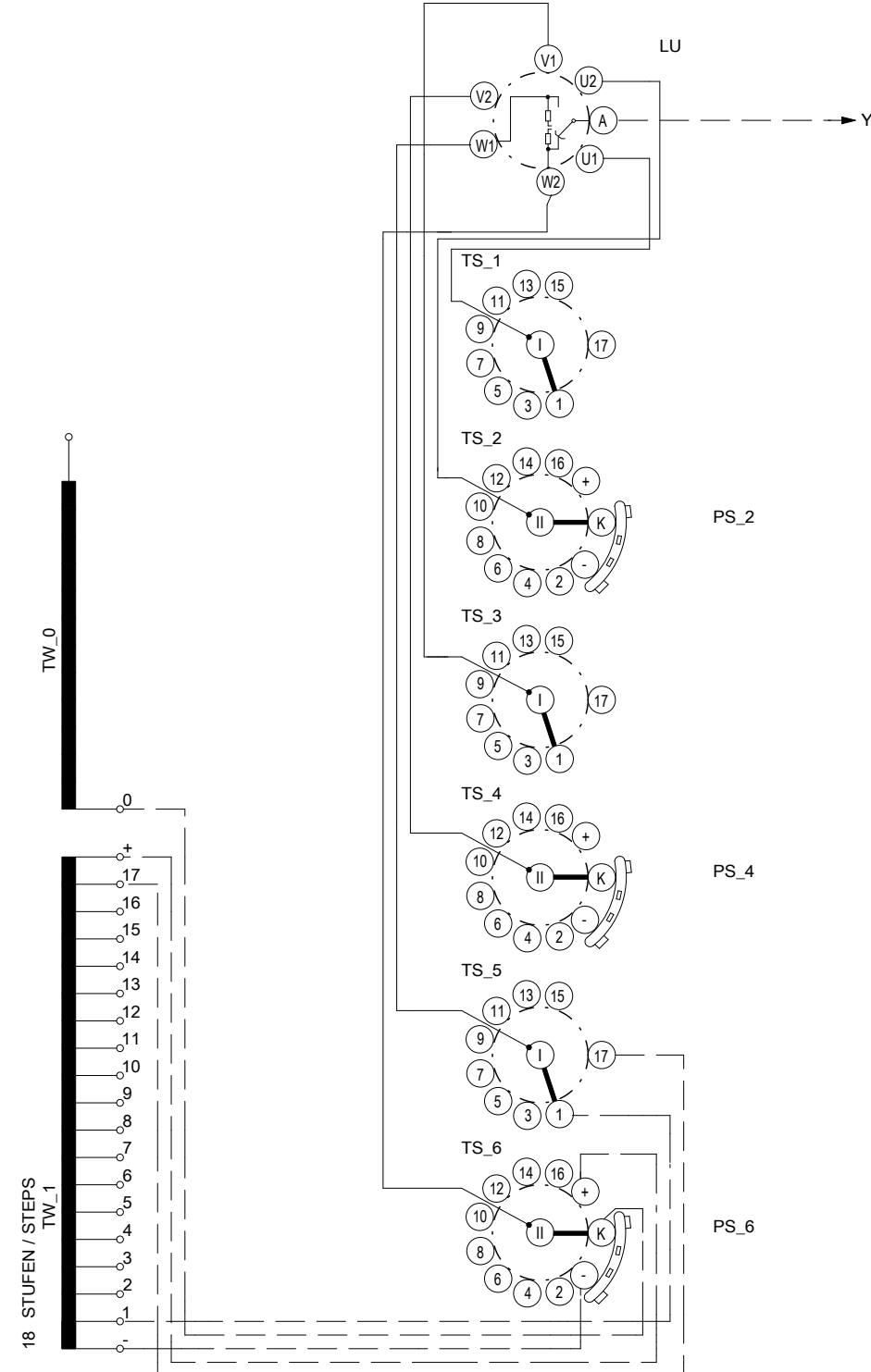
DATE	08.08.2018
ERIC	KONFIG
VERIFIED	CSO
STANDARD	

SCHALTBILD
CONNECTION DIAGRAM

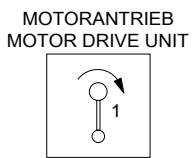
LANGUAGE:
DE
EN

PROJECT:
6228951_00

FÜR DIESE TECHNISCHE UNTERLAGE BEHALTEN WIR UNS GEMÄSS DIN 34 ABSCHNITT 2.1 UND 2.2 ALLE RECHTE VOR.
 DRAWING BY CAD DO NOT MODIFY MANUALLY



- MR VERBINDUNGEN
MR CONNECTIONS
- KUNDEN VERBINDUNGEN
CUSTOMER CONNECTIONS
- TS_1 WÄHLEREbene
TAP SELECTOR PLANE
- TS_2 WÄHLEREbene
TAP SELECTOR PLANE
- TS_3 WÄHLEREbene
TAP SELECTOR PLANE
- TS_4 WÄHLEREbene
TAP SELECTOR PLANE
- TS_5 WÄHLEREbene
TAP SELECTOR PLANE
- TS_6 WÄHLEREbene
TAP SELECTOR PLANE
- PS_2 WENDER
REVERSING CHANGE-OVER SELECTOR
- PS_4 WENDER
REVERSING CHANGE-OVER SELECTOR
- PS_6 WENDER
REVERSING CHANGE-OVER SELECTOR
- TW_0 TRAFOWICKLUNG
TRANSFORMER WINDING
- TW_1 STUFENWICKLUNG
TAP WINDING
- LU LASTUMSCHALTER
DIVERTER SWITCH
- Y STERNPUNKT
STAR POINT



35	17	35
34	16	34
33	15	33
32	14	32
31	13	31
30	12	30
29	11	29
28	10	28
27	9	27
26	8	26
25	7	25
24	6	24
23	5	23
22	4	22
21	3	21
20	2	20
19	1	19
18	K	18
17	17	17
16	16	16
15	15	15
14	14	14
13	13	13
12	12	12
11	11	11
10	10	10
9	9	9
8	8	8
7	7	7
6	6	6
5	5	5
4	4	4
3	3	3
2	2	2
1	1	1

(M) ANTRIEBSSEITE
DRIVE SIDE

STELLUNG DES WENDERS
POSITION OF REVERSING CHANGE-OVER SELECTOR

BETRIEBSSTELLUNG
SERVICE POSITION

BEZEICHNUNG DER WÄHLERKONTAKTE
DESIGNATION OF TAP SELECTOR CONTACTS

BEZEICHNUNG DER STELLUNGEN
DESIGNATION OF POSITIONS

REGELBEREICH (kV)
REGULATION RANGE (kV)

BETRIEBSSTELLUNGEN SERVICE POSITIONS	35
VERSCHIEDENE SPANNUNGEN DIFFERENT VOLTAGES	35
JUSTIERSTELLUNG ADJUSTMENT POSITION	18

LASTSTUFENSCHALTER VACUTAP® VMS III 400Y-123/C-18 35 1W
ON-LOAD TAP-CHANGER

NO.	MODIFICATION	DATE	NAME



DATE	08.08.2018
ERIC	KONFIG
VERIFIED	CSO
STANDARD	

SCHALTBILD
CONNECTION DIAGRAM

LANGUAGE:
DE PROJECT: 6228952_00
EN

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THE POWER BEHIND POWER.