



AUXILIARY COUNTERWEIGHTS
4600 S-4, RINGER® S-3 with Boom No. 65

CAUTION Crane Owners furnishing and filling their own auxiliary counterweight shall fabricate and fill counterweight boxes to specifications called for in this Folio; otherwise, capacity charts furnished with Crane and Attachment **WILL BE INVALID.**

AUXILIARY COUNTERWEIGHT REQUIREMENTS

Full Counterweight

978,700 lbs. (tolerance plus 11,000 lbs. and minus 0 lbs.) consisting of:

1 center bottom box weighing 40,000 lbs. (tolerance plus 500 lbs. and minus 0 lbs.) with a fill density of 290 lbs. per cu. ft.

21 side and center boxes (7 per side and center stack) each weighing 44,700 lbs. (tolerance plus 500 lbs. and minus 0 lbs.) with a fill density of 308 lbs. per cu. ft.

Partial Counterweight

889,300 lbs. (tolerance plus 10,000 lbs. and minus 0 lbs.) consisting of:

1 center bottom box

19 side and center boxes (7 per side and 5 per center stack)

Partial Counterweight

442,300 lbs. (tolerance plus 5,000 lbs. and minus 0 lbs.) consisting of:

1 center bottom box

9 side and center boxes (3 per side and center stack)

Partial Counterweight

174,100 lbs. (tolerance plus 2,000 lbs. and minus 0 lbs.) consisting of:

1 center bottom box

3 side and center boxes (1 per side and center stack)

NOTE Refer to the MACHINE EQUIPMENT section of the capacity chart being used for required amount of auxiliary counterweight.

IMPORTANT A certified weight shall be kept on file for each auxiliary counterweight box fabricated and filled by Crane Owner.

Total counterweight center of gravity must be located at center of counterweight carrier; that is, counterweight carrier must be balanced side to side and front to rear. Counterweight boxes may be tied down to counterweight carrier for further stability, if required.

Fill material shall be packed in counterweight boxes to provide uniform weight throughout box and should be grouted permanently in place to prevent any material movement.

The Table below contains the formula used at the factory to fill "Manitowoc" counterweight boxes.

Bottom Center Box Part No. 182199		Side and Center Boxes Part No. 183416	
Scrap Iron	25,500 lbs.	Scrap Iron	30,500 lbs.
Concrete	8,700 lbs.	Concrete	8,400 lbs.
(Sand 6,200 lbs.)		(Sand 6,200 lbs.)	
(Cement 1,500 lbs.)		(Cement 1,200 lbs.)	
(Water 1,000 lbs.)		(Water 1,000 lbs.)	
Counterweight Box	5,800 lbs. *	Counterweight Box	5,800 lbs. *
Total Counterweight	40,000 lbs.	Total Counterweight	44,700 lbs.

* Weight of empty counterweight box may vary due to manufacturing tolerances; therefore, additional scrap iron may be required to obtain the total weight.