M34 Scantlings of coupling flanges
(1980)

M34.1 For intermediate, thrust and propeller shaft couplings having all fitted coupling bolts, the coupling bolt diameter is not less than that given by the following formula:

$$d_b = 0.65\sqrt{\frac{d^3(T+160)}{iDT_b}}$$

where

d_b = diameter (mm) of fitted coupling bolt
d = Rule diameter (mm), i.e., minimum required diameter of intermediate shaft made of material with tensile strength T, taking into account ice strengthening requirements where applicable
i = number of fitted coupling bolts
D = pitch circle diameter (mm) of coupling bolts
T = tensile strength (N/mm^2) of the intermediate shaft material taken for calculation
T_b = tensile strength (N/mm^2) of the fitted coupling bolts material taken for calculation

while: $T \le T_b \le 1{,}7T$, but not higher than 1000 N/mm^2.

M34.2 The design of coupling bolts in the shaftline other than that covered by M34.1 are to be considered and approved by the Classification Society individually.

M34.3 For intermediate shafts, thrust shafts and inboard end of propeller shafts the flange is to have a minimum thickness of 0,20 times the Rule diameter d of the intermediate shaft or the thickness of the coupling bolt diameter calculated for the material having the same tensile strength as the corresponding shaft, whichever is greater.

Special consideration will be given by the Classification Societies for flanges having non-parallel faces, but in no case is the thickness of the flange to be less than the coupling bolt diameter.

M34.4 Fillet radii at the base of the flange should in each case be not less than 0,08 times the actual shaft diameter.

Fillets are to have a smooth finish and should not be recessed in way of nuts and bolt heads.

The fillet may be formed of multiradii in such a way that the stress concentration factor will not be greater than that for a circular fillet with radius 0,08 times the actual shaft diameter.

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