Power Contactors

EVS

Vacuum Switching Principle

EAW

RELAIS TECHNIK GMBH

Application

The EVS vacuum contactors are suitable for all applications involving the switching of AC and three-phase loads.
They are used for direct switching of motors, in particular in the utilization categories AC2-AC4 to build star-delta combinations, for reverse switchings and as rotor contactors.
The application fields of vacuum contactors are:

- Basic industries
- Metallurgy
- Heavy machinery construction
- Shipbuilding
- Chemical industry
- Drilling platforms/petrol industry
- Mining
- Railway

Main Advantages

- Considerably higher electrical service life in comparison with air-break contactors because of the vacuum switching principle
- Higher power capacity to comparable air-break contactors at full capacity utilization up to 1.000 V.
- No arc safety clearances required
- No environmental pollution due to vacuum enclosure of the arc gaps
- High resistance against short-circuit current effects
- Safe to operate and free of maintenance

Conformity Declaration

EVS vacuum contactors conform to the following regulations:

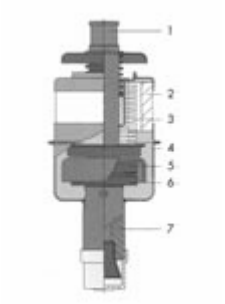
- EN 60947-4-1
- IEC 947-4-1

Modular configured devices in the sense of EN 60947 have no mechanical connection between the individual switching systems.

Structure and Mode of Operation

EVS vacuum contactors are offered in two type series, in compact and modular types.
The modular type allows configuring n-pole devices, which can be used for high current applications.
For this purpose, a parallel connection of individual poles is made by connecting bars.

The main switching system is enclosed and switches under vacuum. This helps to prevent arcs exits and their emission of metal vapors into the environment as well as avoids the influence of the environmental atmosphere to the switching contacts.



Vacuum Interrupter Chamber

1 Current supply, movable
2 Ceramic insulation gap
3 Metal bellows
4 Case
5 Contact, movable
6 Contact, fixed
7 Current supply, fixed

The switching systems are operated by electromagnetic drives. Types containing a single coil and an auto-connected series resistor for hold operations are available as well as double coils with internal changeover. Control circuits are provided with suppressor circuits.

2NO and 2NC are available as auxiliary switches for the compact 3-pole devices which can be extended to 4NO and 4NC.
Modular device have to variable auxiliary contacts per pole.

Type Series

EV2 102-302 Standard Series

The vacuum contactors of the standard series are compact, insulated at all sides and have enclosed 3-poles. Main terminals for cable lug and bar connections are freely accessible.

EVSM 102-302 Mining Type

The EVSM102-302 mining type has the same construction as the EVS102-302 but with lower surface temperatures of the driving components because of double-wound coil.
Due to their double-wound coil, the EVSM102-302 types have longer tripping times than the standard types EVS102-302. To reduce the tripping time, these EVMS102-302 types allow the connection of an additional external interrupter at the terminals A3 and A4.
Using this connectable external interrupter, the operating delay can be reduced to < 70 ms.

EVSS 102-302 Special Version

Construction like EVS102-302 but with an external option to provide operate and withstand voltage for the single-wound coil.

EVS 160-630

The EVS 160-630 series are modular 1-pole basic contactors.
The devices can be combined with multi-pole versions. Each pole has an individual operating mechanism.
There is no mechanic connection between the poles. The devices are open at all sides.

EVS 161-631

Construction and function like EVS 160-630 but with covers to guarantee the protection of the back of the hand and of the fingers.

Vacuum Contactors EVS 3-phase

Model / Main dimensions H X W X D		Type	Rated Operational Current I_e		I_e / I_{th}	Rated Operational Power AC2-AC4 Three-phase Motors 50/60Hz up to 45° C					Conductor Size mm²
			AC2-AC3	AC4	AC1	230 V	400 V	500 V	690 V	1000 V	
			A	A	A	kW					
	Compact										
	180 x 135 x 180	EVS, S, M 102	100	100	100	30	55	65	90	132	35
	180 x 135 x 180	EVS, S, M 142	140	140	140	40	75	90	132	185	50
	180 x 135 x 180	EVS, S, M 162	160	160	160	45	80	110	147	220	70
	Compact										
	200 x 145 x 180	EVS, S, M 222	225	225	225	63	110	147	200	280	95
	200 x 145 x 180	EVS, S, M 252	250	250	250	75	132	160	220	315	120
	200 x 145 x 180	EVS, S, M 302	300	300	300	90	160	200	280	400	185
	Modular										
	310 x 225 x 210	EVS 160/161/3	160	160	160	45	80	110	147	220	70
	310 x 225 x 210	EVS 320/321/3	320	320	320	100	160	220	280	450	185
	Modular										
	340 x 262.5 x 210	EVS 400/401/3	400	400	400	110	220	250	400	600	240
	340 x 262.5 x 210	EVS 630/631/3		525		160	280	355	500	800	2 x 40 x 5
	340 x 262.5 x 210	EVS 630/631/3	630		630	200	315	450	630	900	2 x 40 x 5

Vacuum Contactors – Modular Version

Model / Main dimensions H X W X D	Type	Rated Operational Current I_e		Rated Operational Power AC1 Ohm. Load 3 Phase 50/60Hz up to 45°C					Conductor Size mm²
		Phases	AC1	230 V	400 V	500 V	690 V	1000 V	
			A	kW					
Vacuum Contactors EVS 1-phase									
									
300 x 75 x 165	EVS 160/161/1	1	160						70
310 x 75 x 165	EVS 320/321/1	1	320						185
330 x 87.5 x 210	EVS 400/401/1	1	400						240
340 x 87.5 x 210	EVS 630/631/1	1	630						2 x 40 x 5
	EVS 630/631/1	1	710						2 x 50 x 5
Vacuum Contactors EVS High-current Contactors									
 350 x 175 x 210	EVS 1201/1 (1x2 poles)	1	1200						2 x 80 x 5
 450 x 262.5 x 210	EVS 1501/1 (1x3 poles)	1	1500						2 x 100 x 5
 350 x 525 x 210	EVS 1201/3 (3x2 poles)	3	1200	450	790	990	1.360	1.970	2 x 80 x 5
 450 x 787.5 x 210	EVS 1501/3 (3 x 3 poles)	3	1500	570	990	1.230	1.700	2.470	2 x 100 x 5

Technical Data

		EVS 102 EVSS 102 EVSM 102	EVS 142 EVSS 142 EVSM 142	EVS 162 EVSS 162 EVSM 162	EVS 222 EVSS 222 EVSM 222	EVS 252 EVSS 252 EVSM 252	EVS 302 EVSS 302 EVSM 302
Rated Insulation Voltage U_i	V	1.000					
Rated Impulse Strength U_{imp}	kV	8					
Rated Operational Voltage U_{emax}	V	1.000					
Rated Frequency f [1)]	Hz	50 - 60					
Rated Breaking Capacity		AC4					
Max. Breaking Capacity up to 1,000 V, cos φ = 0.35	kA	2.0			4.0		
Max. Breaking Capacity up to 1,000 V, cos φ = 0.35	kA	2.0			4.0		
Peak Current	kA	6.0	8.0	8.0	9.2	9.2	9.2
Short-time Current 1 s	kA	2.5	3.5	4.0	6.0	6.0	6.0
10 sec	kA	0.8	1.2	1.3	2.0	2.0	2.4
Mechanical Endurance	$x10^6$	10					
Max. Operating Frequency without Load	h^{-1}	3.000					
Max. Operating Frequency with Load AC1/AC 3	h^{-1}	1.200					
AC2	h^{-1}	600					
AC4	h^{-1}	150					
Ambient Temperature (100% electrical load)	°C	-40 ... +45					
Mounting Position Normal		vertical					
Permissible Tolerance		22.5° to all directions					
Protection Degree of Main Terminals		IP 00					
Protection Degree of Driving Mechanism		IP 20					
Protection Against Direct Touch		with terminal cover safe against touch of fingers and the back of the hand VDE 0106 Part 100					
Shock Resistance in All Directions (Square)	g	16					
Connecting Bolt		M6	M8	M8	M10	M10	M10
Stud Torque for Main Connector	Nm	3-10	3-10	3-10	10-20	10-20	10-20
Short-circuit Protection without Overload Relay							
Rated Short-circuit Current	kA	25					
Fuse Type Assignment Type							
500 V gL 1	A	500					630
2	A	500					630
1.000 V aM Mining 1	A	500	500				
2	A	400	500				
Solenoid Actuator							
Voltage Safety		0.8 ... 1.1Uc					
Accepted Power Pick Up EVS	VA	180					
EVSM	VA	220					
Holding EVS	VA	15					
EVSM	VA	3.5					
Operating Delay ON EVS, EVSS, EVSM	ms	45					
OFF EVS	ms	50					
EVSM	ms	120					
EVSM, add. interrupt. A3-A4	ms	<70					
Auxiliary Switch							
Number Normal		2NO+2NC					
Additional Number Possible		2NO+2NC					
Rated Insulation Voltage U_i	V	1.000					
Rated Operational Voltage U_e	V	400					
Conv. Thermal Current I_{th}	A	20					
Rated Operational Current I_e, AC15, 400 V	A	6					

1) Other frequencies upon request

Technical Data

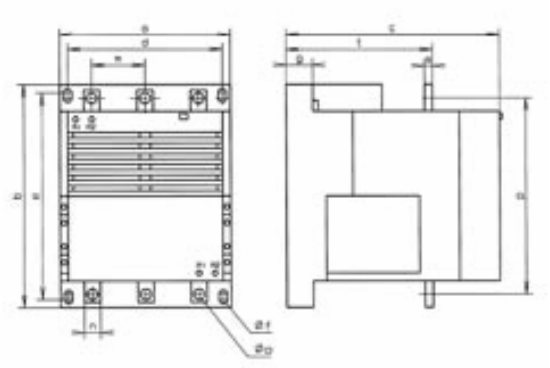
EVS160 / EVS161	EVS320 / EVS321	EVS400 / EVS401	EVS630 / EVS631	High-current Contactors EVS1201/3	High-current Contactors EVS1501/3		
1.000				1.000		V	Rated Insulation Voltage U_i
8				8		kV	Rated Impulse Strength U_{imp}
1.000				1.000		V	Rated Operational Voltage U_{emax}
50-60				50-60		Hz	Rated Frequency f [1]
AC4			AC4 [2]	AC1			Rated Breaking Capacity
4.0		5.3		5.3		kA	Max. Breaking Capacity up to 1.000 V, cos φ = 0.35
4.0		6.3		6.3		kA	Max. Breaking Capacity up to 1.000 V, cos φ = 0.35
8.4	8.4	15.3	15.3	25	35	kA	Peak Current
5.5	5.5	9.0	9.0	15	20	kA	Short-time Current 1 s
2.1	2.8	4.5	5.3	9	13	kA	10 sec
10				10		x10^6	Mechanical Endurance
3.000				3.000		h^{-1}	Max. Operating Frequency without Load
2.000				2.000		h^{-1}	Max. Operating Frequency with Load AC1/AC 3
1.000						h^{-1}	AC2
250						h^{-1}	AC4
-40 ... +40						°C	Ambient Temperature (100% Electrical Load)
vertical							Mounting Position Normal
22.5° to all directions							Permissible Tolerance
IP 00							Protection Degree of Main Terminals
IP 00							Protection Degree of Driving Mechanism
EVS 161-631 with terminal cover safe against touch of fingers and the back of the hand VDE 0106 Part 100							Protection Against Direct Touch
M8	M10	M10	M12	M12	2xM10		Connecting Bolt
3-10	10-20	10-20	10-20	10-20	10-20	Nm	Stud Torque for Main Connector
							Short-circuit Protection without Overload Relay
25				25		kA	Rated Short-circuit Current
				per pole			Fuse Type Assignment Type
630				630		A	500 V gL 1
500				500		A	2
400		500		500		A	1200 V gL 1
400		500		500		A	2
							Solenoid Actuator
0.8 ... 1.1Uc							Voltage Safety
							Accepted Power
400 [3]		530 [3]		1.100	1.600	VA	Pick up EVS
60 [3]		90 [3]		180	270	VA	Holding EVS
							Operating Delay
35				35		ms	ON EVS
40 (AC) ; 20 (DC)				40 (AC) ; 20 (DC)		ms	OFF EVS
							Auxiliary Switch
3NO+3NC [3]				6NO+6NC	9NO+9NC		Number Normal
400				400		V	Rated Insulation Voltage U_i
400				400		V	Rated Operational Voltage U_e
6				6		A	Conv. Thermal Current I_{th}
4				4		A	Rated Operational Current I_e, AC15, 400 V

1) other frequencies upon request 2) for AC4: I_e = 525 A 3) at 3 pole devices

Dimensions

Vacuum Contactors Compact Series

EVS 102-302
EVSS 102-302
EVSM 102-302

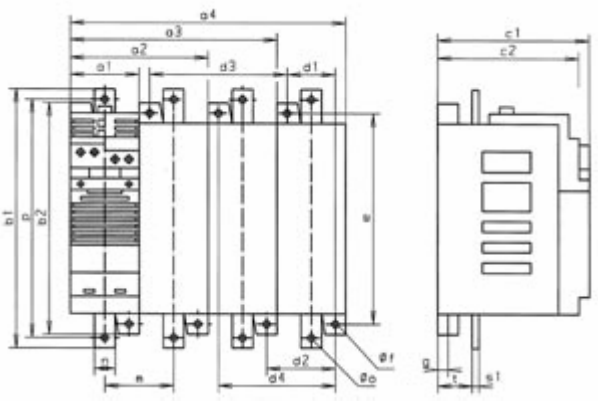


Type	a	a1 1)	a2 2)	b	c	d	e	f	g	m	n	o	p	s	t	Weight
	Dimensions in mm															kg
EVS 102 EVSS 102 EVSM 102	135	147	159	180	180	110	150/160	7	25	42	15	6.6	154	3	119	4.90
EVS 142 EVSS 142 EVSM 142	135	147	159	180	180	110	150/160	7	25	42	20	9	154	3	119	4.90
EVS 162 EVSS 162 EVSM 162	135	147	159	180	180	110	150/160	7	25	42	20	9	154	3	119	4.90
EVS 222 EVSS 222 EVSM 222	145	157	169	200	180	120	175/180	9	25	48	25	11	168	5	132	6.35
EVS 252 EVSS 252 EVSM 252	145	157	169	200	180	120	175/180	9	25	48	25	11	168	5	132	6.35
EVS 302 EVSS 302 EVSM 302	145	157	169	200	180	120	175/180	9	25	48	30	11	178	5	132	6.45

1) with an additional auiliary switch 2) with two additional auxiliary switches

Vacuum Contactors Modular Series

EVS 160-630
EVS 161-631



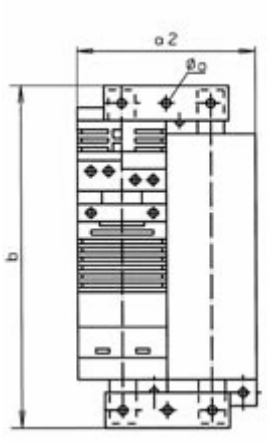
Type	a1	b1	b2	c1	c2	d1	d2	d3	d4	e	∅f	g	m	n	o	p	s1	t	1-pole	2-poles	3-poles	4-poles
	Dimensions in mm																		Weight in kg			
EVS 160					155														3.4	7	10.6	14.2
	75	300	258			50	75	150	125	237.5	6.6	6.5	75	25	M8	280	3 (1)	27				
EVS 161				165															3.7	7.6	11.5	15.4
EVS 320					155														3.5	7.2	10.9	14.6
	75	310	258			50	75	150	125	237.5	6.6	6.5	75	25	M10	285	5	25				
EVS 321				165															3.8	7.8	11.9	15.8
EVS 400					200														5.6	11.5	17.2	23.0
	87.5	330	300			62.5	87.5	175	150	275	9	7.5	87.5	30	M10	305	8	42				
EVS 401				210															6.0	12.3	18.4	24.5
EVS 630					200														5.8	11.9	17.8	24.0
	87.5	340	300			62.5	87.5	175	150	275	9	7.5	87.5	30	M12	310	10	40				
EVS 631				210															6.2	12.7	19.0	25.6

a2 = 2 x a1, a3 = 3 x a1, a4 = 4 x a1, a = number of poles (1) Connection bottom S1 = 5

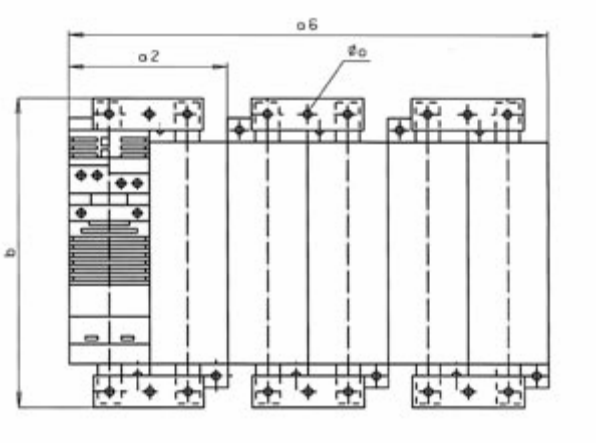
Dimensions

High-current Contactors

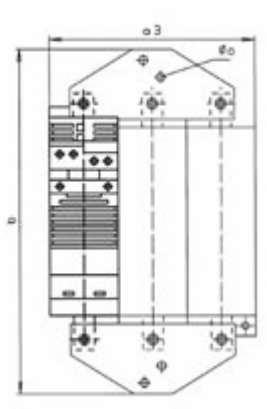
EVS 1201/1



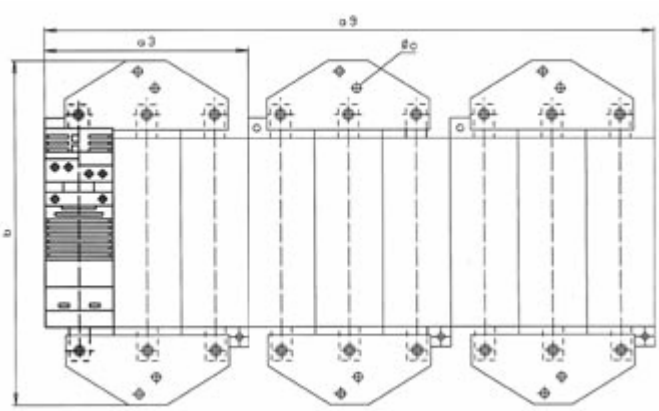
EVS 1201/3



EVS 1501/1

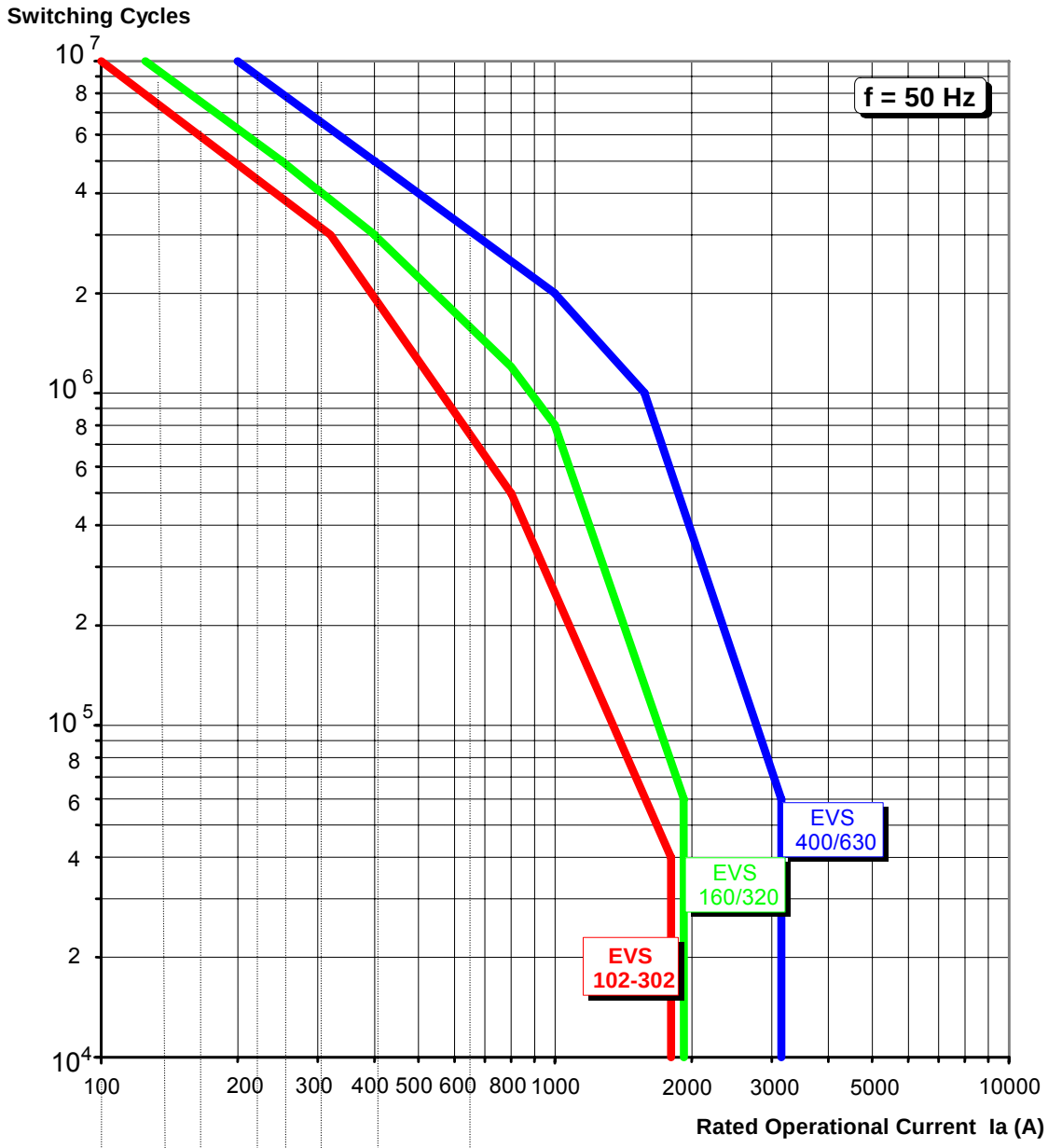


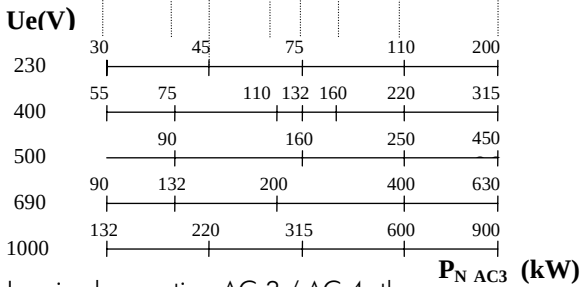
EVS 1501/3



Type	a2	a3	a6	a9	b	b1	b2	c1	d1	d2	d3	d4	e	∅f	g	m	n	∅o	p	s1	t
	Dimensions in mm																				
EVS 1201/1	175																				
					350	330	300		62.5	87.5	175	150	275	9	7.5	87.5	30	M12	305	8	42
EVS 1201/3			525					210													
EVS 1501/1		262.5																			
					450	340	300		62.5	87.5	175	150	275	9	7.5	87.5	30	2 x M10	310	10	40
EVS 1501/3				787.5				210													

Electrical Endurance Vacuum Contactors EVS





The characteristic curves show the dependency of the main contact endurance from the three-phase consumers during AC1 and AC3 operation while switching dependent on the breaking current.

In mixed operation AC 3 / AC 4, the contact life can be calculated approximately according to the following formula:

$$n_x = \frac{n_{AC-3}}{1 + \frac{h_{AC-4}}{100} \left(\frac{n_{AC-3}}{n_{AC-4}} - 1 \right)}$$

Legend:

n_x	Contact life at mixed operation
n_{AC-3}	Contact life at AC 3 operation
n_{AC-4}	Contact life at AC 4 operation
h_{AC-4}	Part of the AC 4 switching operations in the total number of switching in percentage

Applicatin Advice

Overvoltages in the Main Circuit

The normal capacity utilization of vacuum contactors does not require extra protective measures or additional devices against switching surges.
When switching currents of < 15 A, it is recommended to use voltage limiters which are parallel to the load.
In particular please avoid operations with transformers at no load.

Breaking Overvoltages in the Control Circuit

At devices with AC mechanisms voltage pulses coming from the solenoid coil into the control system are damped to inoffensive levels by the integrated Graetz bridge rectifier. The rectifier itself is protected against system overvoltages by a varistor.

Minimum Command Time

Starting pulses lower than the given delay times of the vacuum contactors may cause – as any contactor – contact welding.
The breaking pulse time must not be lower than the given breaking delay time. To effect quick reverse controls and a quick inching mode, time delay elements (minimum 50 ms) must be provided.

Combination of Vacuum Contactors with Overload Releases

Vacuum contactors can be combined with any customary overload releases to protect the load to be switched.
The permissible switching frequency and the permissible back-up fuse are always determined by the overload relay.

Use in High Altitudes

At altitudes higher than 2.000 m, the insulation properties are negatively influenced, the cooling effect and the contact power are lower.
Therefore, the technical parameters in particular the thermal rated currents, the switching frequency and the switching capacity as well as the electrical endurance are reduced.

The following correction factors have to be used:

Use in the. altitude of	Correction factors
3.000 m	0.8
4.000 m	0.7

The operating voltage must not be lower than 90% because of the reducing contact powers.

Open and Close Points of the Auxiliary Contacts

At all vacuum contactors open and close points of the auxiliary contacts have the same time applied as the switching points of the main switching elements.
Compact vacuum contactors have forced-moved auxiliary contacts.

Contact Erosion Indicator EVS, EVSS, EVSM 102 - 302

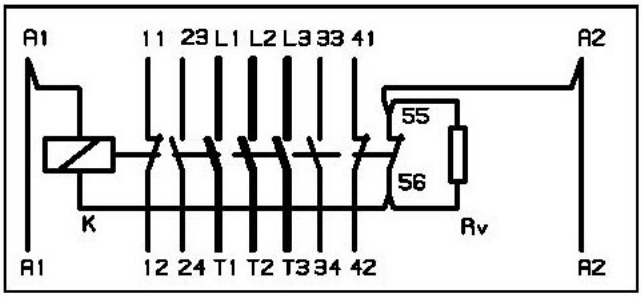
Vacuum contactors have a direct contact erosion indicator for each arcing chamber that can be seen from the front. It is positioned in the upper rear part of the devices. The permissible erosion of the contacts is being reached, if at the "ON" position the separating line of the white-and-red field of the erosion indicator flushes with the enclosure.

Position Indicator

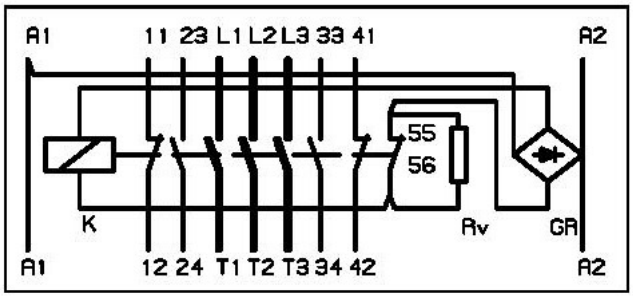
The position of the solenoid mechanism ("ON"/"OFF") can be seen at the front side. In the "ON" position, the red indicator flushes with the cover opening.
Attention: This indicator cannot be operated!

Wiring Diagrams

Connection and Wiring Diagram EVS 102-322

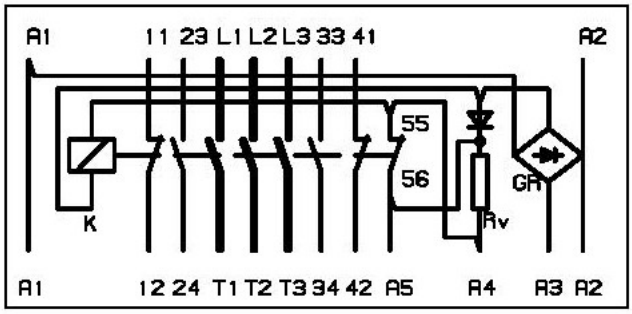


Sch 421 284
DC drive with economy circuit

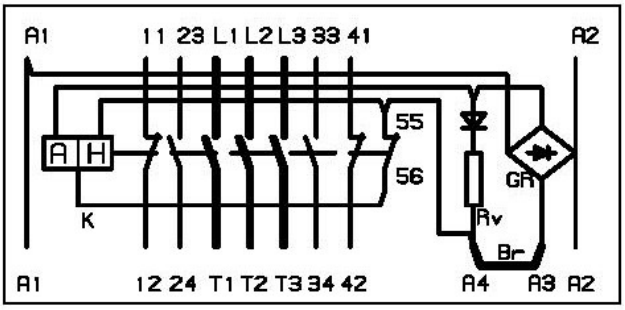


Sch 421 285
AC drive with economy circuit

Connection and Wiring Diagram EVSS 102-322 and EVSM 102-322

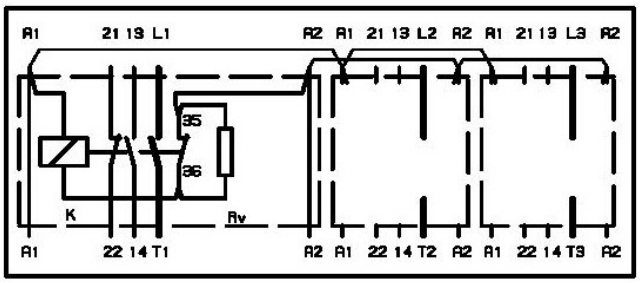


Sch 421 305
AC drive with one-winding coil and internal changeover
Holding voltage over external transformer
External control switch at contact A3 and A4

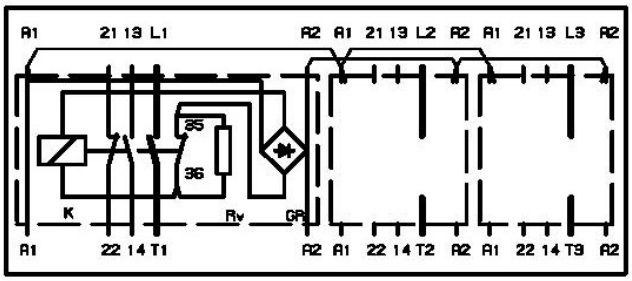


Sch 421 306
AC drive with two-winding coil and internal changeover, if necessary connect external control switch at contact A3 and A4, therefore remove the jumper Br

Connection and Wiring Diagram EVS 160-630 and EVS 161-631



Sch 421 177
DC drive with economy circuit
On the 2 pole version one pole is dropped
On the 4 pole version one pole is added



Sch 421 180
AC Drive with economy circuit
On the 2 pole version one pole is dropped
On the 4 pole version one pole is added

Spare Parts

	Order No.	Quantity of	Note	for Vacuum Contactor Type
Auxiliary Contact 1 Break + 1 Make Contact			for 1 pole	
	00 151 839 00	1 pc.		EVS 160/320/1 EVS 400/630/1
	00 153 145 00	1 pc.		EVS 161/321/1 EVS 401/631/1
Auxiliary Contact 2 Break Contacts				
	00 151 839 01	1 pc.		EVS 160/320/1 EVS 400/630/1
Auxiliary Contacts 2 Make Contacts				
	00 151 839 02	1 pc.		EVS 160/320/1 EVS 400/630/1
Auxiliary Contact 1 Break 1 Make Contact				
	00 153 284 00	2 pcs		EVS,-S,-M102-302
Vacuum Chamber				
	00 153 281 00 00 153 283 00	1 pc. 1 pc.		EVS, -S, -M 102-162 EVS, -S, -M 202-302
	00151 831 00	1 pc.	for 1 pole	EVS 160/320/1 EVS 161/321/1
	00 151 832 00	1 pc.		EVS 400/630/1 EVS 401/631/1

Accessories

Connecting Bar/Parallel Conductor Coupling					
	1 657 405 000 1 657 405 001	1 kit 3 kit	1 x 2 poles parallel 3 x 2 poles parallel	2 bars 6 bars	EVS 1201/1 EVS 1201/3
	1 657 406 000 1 657 406 001	1 kit 3 kit	1 x 3 poles parallel 3 x 3 poles parallel	2 bars 6 bars	EVS 1501/1 EVS 1501/3
Connecting Bar and Wiring to Build Multiple Pole Vacuum Contactors					
	1 637 290 000 1 637 292 000	1 pc.	for 2 poles		EVS160/320 EVS161/321 EVS400/630 EVS401/631
	1 637 291000 1 637 293 000	1 pc.	for 3 poles		EVS160/320 EVS161/321 EVS400/630 EVS401/631
	1 637 298 000 1 637 299 000	1 pc.	for 4 poles		EVS160/320 EVS161/321 EVS400/630 EVS401/631
Terminal Cover				**Threads**	
	1 657 400 000 1 657 401 000 1 657 403 000	6 pcs.		M 6 M 8 M 10	EVS, -S, -M 102 EVS, -S, -M 142-162 EVS, -S, -M 202-302
	1 657 401 001 1 657 401 001 1 657 403 001 1 657 403 001	2 pcs.	for 1 pole	M 8 M 8 M 10 M 10	EVS 160/ 320/1 EVS 161/ 321/1 EVS 400/ 630/1 EVS 401 / 631/1

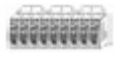
Order Details

Vacuum Contactors EVS 102-302, EVSS 102-302, EVSM 102-302

Order Name					Order Number											
Model						Control Supply Voltage										
	Typ	Rated Breaking Current in A AC3 up to 1.000 V	Phase Number	Number of Hi	Basic Contactor	115 V DC	125 V DC	208 V DC	230/240 V DC	110 V DC	220/230 V DC	220/230 V AC	380/400 V DC	24 V AC	42 V AC	48 V DC	60 V DC
Standard Design																	
	EVS 102	100	3	2 NO 2 NC	1 657 540 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 142	140			1 657 541 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 162	160			1 657 542 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 222	225	3	2 NO 2 NC	1 657 553 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 252	250			1 657 543 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 302	300			1 657 554 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 102	100	3	4 NO 4 NC	1 637 540 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 142	140			1 637 541 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 162	160			1 637 542 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 222	225	3	4 NO 4 NC	1 637 553 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 252	250			1 637 543 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVS 302	300			1 637 554 2 - -	11	12	13	14	21	22	24	25	26	27	28	29
Mining Design																	
	EVSM 102	100	3	2 NO 2 NC	1 657 540 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 142	140			1 657 541 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 162	160			1 657 542 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 222	225	3	2 NO 2 NC	1 657 553 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 252	250			1 657 543 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 302	300			1 657 554 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 102	100	3	4 NO 4 NC	1 637 540 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 142	140			1 637 541 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 162	160			1 637 542 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 222	225	3	4 NO 4 NC	1 637 553 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 252	250			1 637 543 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSM 302	300			1 637 554 5 - -	11	12	13	14	21	22	24	25	26	27	28	29
Special Design																	
	EVSS 102	100	3	2 NO 2 NC	1 657 540 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 142	140			1 657 541 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 162	160			1 657 542 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 222	225	3	2 NO 2 NC	1 657 553 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 252	250			1 657 543 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 302	300			1 657 554 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 102	100	3	4 NO 4 NC	1 637 540 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 142	140			1 637 541 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 162	160			1 637 542 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 222	225	3	4 NO 4 NC	1 637 553 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 252	250			1 637 543 3 - -	11	12	13	14	21	22	24	25	26	27	28	29
	EVSS 302	300			1 637 554 3 - -	11	12	13	14	21	22	24	25	26	27	28	29

Order Details

Vacuum Contactors EVS 160-630 / 161-631, EVS 1201-1501

Order Name				Order Number														Model
					Control Supply Voltage													
Type	Rated Breaking Current in A AC3 up to 1.000 V	Phase Number	Number of Hi	Basic Contactor	115 V DC	125 V DC	208 V DC	230/240 V DC	110 V DC	220/230 V DC	220/230 V AC	380/400 V DC	24 V AC	42 V AC	48 V DC	60 V DC	
EVS 160	160	1	1 NO 1 NC	1 657 266 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 320	320	1	1 NO 1 NC	1 657 271 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 400	400	1	1 NO 1 NC	1 657 276 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 630	630	1	1 NO 1 NC	1 657 281 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 161	161	1	1 NO 1 NC	1 657 266 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 321	321	1	1 NO 1 NC	1 657 271 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 401	401	1	1 NO 1 NC	1 657 276 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 631	631	1	1 NO 1 NC	1 657 281 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 160	160	2	2 NO 2 NC	1 657 267 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 320	320	2	2 NO 2 NC	1 657 272 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 400	400	2	2 NO 2 NC	1 657 277 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 630	630	2	2 NO 2 NC	1 657 282 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 161	160	2	2 NO 2 NC	1 657 267 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 321	320	2	2 NO 2 NC	1 657 272 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 401	400	2	2 NO 2 NC	1 657 277 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 631	630	2	2 NO 2 NC	1 657 282 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 160	160	3	3 NO 3 NC	1 657 268 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 320	320	3	3 NO 3 NC	1 657 273 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 400	400	3	3 NO 3 NC	1 657 278 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 630	630	3	3 NO 3 NC	1 657 283 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 161	160	3	3 NO 3 NC	1 657 268 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 321	320	3	3 NO 3 NC	1 657 273 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 401	400	3	3 NO 3 NC	1 657 278 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 631	630	3	3 NO 3 NC	1 657 283 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 160	160	4	4 NO 4 NC	1 657 269 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 320	320	4	4 NO 4 NC	1 657 274 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 400	400	4	4 NO 4 NC	1 657 279 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 630	630	4	4 NO 4 NC	1 657 284 0 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 161	160	4	4 NO 4 NC	1 657 269 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 321	320	4	4 NO 4 NC	1 657 274 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 401	400	4	4 NO 4 NC	1 657 279 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 631	630	4	4 NO 4 NC	1 657 284 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
	AC1 in A																
EVS 1201	1200	1	2 NO 2 NC	1 657 425 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 1501	1500	1	3 NO 3 NC	1 657 426 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 1201	1200	3	6 NO 6 NC	1 657 415 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	
EVS 1501	1500	3	9 NO 9 NC	1 657 416 2 - -	11	12	13	14	21	22	24	25	26	27	28	29	

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EAW Relaistechnik GmbH

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DIN EN ISO 9001 : 2000

CERTIFICATE

DQS Deutsche Gesellschaft zur Zertifizierung von Managementsystemen mbH

EAW Relaistechnik GmbH

Quality Management System.

DIN EN ISO 9001 : 2000

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