

FORMULERING TVF 2017 ALGEMEEN

$$TVF = (-0.0245 \cdot R + 0.3931 \cdot \sqrt{R} + 0.0847)$$

Waarin:

$$R = LE \cdot FZD \cdot FZV \cdot FZN \cdot FS \cdot FRV \cdot FOW \cdot TF$$

Waarin:

$$LE = \text{effectieve waterlijnlengte} = \frac{(1.75 \cdot LWL + LR)}{2.75}$$

$$FZD = \text{factor zeiloppervlak displacement verhouding} = 1 - 0.03791 \cdot (ZD - ZDS)^2 + 0.2139 \cdot (ZD - ZDS)$$

$$\text{met } ZD = \frac{\sqrt{OZ}}{\sqrt[3]{D}} \quad ZDS = 4.257$$

$$OZ = (1.015 \cdot PG + FH \cdot TV) \cdot 1.005$$

Waarin:

$$FH = 1.17 \quad \text{indien } HWF \leq 2.4$$

$$FH = 1.17 \cdot HWF / 2.4 \quad \text{indien } HWF > 2.4$$

$$\text{met } HWF = \frac{HV}{MV + MK} \quad \text{met } HV = 0.9 \cdot HBH_{(max)} \cdot HVL_{(max)}$$

$$FZV = \text{factor zeildragend vermogen} = 1 - 0.000115 \cdot (TH - THS)^2 - 0.006257 \cdot (TH - THS)$$

$$\text{met } TH = \text{theoretische hellingshoek} = \frac{GOZ \cdot 7 \cdot HA}{RM1} \quad THS = 13.5$$

$$GOZ = \text{gemeten zeiloppervlak in } m^2, \text{ winddruk } 7 \text{ kg}/m^2$$

$$HA = \text{hellende arm in } m = \frac{1}{2} \cdot (LOA/10 + Tc/2) + IZ/2 \quad \text{met } LOA/10 \text{ is maximaal } 1.6$$

$$RM1 = \text{oprichtend moment, voor } 1^\circ \text{ helling in } kg \cdot m, \text{ bepaald middels hellingproef}$$

$$FZN = \text{factor zeiloppervlak natoppervlak verhouding} = 1 - 0.2856 \cdot (ZN - ZNS)^2 + 0.5648 \cdot (ZN - ZNS)$$

$$\text{met } ZN = \frac{\sqrt{OZ}}{\sqrt{NO}} \quad \text{met } NO = \text{nat oppervlak incl. appendages}, \quad ZNS = 1.601$$

$$FS = \text{schroeffactor} = 1 - \frac{CS \cdot DS}{0.05 \cdot LWL}$$

met

CS = correctiefactor schroef = 0 geen schroef,

CS = 0.01 klap/vaanstand schroef,

CS = 0.02 schroef met gewelfde bladen waarvan de spoed actief versteld kan worden

CS = 0.03 2 blads vaste schroef

CS = 0.05 3 of 4 blads vaste schroef

DS = schroefdiameter in m

$$FRV = \text{factor rompvorm} = 1 - 0.4187 \cdot (RV - RVS)^2 - 0.8641 \cdot (RV - RVS)$$

$$\text{met } RV = Cp + Cwv + 0.8 \cdot \frac{BW}{LWL} \quad RVS = 1.789$$

$$\text{met } Cp = \frac{DC}{LWL \cdot Am} \quad \text{en } Cwv = \frac{2 \cdot Awv}{LWL \cdot BW}$$

FOW = factor ondiepwater = $-0.6382 \cdot OW^2 - 0.0420 \cdot OW + 1.0383$

$$\text{met } OW = \frac{Tc + D1 + D2}{3.5} \cdot Cb$$

$$\text{waarin } Cb = \frac{DC}{LWL \cdot BW \cdot Tc}$$

TF = type factor = TF(TFC)

met

TF = Type factor op basis van Artikel I.4 van de Klassenvoorschriften

TFC = categorie 1 – 10, op basis van type

FORMULERING TVF 2017 LICHT (<9 knoop)

$$TVFL = (-0.0516 \cdot RL + 0.5513 \cdot \sqrt{RL} - 0.1319)$$

Waarin:

$$RL = LEL \cdot FZDL \cdot FZVL \cdot FZNL \cdot FS \cdot FRVL \cdot FOWL \cdot TFL$$

Waarin:

$$LEL = \frac{(3 \cdot LWL + LR)}{4}$$

$$FZDL = 1 - 0.0596 \cdot (ZDL - ZDSL)^2 + 0.2005 \cdot (ZDL - ZDSL)$$

$$\text{met } ZDL = \frac{\sqrt{OZL}}{\sqrt[3]{D}} \quad ZDSL = 4.240$$

$$\text{met } OZL = (1.015 \cdot PG + FHL \cdot TV) \cdot 1.005$$

Waarin:

$$FH = 1.20 \quad \text{indien } HWF \leq 2.4$$

$$FH = 1.20 \cdot HWF / 2.4 \quad \text{indien } HWF > 2.4$$

$$\text{met } HWF = \frac{HV}{MV + MK} \quad \text{met } HV = 0.9 \cdot HBH_{(max)} \cdot HVL_{(max)}$$

$$FZVL = 1 - 0.000433 \cdot (THL - THSL)^2 - 0.004230 \cdot (THL - THSL)$$

$$\text{met } THL = \frac{GOZ \cdot 3 \cdot HA}{RM1} \quad THSL = 7.0$$

$$FZNL = 1 - 0.0449 \cdot (ZNL - ZNSL)^2 + 1.0210 \cdot (ZNL - ZNSL)$$

$$\text{met } ZNL = \frac{\sqrt{OZL}}{\sqrt{NO}} \quad ZNSL = 1.599$$

$$FRVL = 1 + 0.0440 \cdot (RVL - RVSL)^2 - 0.4554 \cdot (RVL - RVSL)$$

$$\text{met } RVL = Cp + Cwv + 3 \cdot \frac{BW}{LWL} \quad RVSL = 2.515$$

$$\text{met } Cp = \frac{DC}{LWL \cdot Am} \quad \text{en } Cwv = \frac{2 \cdot Awv}{LWL \cdot BW}$$

$$FOWL = -1.1463 \cdot OW^2 + 0.1363 \cdot OW + 1.0205$$

$$\text{met } OW = \frac{Tc + D1 + D2}{3.5} \cdot Cb \quad \text{waarin } Cb = \frac{DC}{LWL \cdot BW \cdot Tc}$$

$$TFL = TFL(TFC)$$

met

TFL = Type factor op basis van Artikel I.4 van de Klassenvoorschriften

TFC = 1 - 10 op basis van rompcategorie

FORMULERING TVF 2017 MIDDEN (9-14 knoop)

$$TVFM = (-0.0231 \cdot RM + 0.4039 \cdot \sqrt{RM} + 0.0266)$$

Waarin:

$$RM = LEM \cdot FZDM \cdot FZVM \cdot FZNM \cdot FS \cdot FRVM \cdot FOWM \cdot TFZ$$

Waarin:

$$LEM = \frac{(1.75 \cdot LWL + LR)}{2.75}$$

$$FZDM = 1 - 0.07017 \cdot (ZDM - ZDSM)^2 + 0.1809 \cdot (ZDM - ZDSM)$$

$$\text{met } ZDM = \frac{\sqrt{OZM}}{\sqrt[3]{D}} \quad ZDSM = 4.225$$

$$\text{met } OZM = (1.015 \cdot PG + FHM \cdot TV) \cdot 1.005$$

Waarin:

$$FH = 1.15 \quad \text{indien } HWF \leq 2.4$$

$$FH = 1.15 \cdot HWF / 2.4 \quad \text{indien } HWF > 2.4$$

$$\text{met } HWF = \frac{HV}{MV + MK} \quad HV = 0.9 \cdot HBH_{(max)} \cdot HVL_{(max)}$$

$$FZVM = 1 - 0.000317 \cdot (THM - THSM)^2 - 0.007139 \cdot (THM - THSM)$$

$$\text{met } THM = \frac{GOZ \cdot 6 \cdot HA}{RM1} \quad THSM = 14$$

$$FZNM = 1 - 0.2978 \cdot (ZNM - ZNSM)^2 + 0.4364 \cdot (ZNM - ZNSM)$$

$$\text{met } ZNM = \frac{\sqrt{OZM}}{\sqrt{NO}} \quad ZNSM = 1.599$$

$$FRVM = 1 + 0.0624 \cdot (RVM - RVSM)^2 - 0.582 \cdot (RVM - RVSM)$$

$$\text{met } RVM = Cp + Cwv + \frac{BW}{LWL} \quad RVSM = 1.825$$

$$\text{met } Cp = \frac{DC}{LWL \cdot Am} \quad \text{en } Cwv = \frac{2 \cdot Awv}{LWL \cdot BW}$$

$$FOWM = -0.5603 \cdot OW^2 + 0.0261 \cdot OW + 1.0020$$

$$\text{met } OW = \frac{Tc + D1 + D2}{3.5} \cdot Cb \quad \text{waarin } Cb = \frac{DC}{LWL \cdot BW \cdot Tc}$$

$$TFM = TFM(TFC)$$

met

TFM = Type factor op basis van Artikel I.4 van de Klassenvoorschriften

TFC = 1 - 10 op basis van rompcategorie

FORMULERING TVF 2017 ZWAAR (14-24 knoop)

$$TVFZ = (-0.0098 \cdot RZ + 0.2741 \cdot \sqrt{RZ} + 0.3205)$$

Waarin:

$$RZ = LE \cdot FZDZ \cdot FZVZ \cdot FZNZ \cdot FS \cdot FRVZ \cdot FOWZ \cdot TFZ$$

Waarin:

$$LEZ = \frac{(LWL + 1.5 \cdot LR)}{2.5}$$

$$FZDZ = 1 - 0.04895 \cdot (ZDZ - ZDSZ)^2 + 0.1267 \cdot (ZDZ - ZDSZ)$$

$$\text{met } ZDZ = \frac{\sqrt{OZZ}}{\sqrt[3]{D}} \quad ZDSZ = 4.230$$

$$\text{met } OZZ = (1.015 \cdot PG + FHZ \cdot TV) \cdot 1.005$$

Waarin:

$$FH = 1.09 \quad \text{indien } HWF \leq 2.4$$

$$FH = 1.09 \cdot HWF / 2.4 \quad \text{indien } HWF > 2.4$$

$$\text{met } HWF = \frac{HV}{MV + MK} \quad HV = 0.9 \cdot HBH_{(max)} \cdot HVL_{(max)}$$

$$FZVZ = 1 - 0.000132 \cdot (THZ - THSZ)^2 - 0.011418 \cdot (THZ - THSZ)$$

$$\text{met } THZ = \frac{GOZ \cdot 9 \cdot HA}{RM1} \quad THSZ = 17.3$$

$$FZNZ = 1 - 0.1318 \cdot (ZNZ - ZNSZ)^2 + 0.2230 \cdot (ZNZ - ZNSZ)$$

$$\text{met } ZNZ = \frac{\sqrt{OZZ}}{\sqrt{NO}} \quad ZNSZ = 1.599$$

$$FRVZ = 1 + 0.2168 \cdot (RVZ - RVSZ)^2 - 0.7521 \cdot (RVZ - RVSZ)$$

$$\text{met } RVZ = Cp + Cwv + \frac{BW}{LWL} \quad RVSZ = 1.826$$

$$\text{met } Cp = \frac{DC}{LWL \cdot Am} \quad \text{en } Cwv = \frac{2 \cdot Awv}{LWL \cdot BW}$$

$$FOWZ = -0.6651 \cdot OW^2 + 0.0533 \cdot OW + 1.0103$$

$$\text{met } OW = \frac{Tc + D1 + D2}{3.5} \cdot Cb \quad \text{waarin } Cb = \frac{DC}{LWL \cdot BW \cdot Tc}$$

$$TFZ = TFZ(TFC)$$

met

TFZ = Type factor op basis van Artikel I.4 van de Klassenvoorschriften

TFC = 1 - 10 op basis van romp categorie