Spectra Switchboards – Estimated Weights

Estimated Switchboard Weights

Due to the variety of sections, devices and circuitry, it is not feasible to give total weights for specific combinations. However, an estimate may be made by selecting section enclosure, bussing and device weights. The resulting total weights are in a +/- 20% range and should be used for estimating purposes only. The following tables and sections may be used to estimate the switchboard weight.

Switchboard Enclosure :

Use the following Table to determine the weight of the steel only for each switchboard section based on the width and depth and whether indoor or outdoor.

Switchboard Enclosure Weight (lbs) (with shipping skid and covers on all sides)
Nema 1 Indoor

	Section Widths (inches)									
Depths	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**
25	270	303	336	369	402	435	470	503	536	569
30	303	336	369	402	435	470	503	536	569	602
35	336	369	402	435	470	503	536	569	602	635
40	369	402	435	470	503	536	569	602	635	668
45	402	435	470	503	536	569	602	635	668	701
50	435	470	503	536	569	602	635	668	701	734
55	470	503	536	569	602	635	668	701	734	767
60	503	536	569	602	635	668	701	734	767	800

Switchboard Enclosure Weight (lbs) (with shipping skid and covers on all sides)
Nema 3R Outdoor (non walk-in)

	Section Widths (inches)									
Depths	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**
25	488	549	610	671	732	793	854	915	976	1037
30	549	610	671	732	793	854	915	976	1037	1098
35	610	671	732	793	854	915	976	1037	1098	1159
40	671	732	793	854	915	976	1037	1098	1159	1220
45	732	793	854	915	976	1037	1098	1159	1220	1281
50	793	854	915	976	1037	1098	1159	1220	1281	1342
55	854	915	976	1037	1098	1159	1220	1281	1342	1403
60	915	976	1037	1098	1159	1220	1281	1342	1403	1464

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Switchboard Internal Bus Weights:

The following Table is used for determining the weight of the horizontal (through) bus within the switchboard section. The bus material, bus ampacity and section width determine the weight in pounds for the through bus in each section.

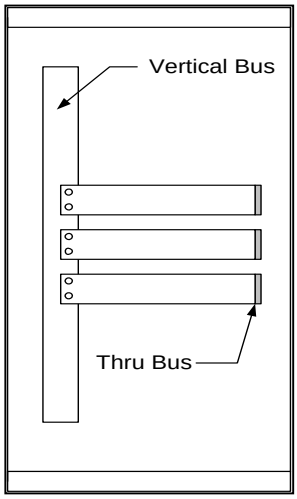
Switchboard Through Bus Weights (lbs) (3P4W)

Material	Ampacity	Section Width (inches)									
		15	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**60**
Alum	800	10	13	16	19	22	25	28	31	34	37
	1200	13	17	21	25	29	33	37	41	45	49
	1600	15	20	25	30	35	40	45	50	55	60
	2000	18	23	28	33	38	43	48	53	58	63
	2500	21	28	35	42	49	56	63	70	77	84
	3000	25	33	41	49	57	65	73	81	89	97
	4000	31	41	51	61	71	81	91	101	111	121
Copper	800	18	23	28	33	38	43	48	53	58	63
	1200	25	33	41	49	57	65	73	81	89	97
	1600	31	41	51	61	71	81	91	101	111	121
	2000	37	50	63	76	89	102	115	128	141	154
	2500	45	61	78	91	109	125	141	157	173	189
	3000	54	73	92	111	130	149	168	187	206	225
	4000	70	96	122	148	174	200	226	252	278	304
	5000	87	120	153	186	219	252	285	318	351	384

The following Table would be used for determining the weight of the vertical bussing for Group Mounted Sections. The Table is assuming worse case 2000A vertical bus with the vertical height determined by the X spacing (x=1-3/8"). Connection bus to through bus is included.

Spectra Interior Weights
(based on 2000A vertical bus with 2000A through bus)

Mounting Space	Weight (lbs) Cu	Al
13X	126	68
18X	142	83
23X	150	98
28X	175	112
33X	192	127
38X	209	142
43X	225	157
48X	242	172
53X	200	187



Spectra Interior Weights
(based on 2000A vertical bus with 4000A through bus)

Mounting Space	Weight (lbs) Cu	Al
13X	181	90
18X	197	105
23X	214	120
28X	230	134
33X	247	149
38X	264	164
43X	280	179
48X	297	194
53X	313	209

Spectra Switchboards – Estimated Weights

The following Tables may be used to determine the weight of the buss used to connect individually mounted devices to the horizontal bus, and the weight of utility compartments.

Bussing to Individual Mounted Devices

Device Amperage	Weight (lbs) CU	AL
600	48	28
800	48	28
1200	73	37
1600	91	45
2000	115	48
2500	141	63
3000	168	73
4000	226	91
5000	285	N/A

Utility Compartment Weights (lbs)

(does not include section weight)

Ampere Rating	Weight (lbs) Cu	Al
1000	80	70
2000	100	80
3000	120	90
4000	150	100

The following Table would be used to determine the weight of the bussing necessary to connect a device within a switchboard to an external Spectra Busway. The weights below do not include the weight of the switchboard stub which is furnished with the busway

Busway TFR, TFRB (40"section assumed)
(Stub located at rear of board, top or bottom)

Amperage is for Bus riser, Add to total section weights
Does not include connection stub furnished with busway

Amperage	CU	AL
800	126	74
1200	194	98
1600	242	120
2000	308	126
2500	378	168
3000	450	194
4000	608	242
5000	768	

Busway TFF, TFFB (40"section assumed)
(Stub located at front of board, top or bottom)

Amperage is for Bus riser, Add to total section weights
Does not include connection stub furnished with busway

Amperage	CU	AL
800	174	102
1200	267	135
1600	333	165
2000	423	174
2500	519	231
3000	618	267
4000	834	333
5000	1053	

Spectra Switchboards – Estimated Weights

Switchboard Overcurrent Device Weights

The weight of each individual breaker or fused switch must be added to determine the overall weight of the switchboard.

Overcurrent Device Weights

Device	Type	Approx Lbs
Molded Case Circuit Breakers	THQB, TEY, TED, FB, SE, FC	5
	TQD, SF, FE	10
	SG, FG	20
	SK, S7	50
Group Mounted Fusible Switches ADS (does not include fuses)	30-30	15
	60-60	15
	100-100	25
	200-200	65
	100	25
	200	50
	400	50
	600	50
	800	75
	1200	75
PowerBreak II Stationary	800A Manual	71
	800A Electric	80
	1600A Manual	79
	1600A Electric	88
	2000A Manual	79
	2000A Electric	88
	2500A Manual	178
	2500A Electric	187
	3000A Manual	179
	3000A Electric	188
	4000A Manual	320
	4000A Electric	329
PowerBreak II Draw-out (includes substructure)	800A Manual	140
	800A Electric	155
	1600A Manual	205
	1600A Electric	220
	2000A Manual	233
	2000A Electric	247
	2500A Manual	336
	2500A Electric	376
	3000A Manual	342
	3000A Electric	382
	4000A Manual	464
	4000A Electric	504

Device	Type	Approx Lbs
WavePro Draw-out (includes substructure)	800A Manual	200
	800A Electric	205
	1600A Manual	245
	1600A Electric	250
	2000A Manual	220
	2000A Electric	225
	2500A Manual	475
	2500A Electric	485
	3000A Manual	475
	3000A Electric	485
	4000A Manual	535
	4000A Electric	545
	5000A Manual	575
	5000A Electric	585
HPC Switches (does not include fuses)	800A	100
	1600A	160
	2000A	190
	2500A	240
	3000A	400
	4000A	450
Bolted Pressure Switches (does not include fuses)	800A	140
	1200A	230
	2000A	250
	2500A	330
	3000A	500
	4000A	550

Spectra Switchboards – Estimated Weights

Group Mounted Breakers with Hardware.

Use the following table to determine the weight of the breakers with the appropriate mounting hardware when the devices are group mounted. Weights include two breakers for twin mounted devices.

Group Mounted
Combined Breaker & Mounting Hardware

Breaker	Mounting	Style	
		Bolt-on	Plug-In
THQB, TEY, FC	Twin	13	18
TED, FB, SE	Twin	13	18
TQD, SF, FE	Twin	24	30
SG,FG	Single	24	38
	Twin	48	65
SK, S7	Single	62	77

Switchboard Component Weights

The following Table is used to determine the weight of any additional components which may be within the switchboard. This weight is added to the total for the switchboard sections.

Switchboard Component Weights

Type	Weight (lbs)	Type	Weight (lbs)
Ammeter-voltmeter	15	TVSS	25
Metering CT Incoming	8-18	PQM II Meter	5
Metering CT ind ckt	2	EPM 2000 Meter	2
Metering VT	10	EPM 4000 Meter	35
CPT 50VA	3	EPM 5100 Meter Pnl	5
CPT 100VA	4	EPM 5100 Meter D/O	10
CPT 150 VA	6	EPM 6000 Meter	2
CPT 300 VA	7	EPM 9650 Meter	13
CPT 500VA	13	Modbus Monitor	20
Meter Switch	5	Automatic Throw-over	50
Test Block	5	Kirk Lock	2
ITI GF Relay	1.5	3P Fuse Block w/fuses	3

Spectra Switchboards – Estimated Weights

Special Sections

For Blank or Aux Sections, use the Enclosure weights for the width and depth of the section required.

For Bussed Pull Sections, Use the Enclosure weights, add the through bus weight for the amperage and bus material and then add the weight for the lug landing straps based on the amperage of the connection.

Bussed Pull Sections Adder

Lug Strap Amperage	Weight (lbs)	
	CU	AL
600	33	19
800	33	19
1200	49	25
1600	61	30
2000	76	33
2500	91	42
3000	111	49
4000	148	61
5000	186	

For any other special sections which may include automatic transfer switches, transformers or any other devices, please consult the factory

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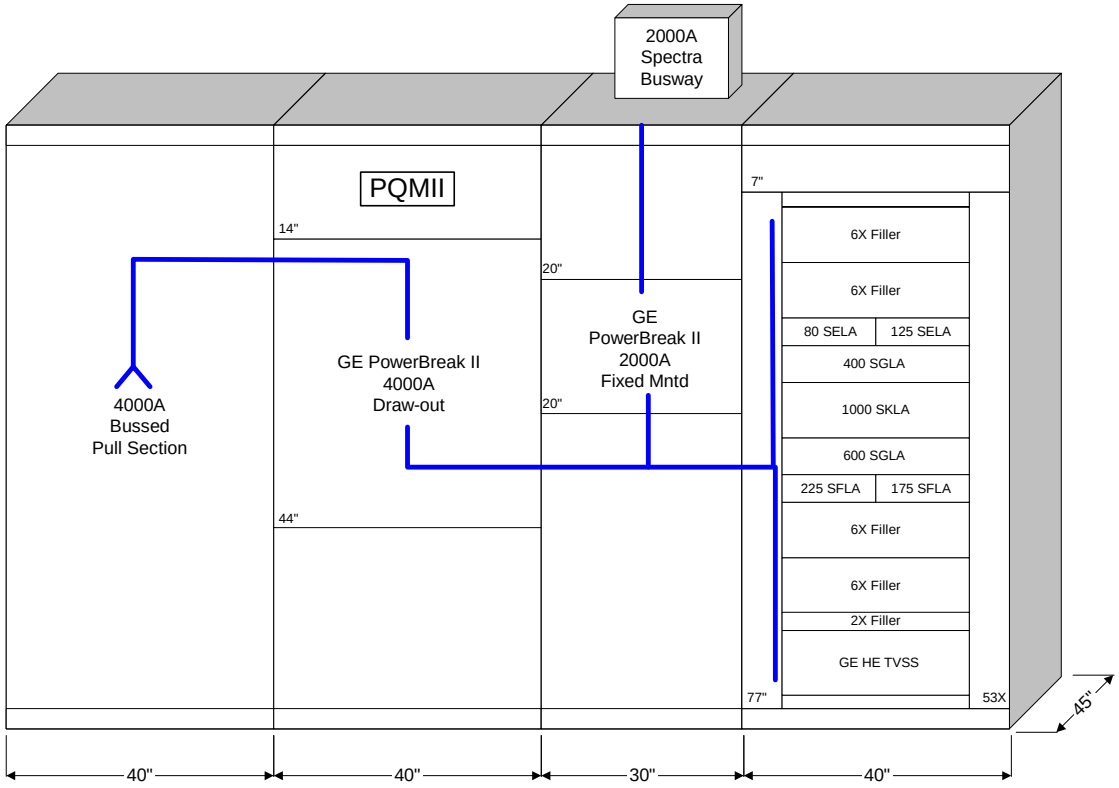
Example Weight Calculation:

The following example utilizes copper bus, a bussed pull section, an individually mounted feeder serving a busway riser and then group mounted devices.



The various components in each individual section are added together for the total weight of the sections

	Section 1	Section 2	Section 3	Section 4
	Enclosure = 569 Thru Bus = 200 Lug straps = 148	Enclosure = 569 Thru bus = 200 Indiv hdw = 226 Breaker = 464 Meter = 5 Ct = 54 Cpt = 6	Enclosure = 503 Thru Bus= 148 Indiv hdw = 115 Breaker = 79 Busway add = 308	Enclosure= 569 Thru Bus= 200 53X interior= 313 Twin SE= 13 Twin SF= 24 Single SG = 24 Single SG =24 Single SK = 62 TVSS = 25
Section Totals:	917 lbs	1524 lbs	1153 lbs	1254 lbs

Total Estimated Weight of Switchboard equals : 4848 lbs