

ΔΥΝΑΜΙΚΗ ΚΑΤΑΠΟΝΗΣΗ : ΚΟΠΟΣ

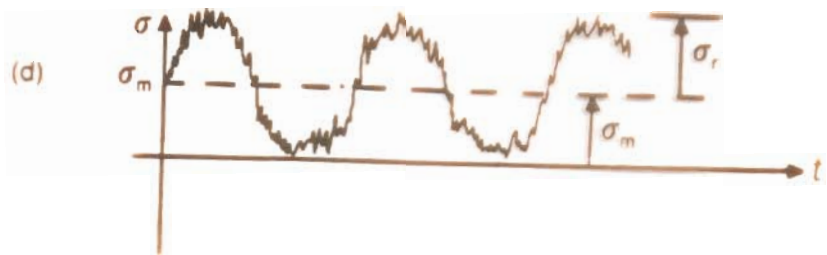
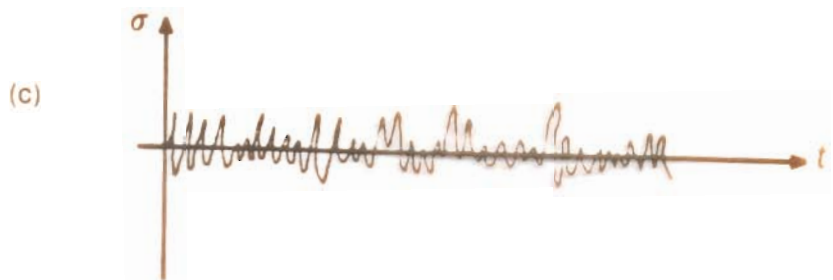
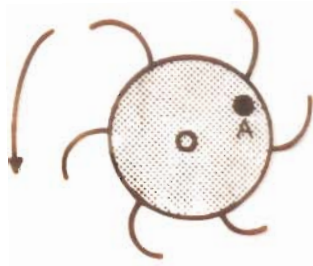
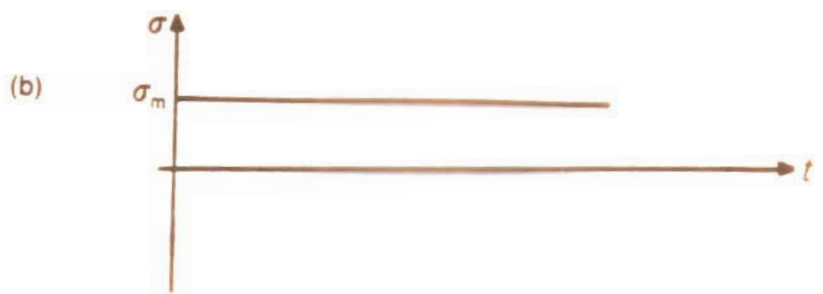
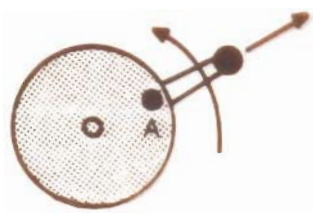
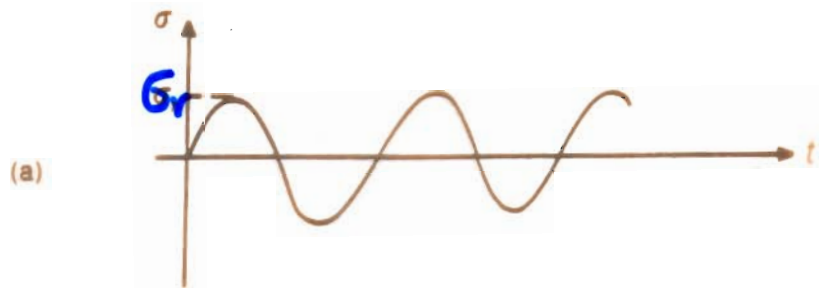
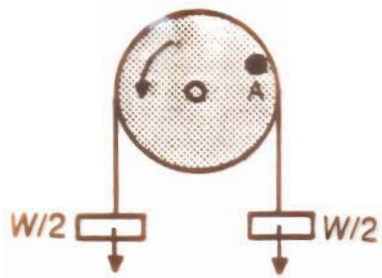


Figure 7.4 Modes of dynamic loading

ΚΑΜΠΥΛΕΣ ΚΟΠΩΣΗΣ

(Woehler)

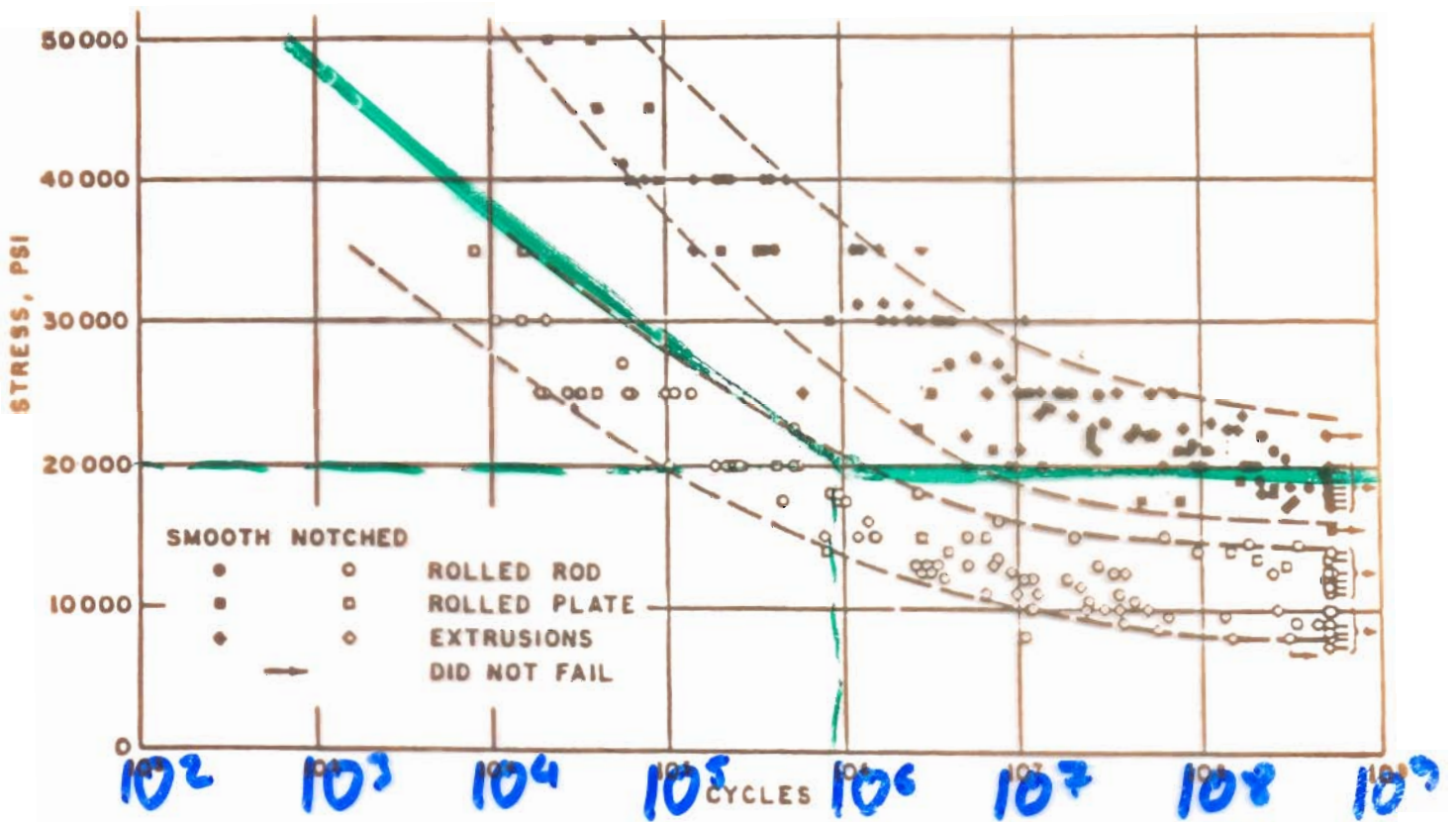
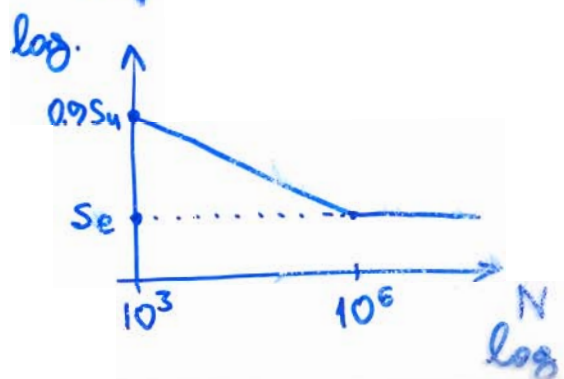


Figure 7.5 Fatigue curves (Woehler). (Courtesy ASME)

$$S_e = C_F C_R C_S C_W \frac{1}{k_f} S'_n$$



C_F

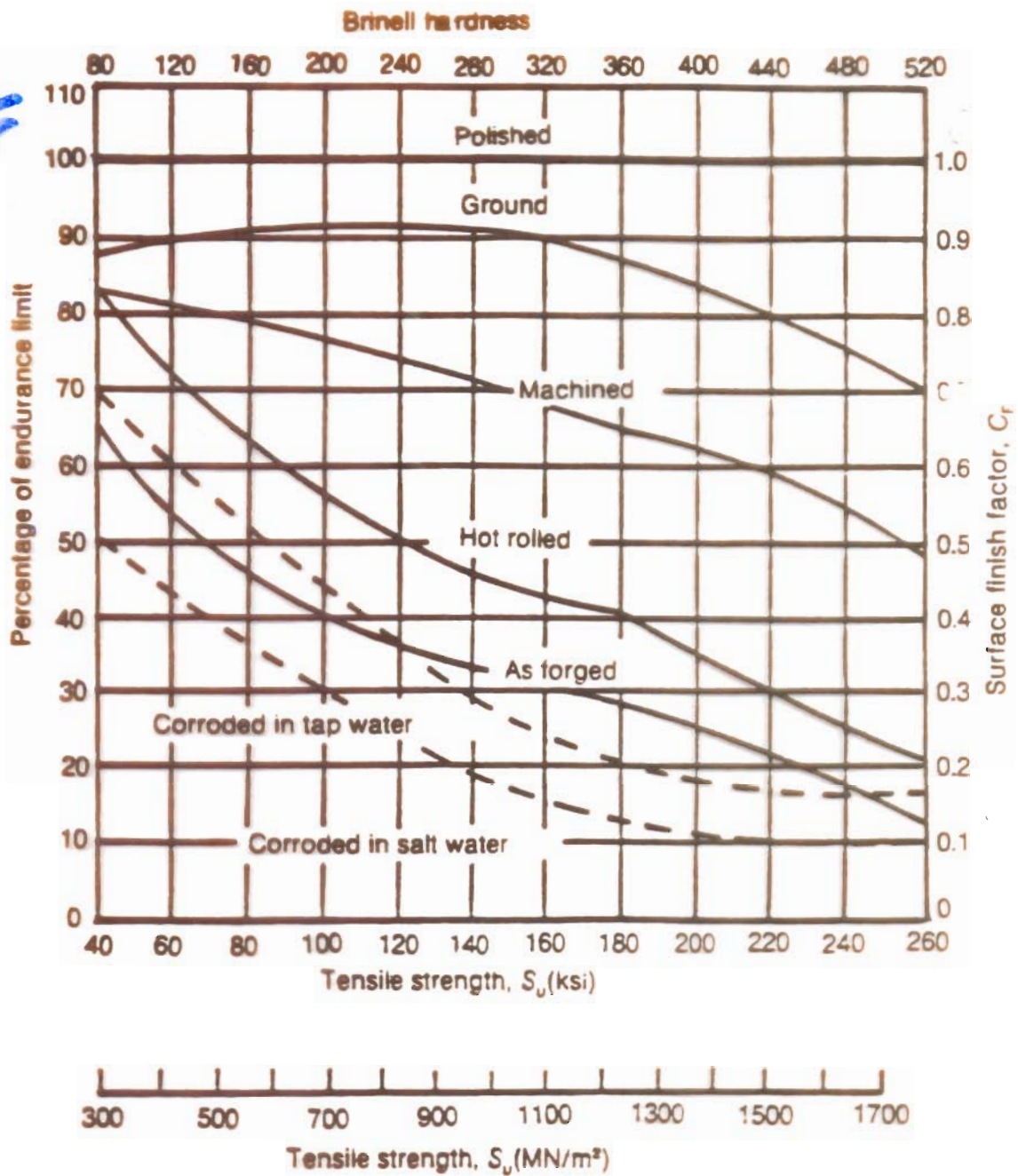


Figure 7.7 Surface finish factor. (Courtesy ASME)

C_s

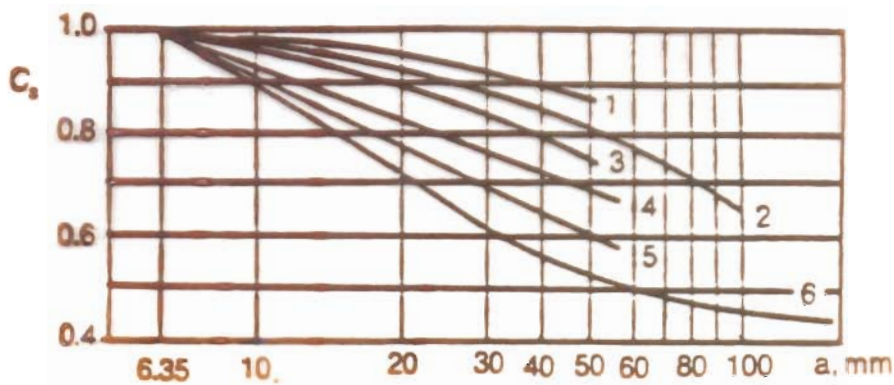


Figure 7.8 Size factor. (From Mirolyubov *et al.*, Mir Publishers, Moscow)

$$K_f = 1 + q(K_t - 1)$$

9

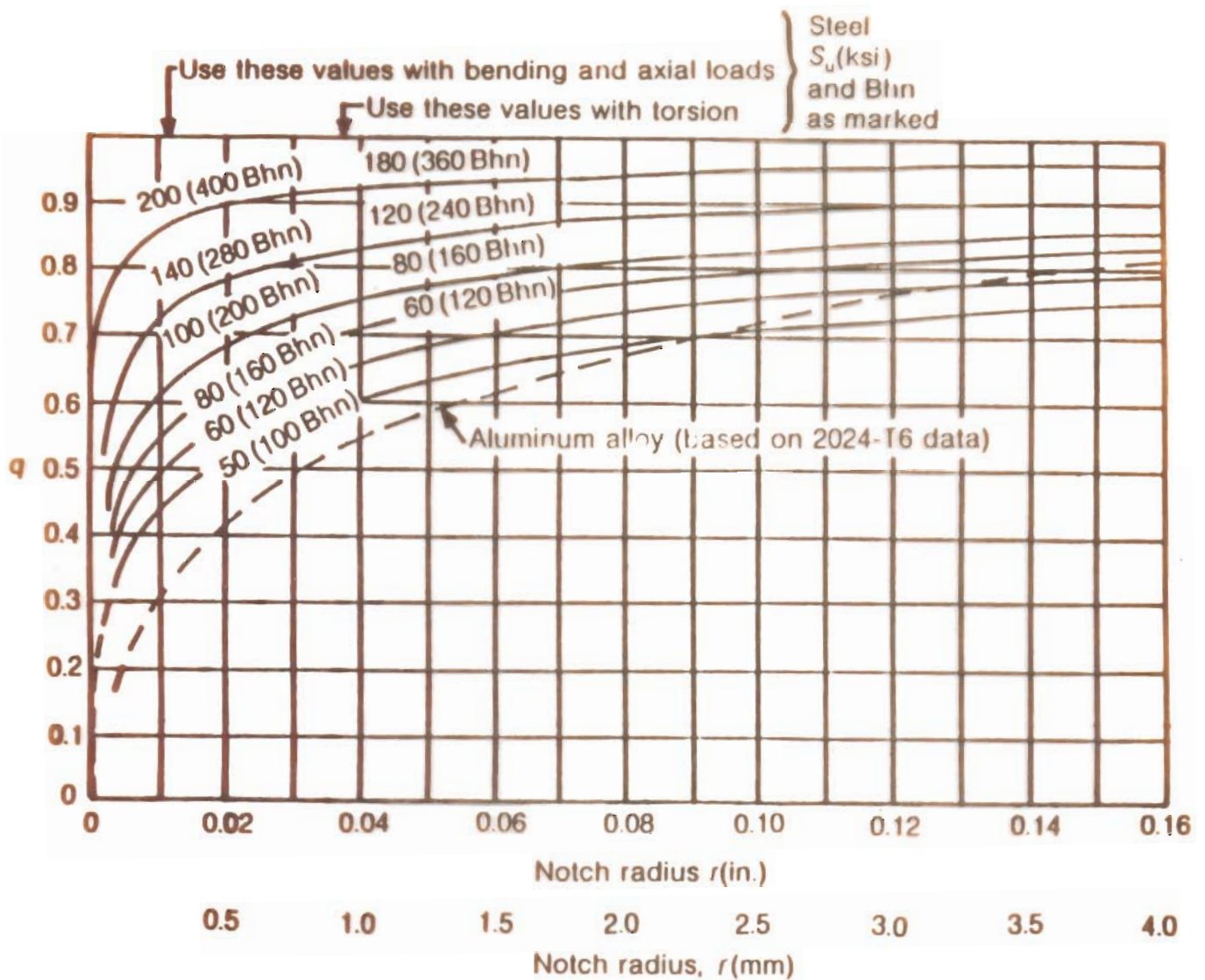


Figure 7.9 Notch sensitivity factor. (Courtesy ASME)

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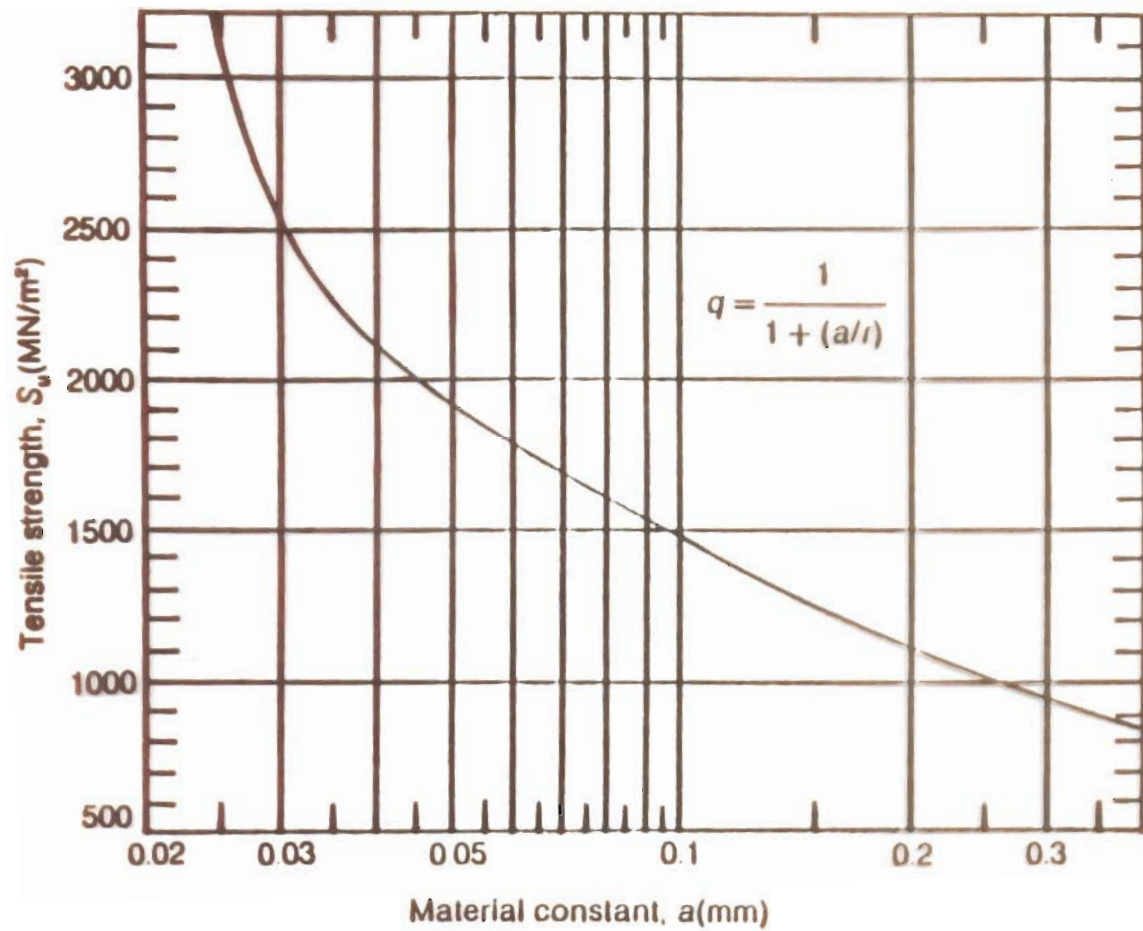
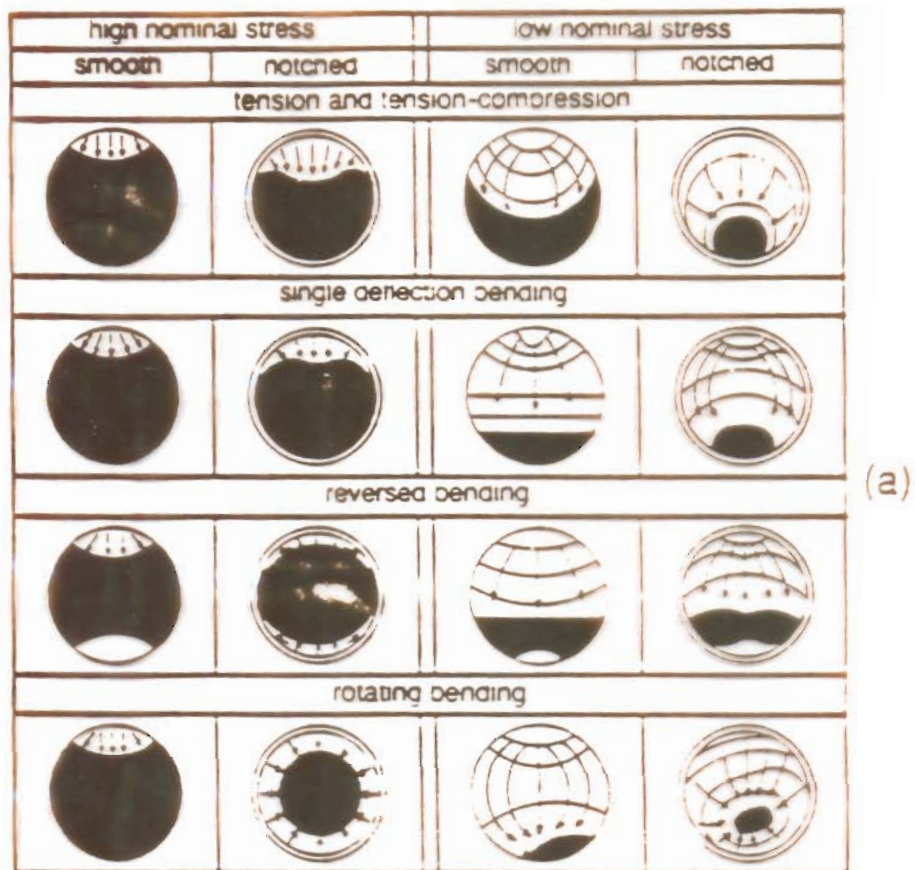
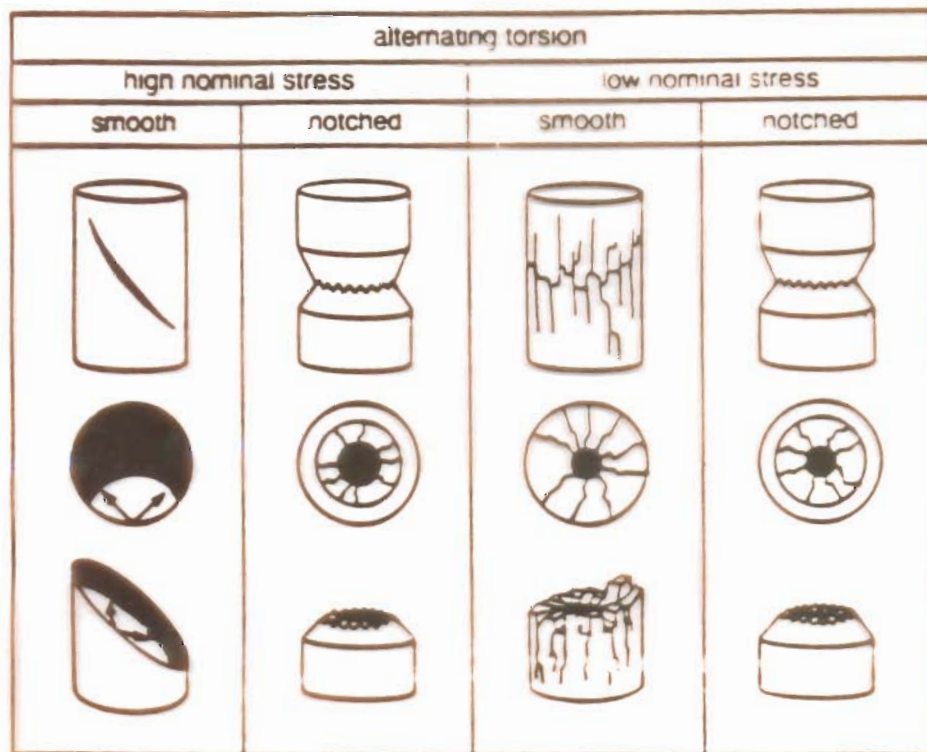


Figure 7.10 Notch sensitivity factor according to Neuber. (Courtesy ASME)



(a)



(b)

Figure 7.6 Effect of stress state on fatigue fracture origin, location and appearance. (From Engel, L. and Klingele, K., *An Atlas of Metal Damage*, Hansen Verlag, Munich, 1981)

$$\sigma_m = (\sigma_{max} + \sigma_{min}) / 2$$

$$\sigma_r = (\sigma_{max} - \sigma_{min}) / 2$$

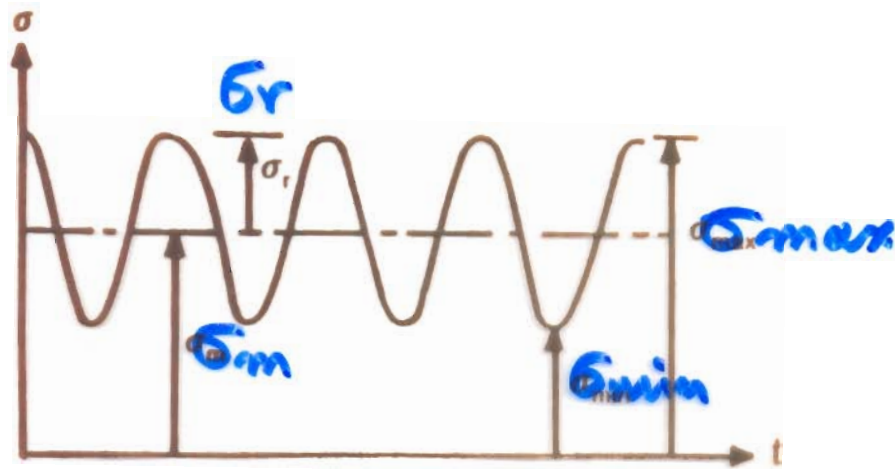


Figure 7.11 Static and alternating stress

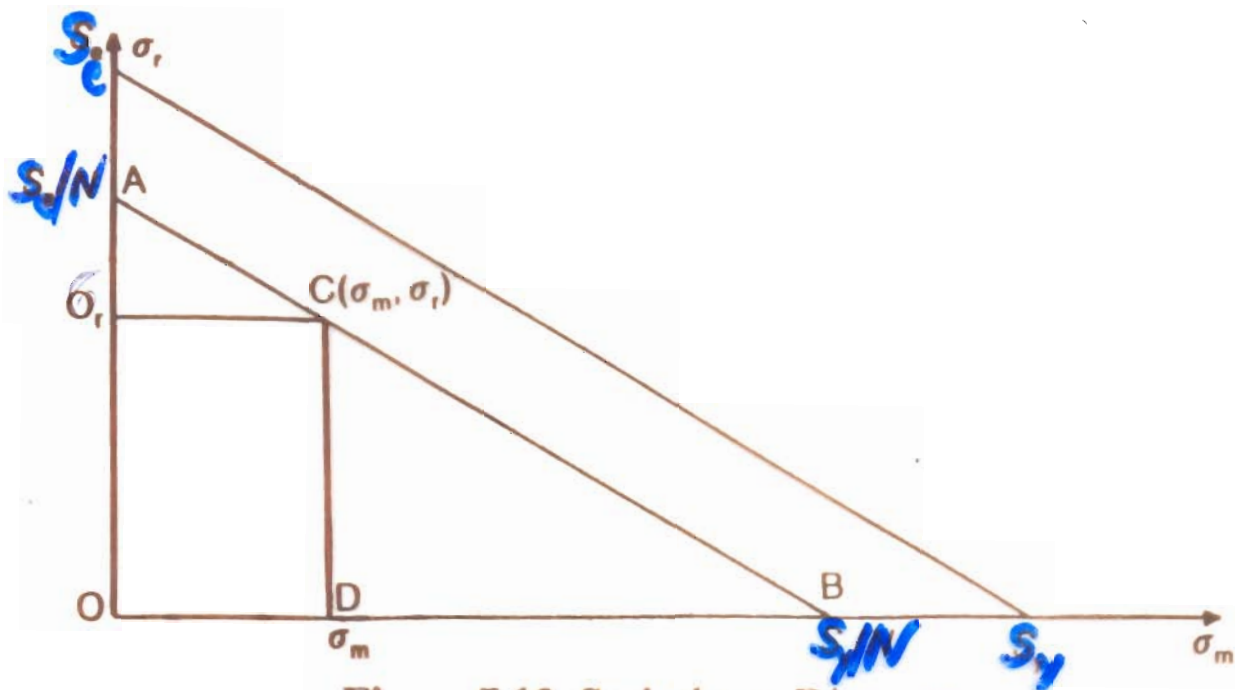


Figure 7.12 Soderberg Diagram

$$(\sigma_{eq})_{st} = \sigma_m + \sigma_r \frac{S_y}{S_e} \leq \frac{S_y}{N}$$

$$(\sigma_{eq})_{dyn} = \sigma_r + \sigma_m \frac{S_e}{S_y} \leq \frac{S_e}{N}$$

ΔΙΑΓΡΑΜΜΑΤΑ GOODMAN

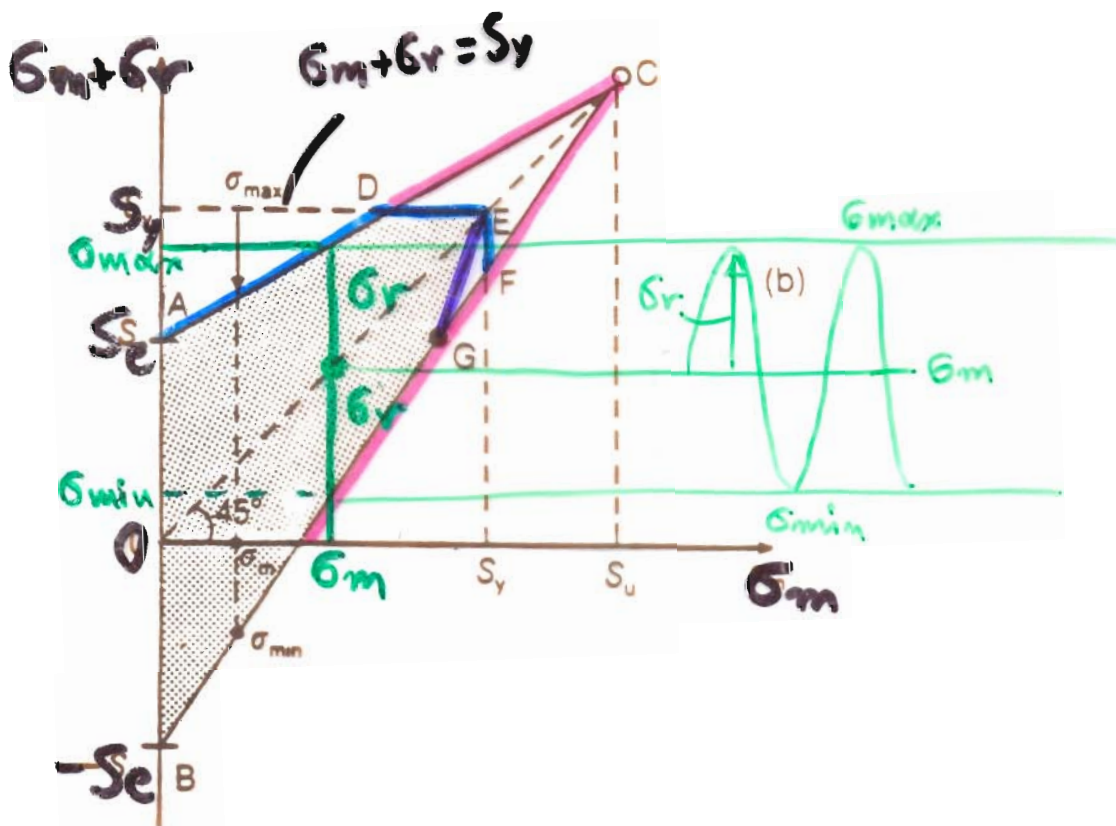
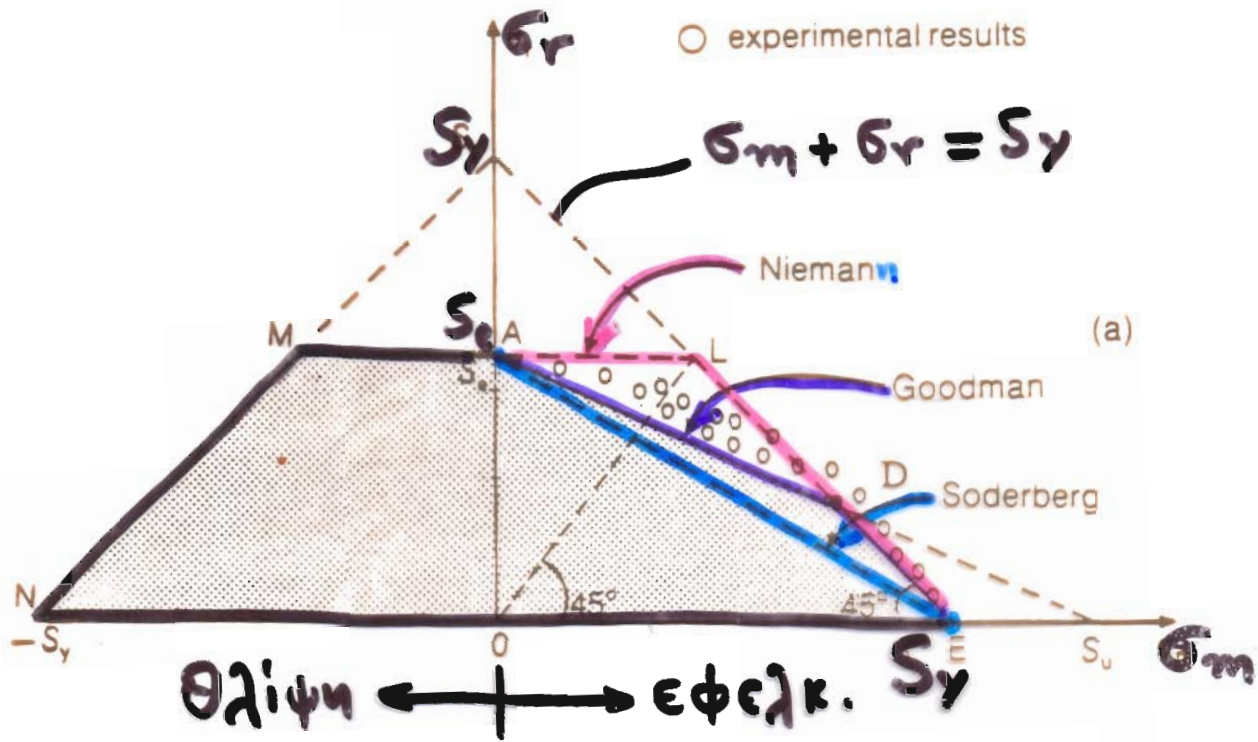


Figure 7.13 Goodman Diagrams

ΚΑΝΟΝΑΪ ΜΙΝΕΡ

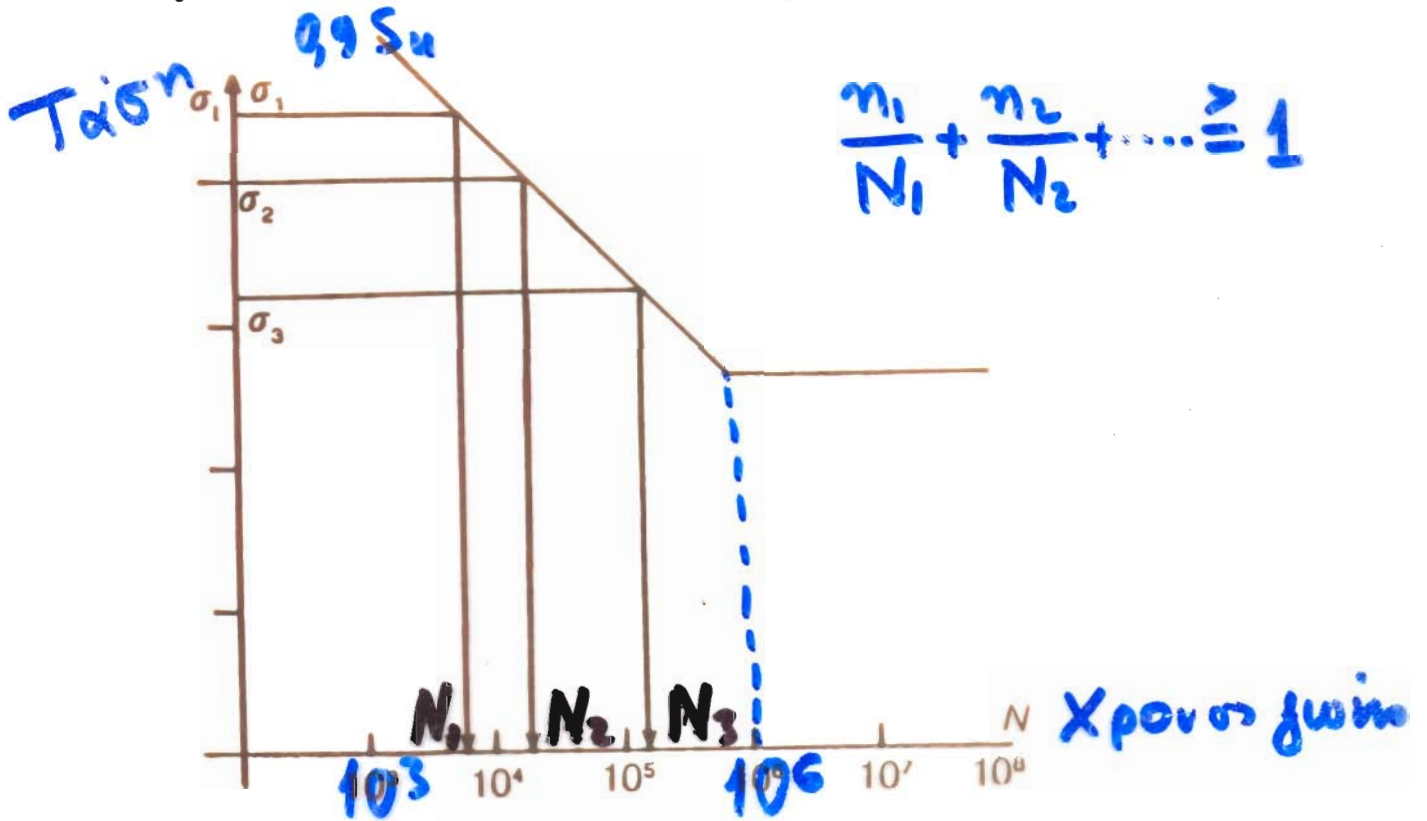


Figure 7.14 Miner's Rule

ΟΛΙΓΟΚΥΚΛΙΚΗ ΚΟΠΟΣΗ

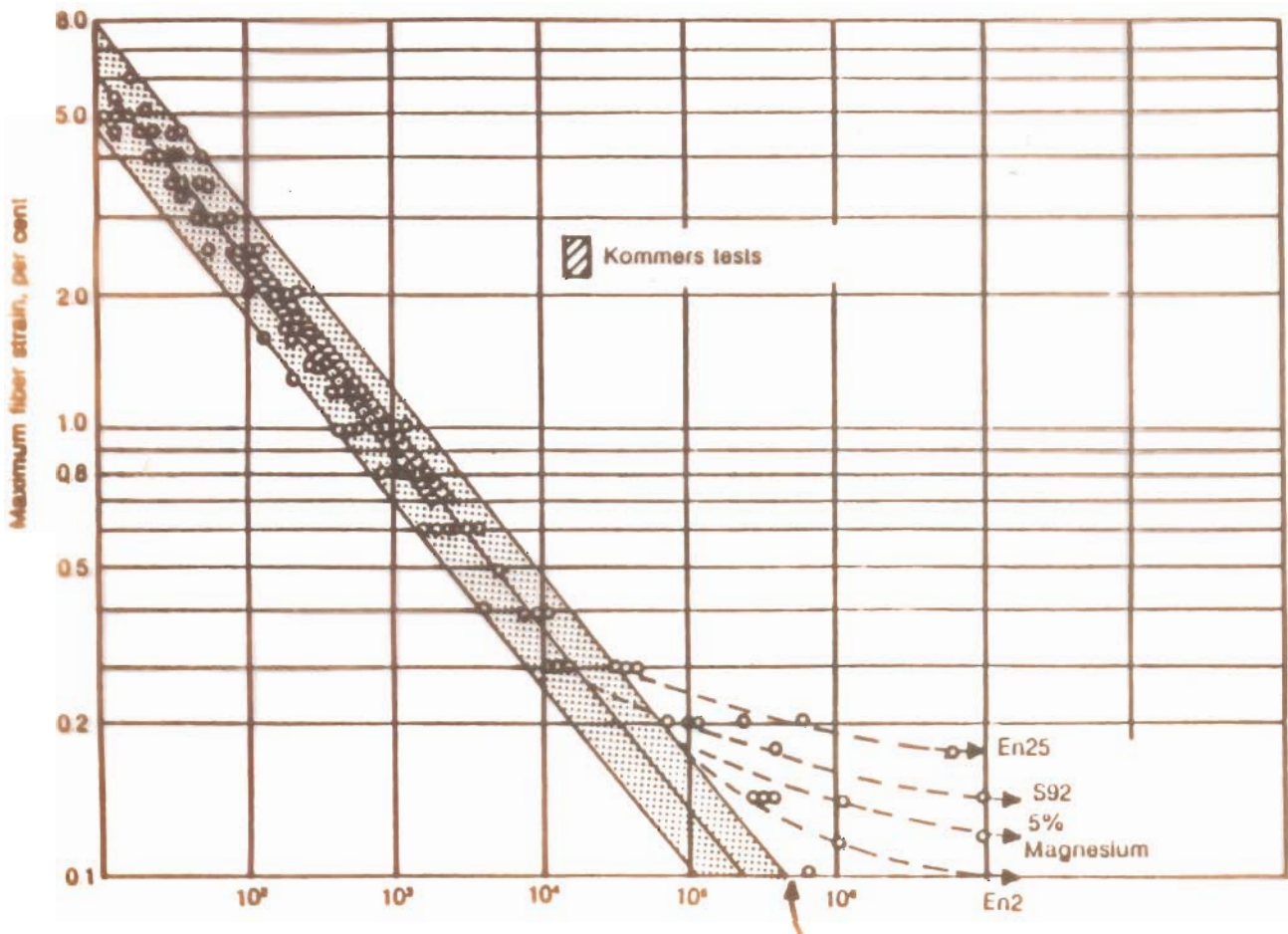
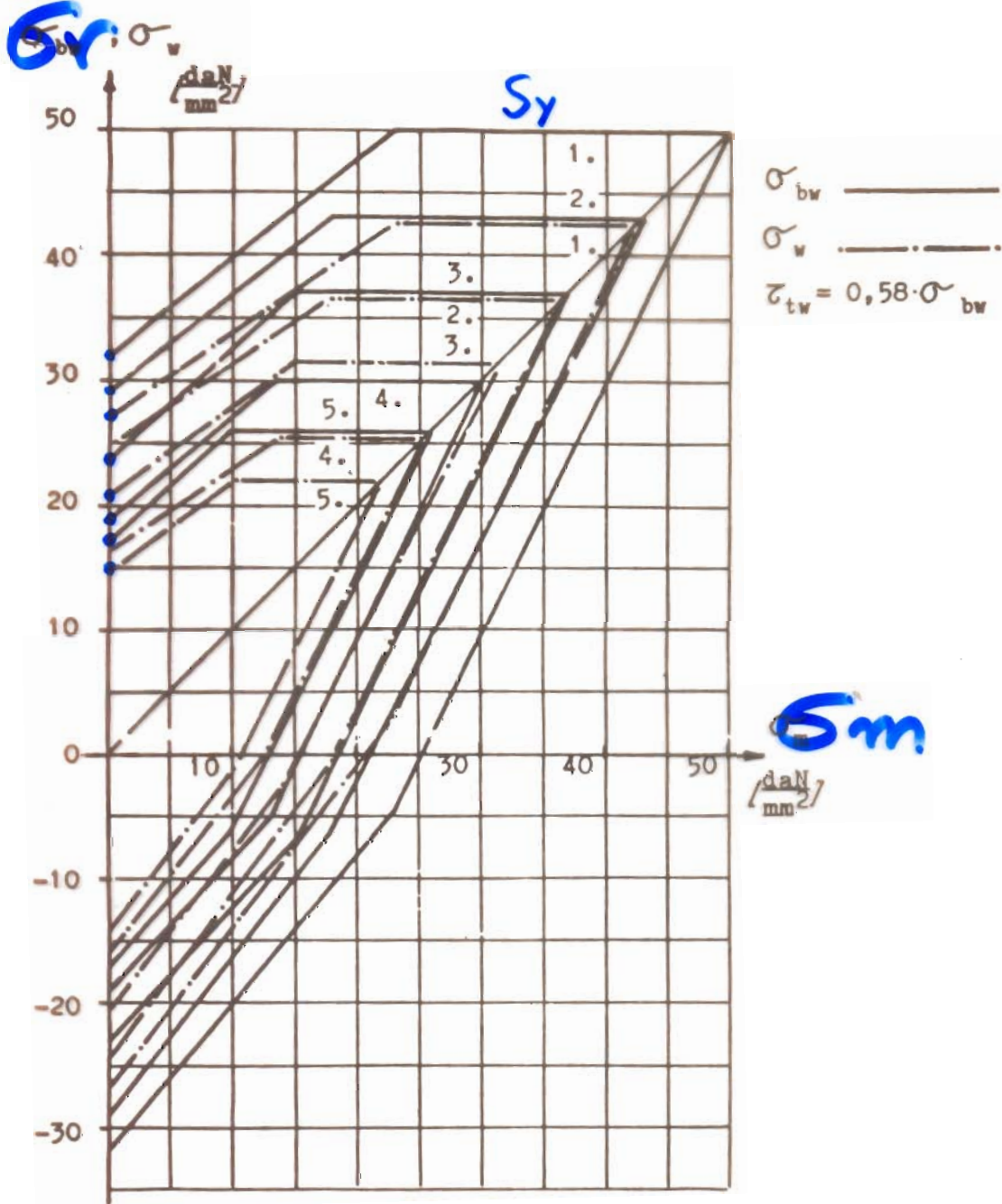


Figure 7.15 Low cycle fatigue tests. (Courtesy ASME)

Διαγράμματα Smith ή Goodman

Διαγράμματα του SMITH



- | | | | |
|----|---------|--------------|------|
| 1. | St 70.2 | $\bar{\eta}$ | C 60 |
| 2. | St 60.2 | $\bar{\eta}$ | C 45 |
| 3. | St 50.2 | $\bar{\eta}$ | C 35 |
| 4. | St 42.2 | $\bar{\eta}$ | C 22 |
| 5. | St 37 | $\bar{\eta}$ | C 15 |