

Questions on hull girder shear force correction

The below questions except Q4 are based on a assumption that shear force correction ΔQ_C as defined in Ch.5 Sec.1 [2.2.2] is relevant during design and approval stages. During in service, actual loading conditions will be checked by the loading instrument based on the Q_p as defined in [5.3.1] without shear force correction in each loading condition.

Q1: When applying shear force correction according to Ch.5 Sec.1 [2.2.2], there are two values of ΔQ_C calculated at each bulkhead position for the fore and aft holds respectively as illustrated below. The scantlings should then be determined (and strength is verified) based on the smaller of the ΔQ_{CA} and ΔQ_{CF} in each loading condition. Permissible limits will then be corrected according to [5.1.3] with the maximum of these ΔQ_C values as calculated above for different loading conditions. Please confirm.

Q2: When the shear force correction is made to the permissible shear force limits according to [5.1.3], shear force correction is only available either positive or negative at each bulkhead position as illustrated below. This should be applicable to alternate loading conditions and heavy ballast condition but may not be applicable for new loading conditions with uneven distribution of dead weight. Please confirm.

Q3: When the shear force correction is made for the heavy ballast condition, corrected shear force will “increase” at the aft end of the aft hold (Point A) and fore end of the fore hold adjacent to the ballasted hold. How the shear force correction should be made at such bulkhead positions? They may be decisive. Permissible limit should then be “reduced” from nominal limit?

Q4: Cargo mass as defined in [2.2.2] include deadweight such as water ballast and fuel oil in the double bottom and hopper tanks excluding topside tanks. In [2.2.3] flooded water in the hold is taken into account. Dead weight in double bottom and hopper tank should be treated in the same manner. Please confirm.

Q5: The above items should also apply to harbour and flooding conditions. Please confirm.

