

# **MASTERVOLT**

## SPECIFICATIONS

# 2 VOLT GEL CELLS

## MVSV series



MASTERVOLT  
Snijdersbergweg 93,  
1105 AN Amsterdam  
The Netherlands  
Tel.: +31-20-3422100  
Fax.: +31-20-6971006  
www.mastervolt.com

ENGLISH:	PAGE 1
NEDERLANDS:	PAGINA 9
DEUTSCH:	SEITE 17
FRANÇAIS:	PAGE 25
SPECIFICATIONS:	PAGE 33

10000010117/07

# 1 SPECIFICATIONS

## 1.1 PHYSICAL SPECIFICATIONS

### General

Operating temperature:	-20°C to 45°C (-4°F to 113°F)
Nominal operating temperature:	10°C to 30°C (50 °F to 86°F), recommended at 20°C (68°F)
Storage temperature:	-40°C to 55°C (-40°F to 131°F)
Material of the battery container:	Styrene-acrylnitrile-copolymer (SAN), UL classification 94 HB

### Dimensions and weights

Model	Part number	Length (l) Max mm	Width (b) Max mm	Height (h1) Max mm	Height (h2) Max mm	Installed length (B) Max mm	Weight (approx)	Terminal
MVSV 280	68000280	126	208	357	399	135	23.0 kg	F-M8
MVSV 420	68000420	126	208	473	515	135	30.0 kg	F-M8
MVSV 500	68000500	147	208	473	515	156	35.0 kg	F-M8
MVSV 580	68000580	168	208	473	515	177	39.0 kg	F-M8
MVSV 750	68000750	147	208	648	690	156	49.0 kg	F-M8
MVSV 1000	68001000	212	193	648	690	221	66.0 kg	F-M8
MVSV 1250	68001250	212	235	648	690	221	80.0 kg	F-M8
MVSV 1500	68001500	212	277	648	690	221	95.0 kg	F-M8
MVSV 1650	68001650	212	277	717	759	221	115 kg	F-M8
MVSV 2200	68002200	216	400	775	816	225	160 kg	F-M8
MVSV 2700	68002700	214	489	774	816	223	198 kg	F-M8

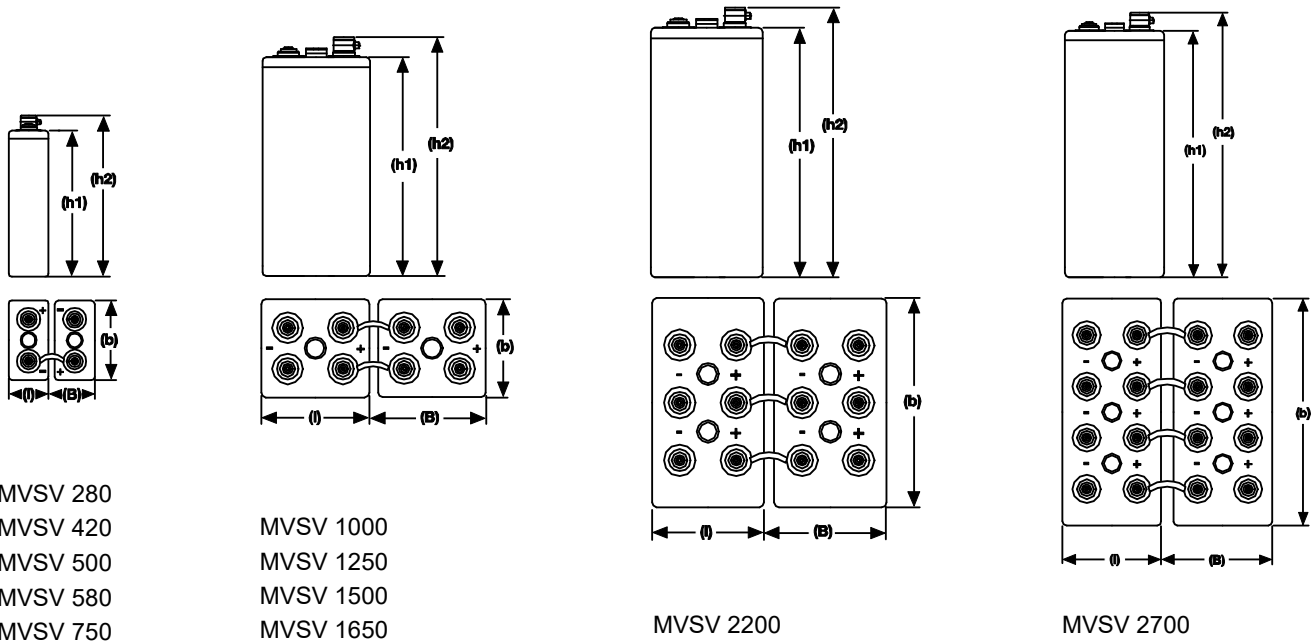


Figure 1: Drawings with terminal position (not to scale!)

## 1.2 ELECTRICAL SPECIFICATIONS

### 1.2.1 General

Model	Part number	Nominal voltage	Nominal capacity*	Discharge current I <sub>10</sub> *	Pole pairs	Internal resistance**	Short circuit current**
MVSV 280	68000280	2V	280Ah	28.0 A	1	0.79mΩ	2700A
MVSV 420	68000420	2V	416Ah	41.6 A	1	0.62mΩ	3300A
MVSV 500	68000500	2V	499Ah	49.9 A	1	0.53mΩ	3950A
MVSV 580	68000580	2V	582Ah	58.2 A	1	0.47mΩ	4400A
MVSV 750	68000750	2V	748Ah	74.8 A	1	0.48mΩ	4300A
MVSV 1000	68001000	2V	998Ah	99.8 A	2	0.38mΩ	4850A
MVSV 1250	68001250	2V	1248Ah	125 A	2	0.33mΩ	6250A
MVSV 1500	68001500	2V	1497Ah	150 A	2	0.29mΩ	7850A
MVSV 1650	68001650	2V	1643Ah	164 A	2	0.23mΩ	9000A
MVSV 2200	68002200	2V	2190Ah	219 A	3	0.19mΩ	10750A
MVSV 2700	68002700	2V	2738Ah	274 A	4	0.16mΩ	13400A

\* Nominal capacity C<sub>10</sub>: 1.8V/cell @ 20°C (68°F)

\*\* According to IEC60896-22

### 1.2.2 Charge voltage settings for three step battery chargers

Float:	2.30V/cell @ 25°C / 77°F
Absorption:	2.38V/cell @ 25°C / 77°F (max 5 hrs)
Temperature compensation:	-5mV/°C/cell or -2.8mV/°F/cell

### 1.2.3 Final discharge voltage

Model	Part number	Discharge current			
		C <sub>1</sub>	C <sub>3</sub>	C <sub>5</sub>	C <sub>10</sub>
MVSV 280	68000280	154 A	76.0 A	49.8 A	28.0 A
MVSV 420	68000420	238 A	111 A	76.6 A	41.6 A
MVSV 500	68000500	286 A	133 A	91.9 A	49.9 A
MVSV 580	68000580	333 A	155 A	107 A	58.2 A
MVSV 750	68000750	429 A	195 A	135 A	74.8 A
MVSV 1000	68001000	572 A	260 A	180 A	99.8 A
MVSV 1250	68001250	715 A	325 A	225 A	125 A
MVSV 1500	68001500	858 A	390 A	269 A	150 A
MVSV 1650	68001650	992 A	479 A	309 A	164 A
MVSV 2200	68002200	1267 A	580 A	397 A	219 A
MVSV 2700	68002700	1583 A	725 A	496 A	274 A
<b>Final discharge voltage</b>		<b>1.60V</b>	<b>1.70V</b>	<b>1.75V</b>	<b>1.80V</b>

All data refer to 20°C (68°F)

### 1.2.4 Open circuit voltage versus remaining capacity

Open circuit voltage	1.92V	1.98V	2.03V	2.08V	2.13V	2.16V
Approximate state of charge (± 20%)	0%	20%	40%	60%	80%	100%

Open circuit voltage is measured after the battery was disconnected from any load or power source for at least 24hrs.

**1.3 CONSTANT CURRENT DISCHARGE****1.90V/cell – Discharge in A @ 20°C (68°F)**

Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	180	158	134	95.3	74.5	57.1	39.0	26.8	22.9
MVSV 420	68000420	244	231	187	143	112	90.0	65.3	44.8	36.7
MVSV 500	68000500	293	277	224	172	134	108	78.4	53.8	44.0
MVSV 580	68000580	342	323	262	200	157	126	91.4	62.7	51.4
MVSV 750	68000750	270	258	243	214	167	138	102	71.9	60.3
MVSV 1000	68001000	360	344	324	285	223	184	136	95.9	80.4
MVSV 1250	68001250	450	430	405	357	278	230	171	120	101
MVSV 1500	68001500	517	516	486	428	334	276	205	144	121
MVSV 1650	68001650	518	518	507	420	312	261	205	155	129
MVSV 2200	68002200	691	669	639	581	469	381	284	207	172
MVSV 2700	68002700	863	837	798	727	587	477	355	259	216

**1.87V/cell – Discharge in A @ 20°C (68°F)**

Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	216	195	155	105	80.9	61.9	43.4	30.3	25.6
MVSV 420	68000420	308	284	223	163	119	96.6	69.4	47.8	39.6
MVSV 500	68000500	370	341	268	196	143	116	83.3	57.4	47.5
MVSV 580	68000580	431	398	313	228	167	135	97.2	66.9	55.4
MVSV 750	68000750	340	327	305	248	190	154	113	78.0	64.5
MVSV 1000	68001000	453	436	407	331	253	205	150	104	86.0
MVSV 1250	68001250	567	545	508	413	317	257	188	130	108
MVSV 1500	68001500	623	623	610	496	380	308	226	156	129
MVSV 1650	68001650	624	624	615	548	380	319	227	167	139
MVSV 2200	68002200	832	817	793	632	520	437	313	223	185
MVSV 2700	68002700	1040	1022	992	790	650	547	391	278	231

**1.85V/cell – Discharge in A @ 20°C (68°F)**

Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	243	214	171	113	85.1	65.0	45.4	31.5	26.6
MVSV 420	68000420	332	308	249	176	124	101	71.3	49.1	40.0
MVSV 500	68000500	398	370	299	211	149	121	85.6	58.9	48.5
MVSV 580	68000580	465	431	349	246	174	141	100	68.7	56.6
MVSV 750	68000750	389	368	336	269	202	165	119	82.1	67.6
MVSV 1000	68001000	519	491	448	359	269	220	159	109	90.1
MVSV 1250	68001250	648	613	560	448	337	275	199	137	113
MVSV 1500	68001500	701	701	672	538	404	330	238	164	135
MVSV 1650	68001650	702	702	683	597	431	339	252	181	150
MVSV 2200	68002200	1031	972	864	680	555	463	335	241	200
MVSV 2700	68002700	1288	1215	1080	850	693	578	419	302	249

**1.83V/cell – Discharge in A @ 20°C (68°F)**

Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	261	228	185	122	89.3	68.6	47.5	32.8	27.5
MVSV 420	68000420	350	337	265	187	130	104	72.9	49.8	40.9
MVSV 500	68000500	420	404	318	224	156	125	87.5	59.8	49.1
MVSV 580	68000580	490	472	371	262	182	146	102	69.7	57.3
MVSV 750	68000750	421	404	365	290	216	175	125	86.3	70.4
MVSV 1000	68001000	561	539	487	387	288	233	167	115	93.9
MVSV 1250	68001250	702	673	608	483	360	292	208	144	117
MVSV 1500	68001500	755	755	716	580	432	350	250	173	141
MVSV 1650	68001650	756	756	717	645	480	374	268	190	157
MVSV 2200	68002200	1123	1077	944	733	589	497	358	254	210
MVSV 2700	68002700	1403	1347	1180	917	737	622	447	317	262

### 1.80V/cell – Discharge in A @ 20°C (68°F)

Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	290	245	203	133	94.5	72.5	49.0	33.3	28.0
MVSV 420	68000420	397	364	280	201	135	107	75.1	50.8	41.6
MVSV 500	68000500	476	437	336	241	162	128	90.1	61.0	49.9
MVSV 580	68000580	556	510	392	281	189	149	105	71.1	58.2
MVSV 750	68000750	478	458	388	314	228	182	131	90.5	74.8
MVSV 1000	68001000	637	611	517	419	304	243	175	121	99.8
MVSV 1250	68001250	797	763	647	523	380	303	218	151	125
MVSV 1500	68001500	858	858	776	628	456	364	262	181	150
MVSV 1650	68001650	859	859	808	694	526	410	287	199	164
MVSV 2200	68002200	1279	1197	1076	863	657	531	378	266	219
MVSV 2700	68002700	1598	1497	1345	1078	822	663	473	332	274

### 1.75V/cell – Discharge in A @ 20°C (68°F)

Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	331	286	228	144	100	75.4	49.8	33.8	28.3
MVSV 420	68000420	423	389	300	215	139	109	76.6	51.8	42.6
MVSV 500	68000500	508	467	360	258	167	131	91.9	62.2	51.1
MVSV 580	68000580	592	545	420	301	195	153	107	72.5	59.6
MVSV 750	68000750	561	534	463	354	240	190	135	92.2	75.9
MVSV 1000	68001000	748	712	617	472	320	253	180	123	101
MVSV 1250	68001250	935	890	772	590	400	317	225	154	127
MVSV 1500	68001500	1048	1048	926	708	480	380	269	184	152
MVSV 1650	68001650	1049	1049	982	777	585	452	309	209	172
MVSV 2200	68002200	1356	1313	1237	1012	712	567	397	278	229
MVSV 2700	68002700	1695	1642	1547	1265	890	708	496	348	287

### 1.70V/cell – Discharge in A @ 20°C (68°F)

Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	363	323	251	150	102	76.0	50.3	34.1	28.4
MVSV 420	68000420	468	425	334	220	142	111	78.2	52.4	43.0
MVSV 500	68000500	562	510	401	264	170	133	93.8	62.9	51.6
MVSV 580	68000580	655	595	468	308	199	155	109	73.4	60.2
MVSV 750	68000750	639	615	527	388	252	195	136	92.7	76.4
MVSV 1000	68001000	852	820	703	517	336	260	181	124	102
MVSV 1250	68001250	1065	1025	878	647	420	325	226	155	127
MVSV 1500	68001500	1267	1230	1054	776	504	390	271	185	153
MVSV 1650	68001650	1268	1260	1135	903	623	479	322	222	176
MVSV 2200	68002200	1557	1480	1365	1140	753	580	406	285	234
MVSV 2700	68002700	1947	1850	1707	1425	942	725	507	356	293

### 1.65V/cell – Discharge in A @ 20°C (68°F)

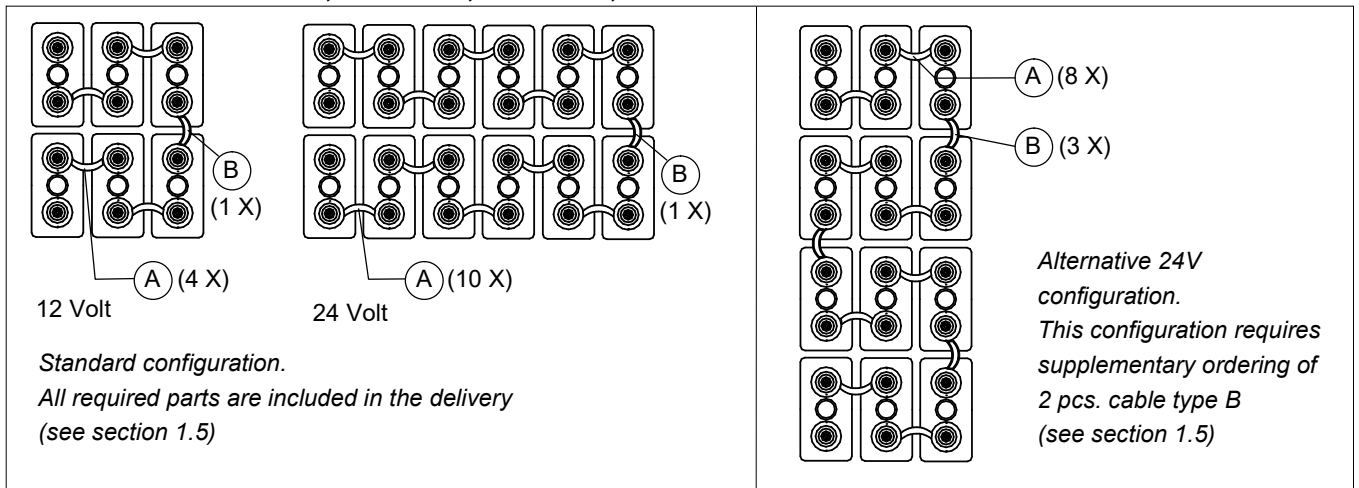
Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	393	348	265	153	103	76.3	50.5	34.4	28.5
MVSV 420	68000420	488	458	354	230	144	112	79.3	52.8	43.4
MVSV 500	68000500	586	550	425	276	173	134	95.2	63.4	52.1
MVSV 580	68000580	683	641	496	322	202	157	111	73.9	60.8
MVSV 750	68000750	715	696	583	411	255	197	136	93.2	76.8
MVSV 1000	68001000	953	928	777	548	340	262	182	124	102
MVSV 1250	68001250	1192	1160	972	685	425	328	227	155	128
MVSV 1500	68001500	1430	1392	1166	822	510	394	272	186	154
MVSV 1650	68001650	1463	1446	1249	960	645	491	328	225	178
MVSV 2200	68002200	1760	1608	1476	1208	777	596	413	289	238
MVSV 2700	68002700	2200	2010	1845	1510	972	745	516	361	297

**1.60V/cell – Discharge in A @ 20°C (68°F)**

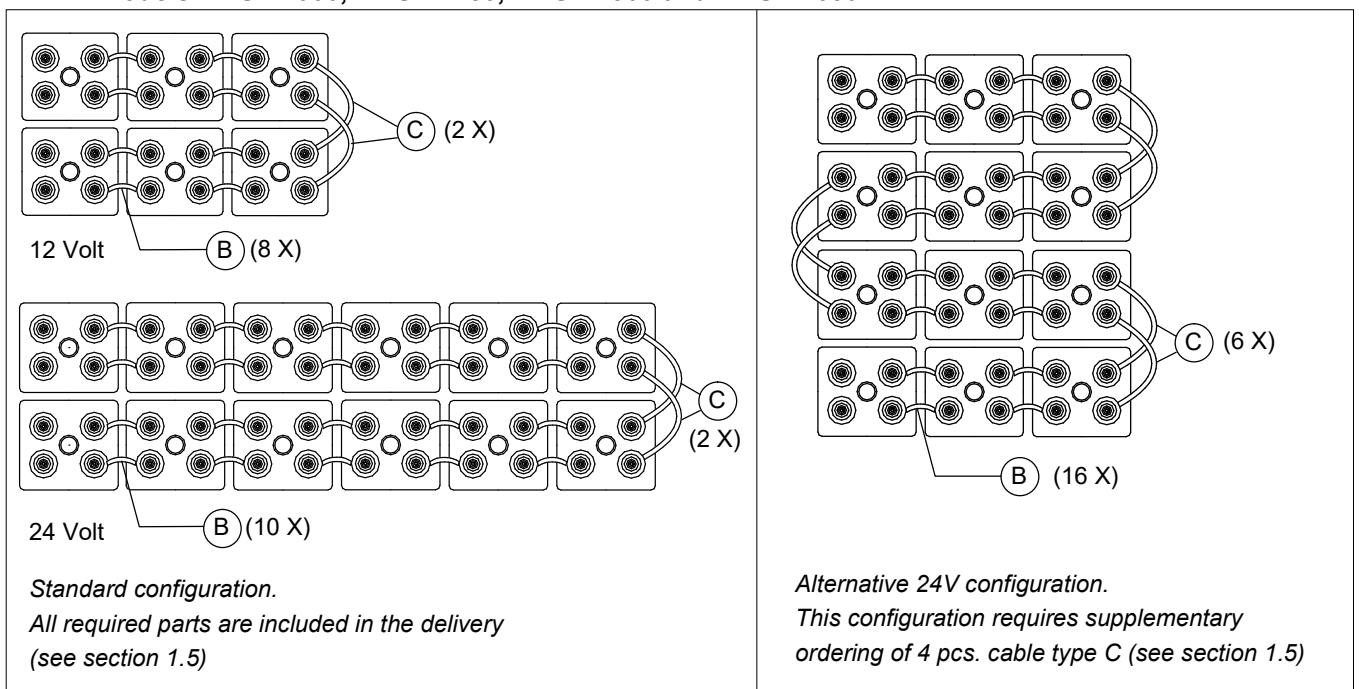
Model	Part number	10min	15min	30min	1h	2h	3h	5h	8h	10h
MVSV 280	68000280	408	375	278	154	104	76.5	50.8	34.5	28.6
MVSV 420	68000420	500	478	382	238	146	113	80.2	53.2	43.8
MVSV 500	68000500	600	574	458	286	175	136	96.2	63.8	52.6
MVSV 580	68000580	700	669	535	333	204	158	112	74.5	61.3
MVSV 750	68000750	786	767	632	429	260	198	137	93.6	77.2
MVSV 1000	68001000	1048	1023	843	572	347	264	182	125	103
MVSV 1250	68001250	1310	1278	1053	715	433	330	228	156	129
MVSV 1500	68001500	1572	1534	1264	858	520	396	273	187	154
MVSV 1650	68001650	1604	1480	1295	992	662	497	332	226	180
MVSV 2200	68002200	2059	1872	1664	1267	807	607	417	292	240
MVSV 2700	68002700	2573	2340	2080	1583	1008	758	522	365	300

**1.4 INSTALLATION CONFIGURATIONS**

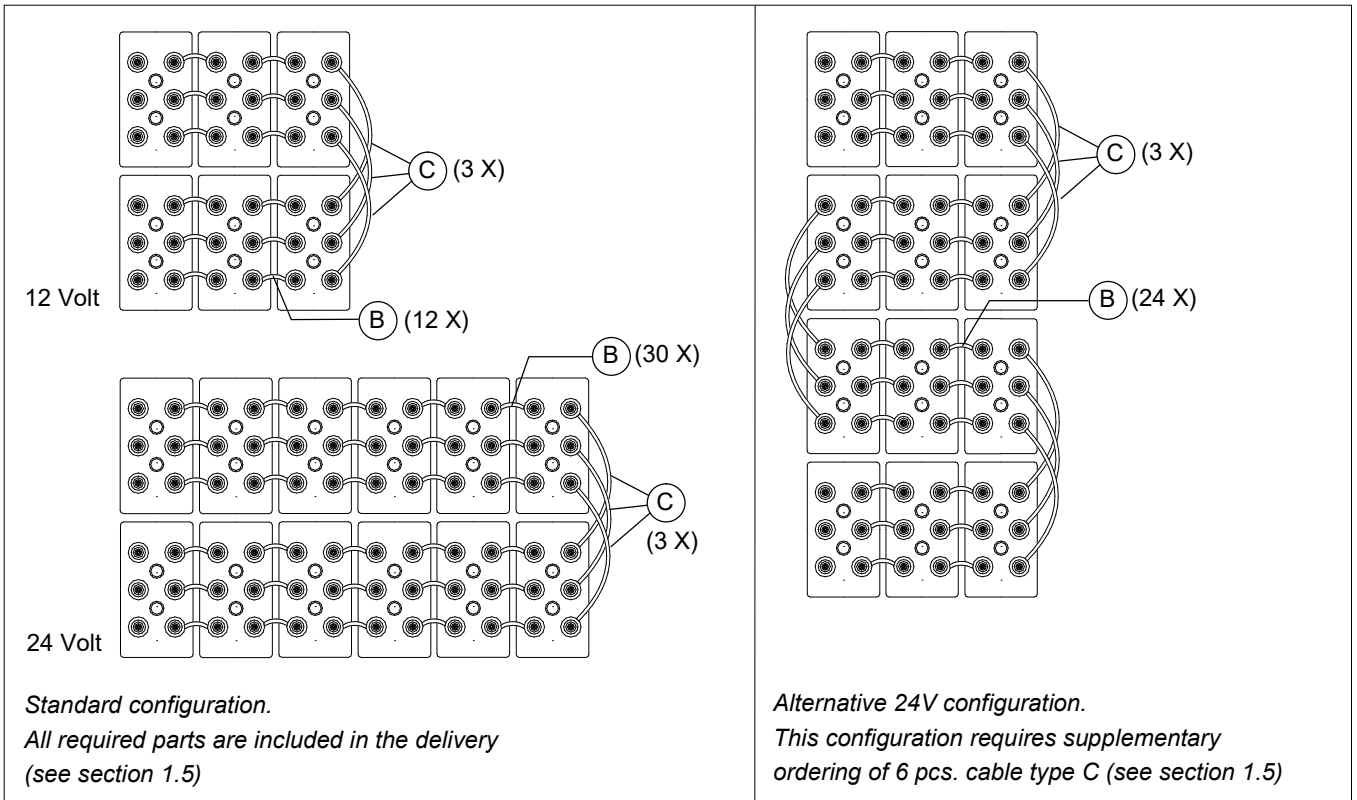
**1.4.1 Models MVSV 280, MVSV 420, MVSV 500, MVSV 580 and MVSV 750**



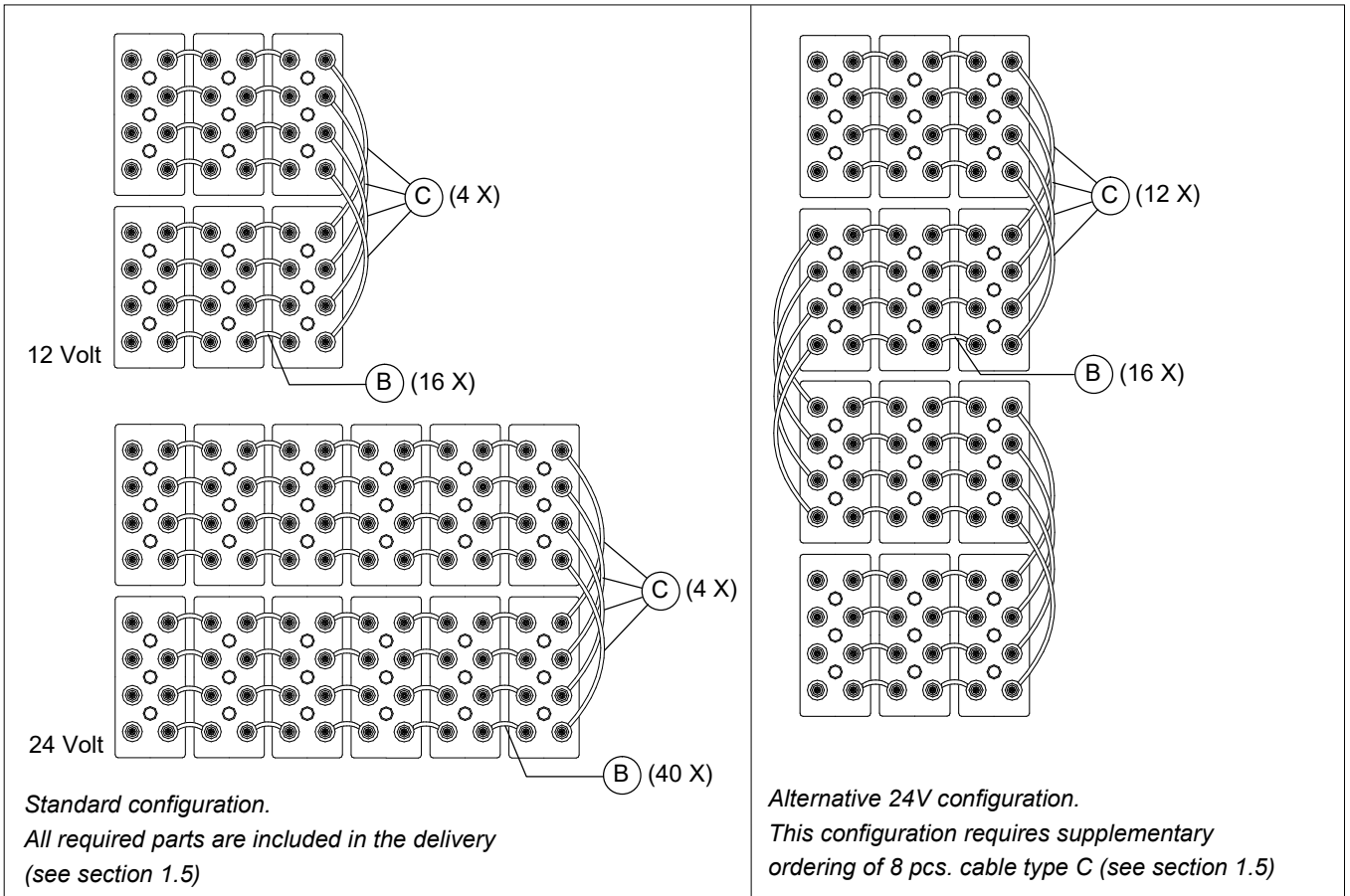
**1.4.2 Models MVSV 1000, MVSV 1250, MVSV 1500 and MVSV 1650**



### 1.4.3 Model MVSV 2200



### 1.4.4 Model MVSV 2700



**MASTERVOLT**  
*THE POWER TO BE INDEPENDENT*

Snijdersbergweg 93, 1105 AN Amsterdam, The Netherlands  
Tel : + 31-20-3422100  
Fax : + 31-20-6971006  
Email : [info@mastervolt.com](mailto:info@mastervolt.com)