

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14197-2:2003/AC

August 2006

Août 2006

August 2006

ICS 23.020.40

English version
Version Française
Deutsche Fassung

Cryogenic vessels - Static non-vacuum insulated vessels - Part 2: Design,
fabrication, inspection and testing

Réipients cryogéniques - Réipients fixes,
non isolés sous vide - Partie 2: Conception,
fabrication, inspection et essais

Kryo-Behälter - Ortsfeste, nicht vakuum-
isolierte Behälter - Teil 2: Bemessung,
Herstellung und Prüfung

This corrigendum becomes effective on 23 August 2006 for incorporation in the three official language versions of the EN.

Ce corrigendum prendra effet le 23 août 2006 pour incorporation dans les trois versions linguistiques officielles de la EN.

Die Berichtigung tritt am 23. August 2006 zur Einarbeitung in die drei offiziellen Sprachfassungen der EN in Kraft.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Ref. No.: EN 14197-2:2003/AC:2006 D/E/F

English version

Replace the following figures:

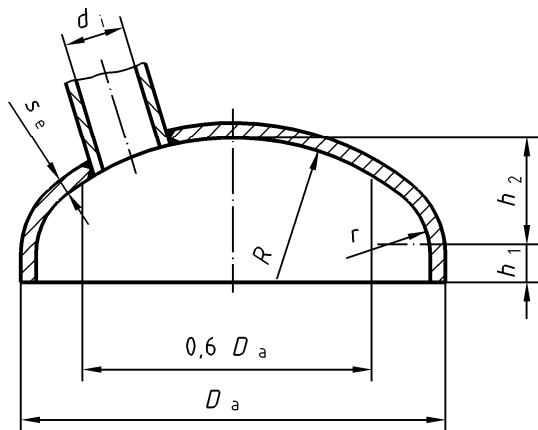


Figure 4b)

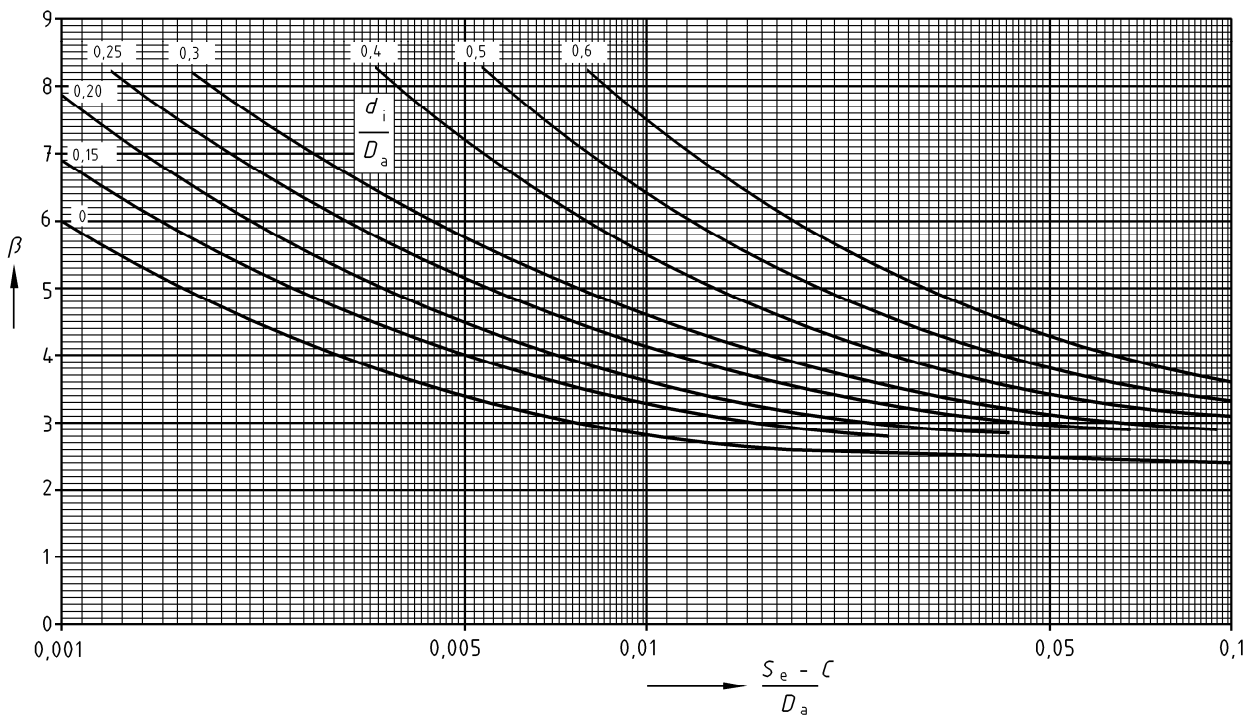


Figure 5

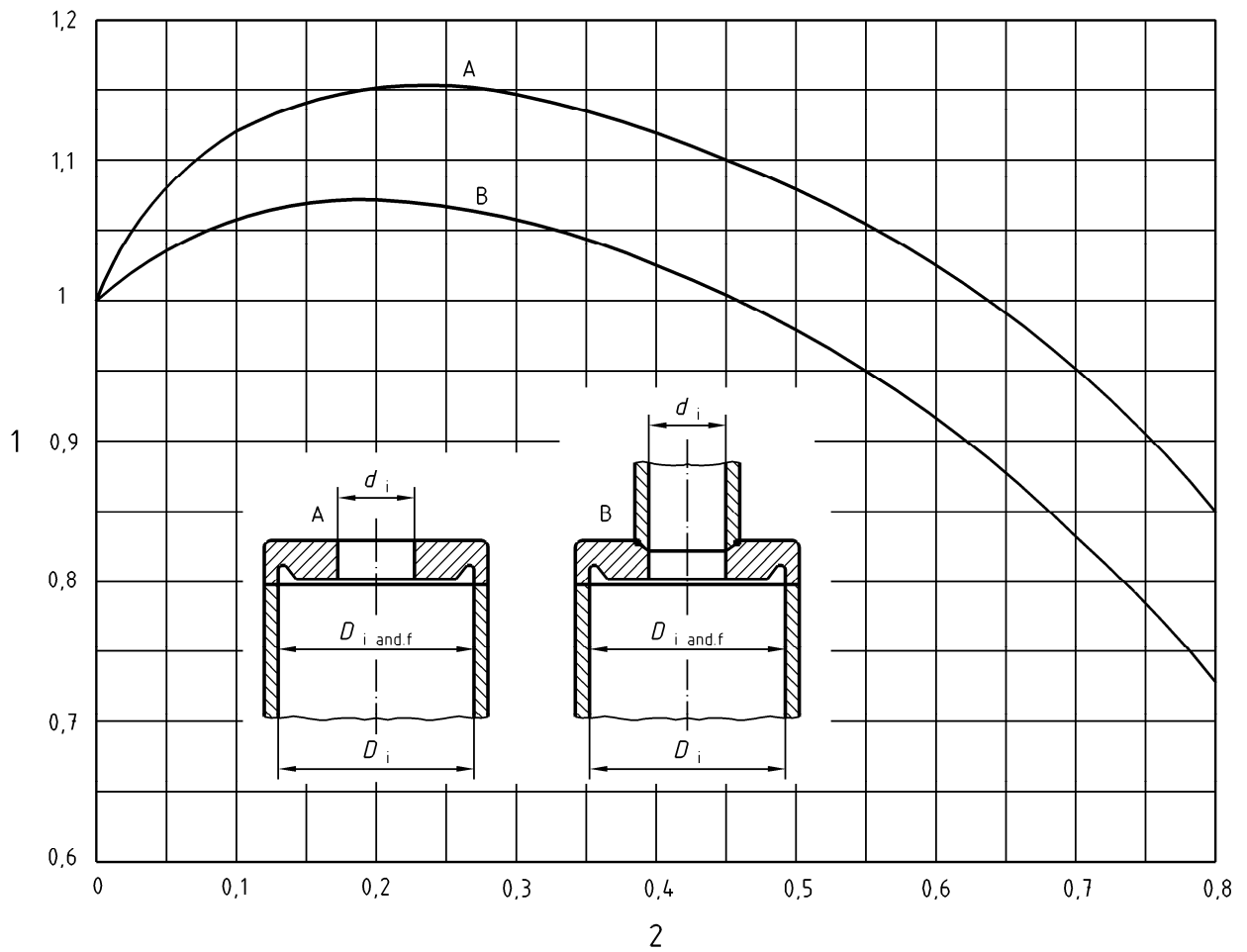


Figure 11

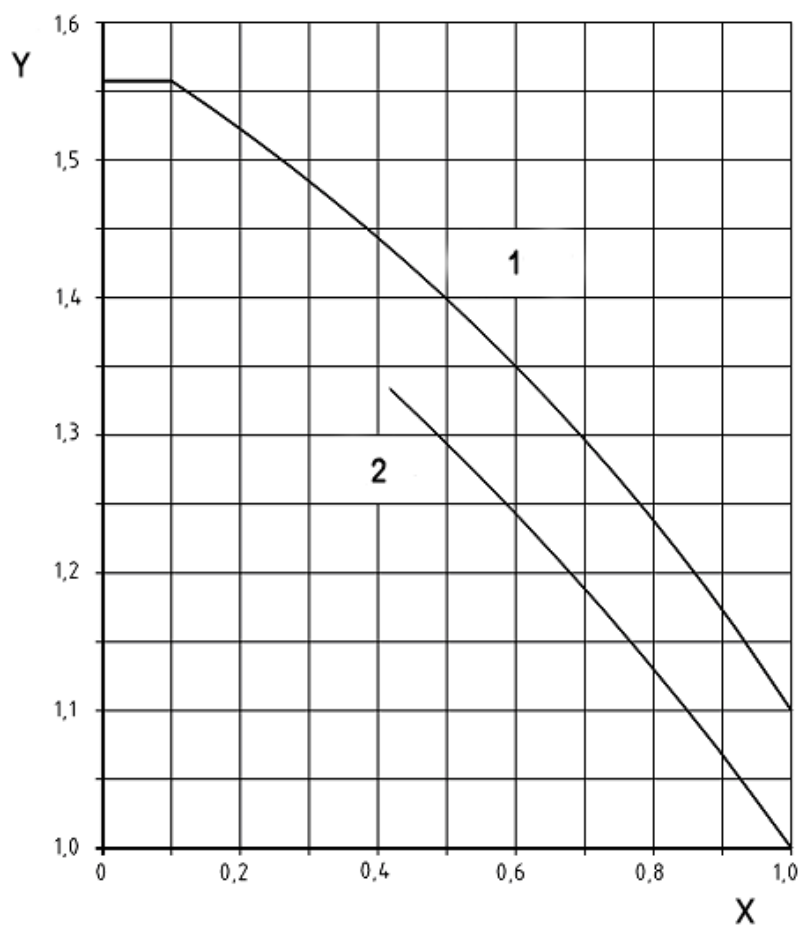
Figure 12c) : modify to read “flat plate welded into the shell from one side only”

Design factor C : for $s \leq 3 s_1 = 0,45$; for $s > 3 s_1 = 0,50$

Figure 12e) : modify to read “flat plate welded into the shell from both sides”

Design factor C : for $s \leq 3 s_1 = 0,35$; for $s > 3 s_1 = 0,40$

Replace Figure 13 and modify the key as follows:



Key

- 1 Rectangle
- 2 Ellipse
- Y Design factor C_E
- X Ratio f/e

Rectangular plates

f = short side of the rectangular plate

e = long side of the rectangular plate

$$C_e = \left\{ \begin{array}{l} \sum_{i=1}^4 A_i \left(\frac{f}{e} \right)^{i-1} \quad \left| 0,1 < \left(\frac{f}{e} \right) \leq 1,0 \right. \\ 1,562 \quad \left| 0 < \left(\frac{f}{e} \right) \leq 0,1 \right. \end{array} \right\}$$

$$A_1 = 1,5891\,460\,0$$

$$A_2 = -0,239\,349\,90$$

$$A_3 = -0,335\,179\,80$$

$$A_4 = 0,085\,211\,76$$

Elliptical plates

f = short side of the elliptical plate

e = long side of the elliptical plate

$$C_A = \left\{ \begin{array}{l} \sum_{i=1}^6 A_i \left(\frac{d}{D_i} \right)^{i-1} \quad \left| 0 < \left(\frac{d}{D_i} \right) \leq 0,8 \right. \\ \sum_{i=1}^6 A_i \left(\frac{d}{f} \right)^{i-1} \quad \left| 0 < \left(\frac{d}{f} \right) \leq 0,8 \right. \end{array} \right\}$$

$$A_1 = 1,489\,146\,00$$

$$A_2 = -0,239\,349\,90$$

$$A_3 = -0,335\,179\,80$$

$$A_4 = 0,085\,211\,76$$

Figure 13 — Design factor C_E for rectangular or elliptical flat plates

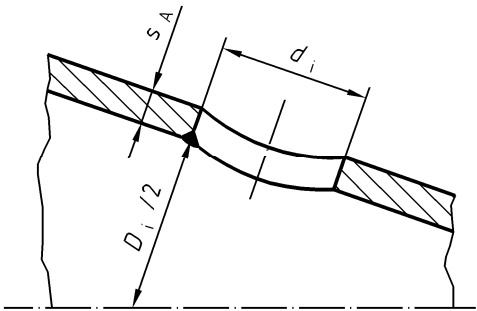


Figure 15

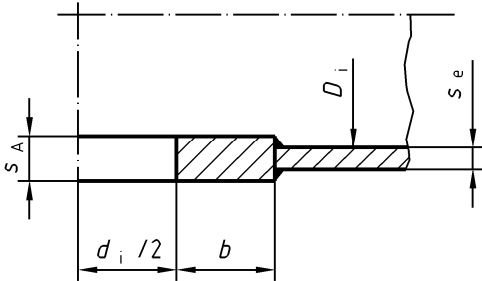


Figure 17

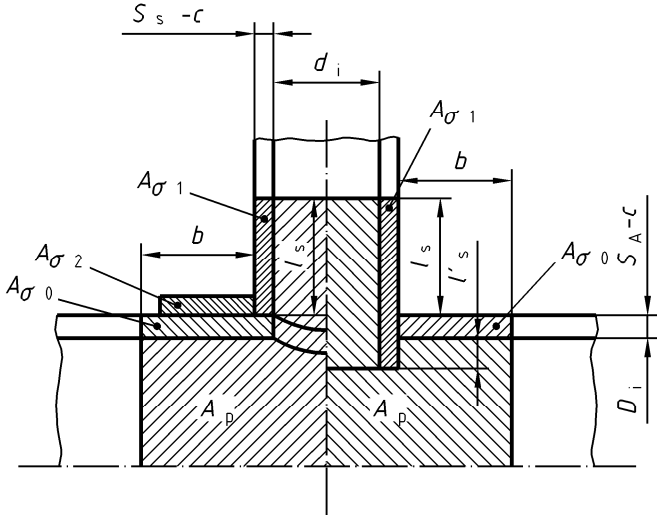


Figure 22

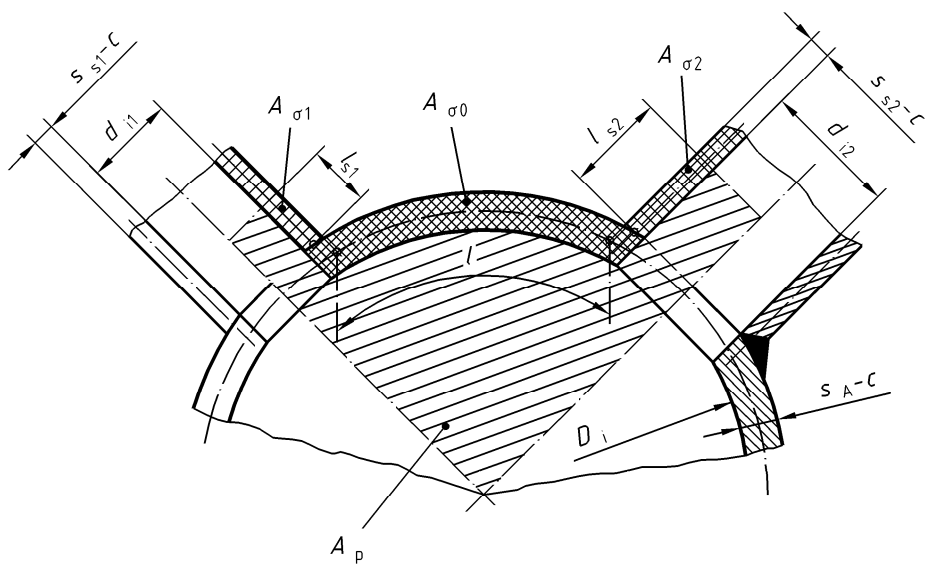


Figure 26

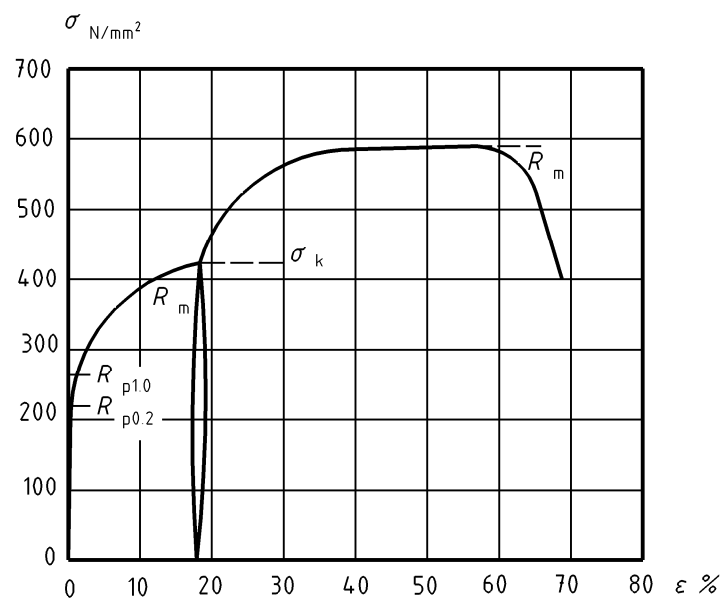


Figure C.2

Replace Table C.2 with the following:

Table C.2 – Modification of formulae for the design of pressure strengthened vessels

Sub-clause of this standard		Modification, see sub-clause in this annex
4.3.5.1	Cylinders and spheres subject to internal pressure	C.5.2.3.3
4.3.5.4	Dished ends subject to internal or external pressure 4.3.5.4.4 Internal pressure calculation (pressure on the concave surface)	C.5.2.3.4
4.3.5.3	Cones subject to internal or external pressure 4.3.5.5.6 internal pressure calculation (pressure on the concave surface) $ \varphi \leq 70^\circ$ 4.3.5.5.7 Internal pressure calculation (pressure on the concave surface) $ \varphi > 70^\circ$	C. 5.2.3.4 C.5.2.3.2
4.3.5.4	Flat ends	C. 5.2.3.2
4.3.5.5	Openings in cylinders, spheres and cones	C.5.2.3.5

C.7.3.1, fourth paragraph; replace "(C.1) by "(C.8)"

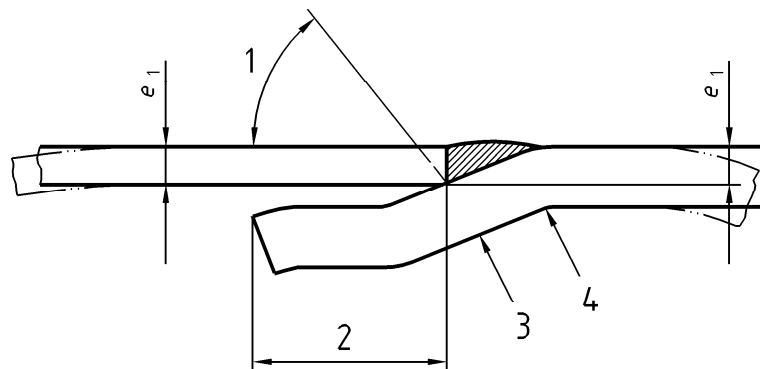


Figure E.1

Version française

Remplacer les figures comme suit:

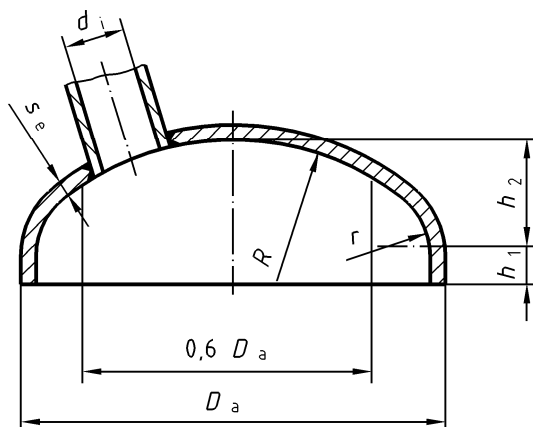


Figure 4b)

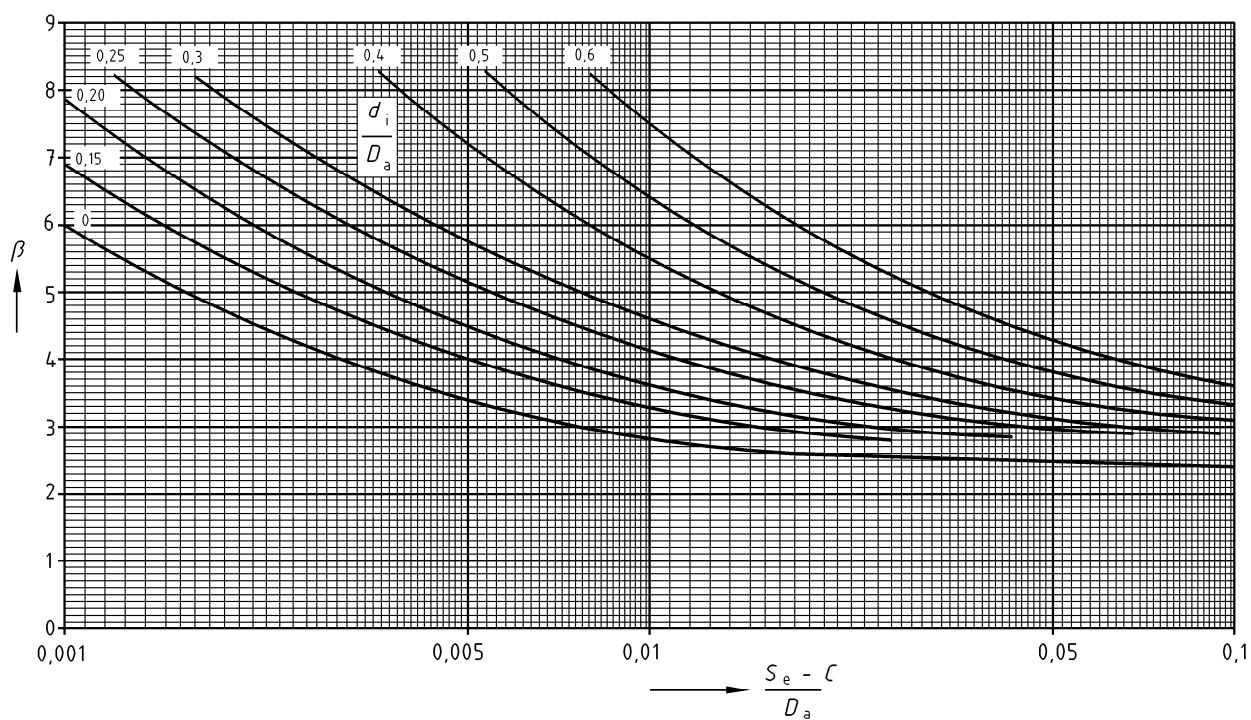


Figure 5

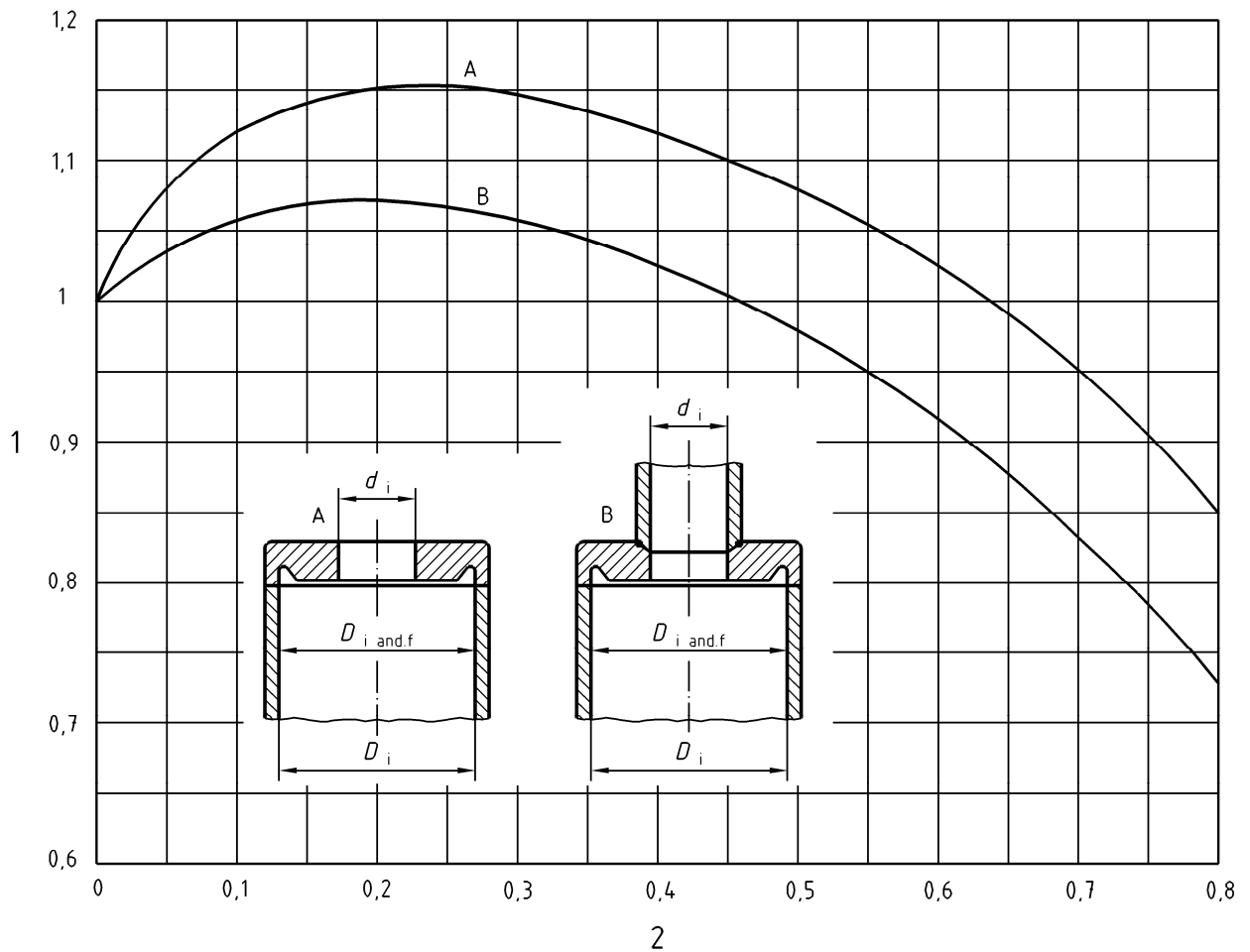


Figure 11

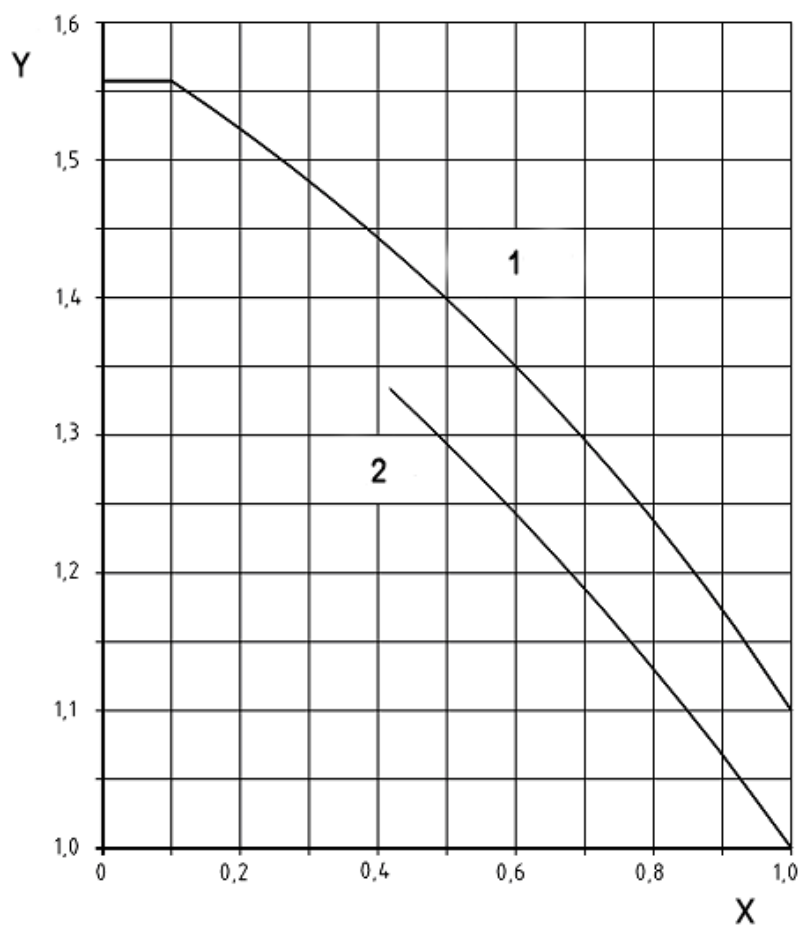
Figure 12c) : modifier comme suit “tôle plate soudée dans la virole d’un côté seulement”

Design factor C : for $s \leq 3 s_1 = 0,45$; for $s > 3 s_1 = 0,50$

Figure 12e) : modifier comme suit “tôle plate soudée des deux côtés dans la virole”

Design factor C : for $s \leq 3 s_1 = 0,35$; for $s > 3 s_1 = 0,40$

Remplacer la Figure 13 et modifier la légende comme suit:



Légende

- 1 Rectangle
- 2 Ellipse
- Y Coefficient de calcul C_E
- X Rapport f/e

Tôles rectangulaires

f = largeur de la tôle rectangulaire

e = longueur de la tôle rectangulaire

$$C_e = \begin{cases} \sum_{i=1}^4 A_i \left(\frac{f}{e} \right)^{i-1} & \left| 0,1 < \left(\frac{f}{e} \right) \leq 1,0 \right| \\ 1,562 & \left| 0 < \left(\frac{f}{e} \right) \leq 0,1 \right| \end{cases}$$

$$A_1 = 1,5891\,460\,0$$

$$A_2 = -0,239\,349\,90$$

$$A_3 = -0,335\,179\,80$$

$$A_4 = 0,085\,211\,76$$

Tôles elliptiques

f = largeur de la tôle elliptique

e = longueur de la tôle elliptique

$$C_A = \begin{cases} \sum_{i=1}^6 A_i \left(\frac{d}{D_i} \right)^{i-1} & \left| 0 < \left(\frac{d}{D_i} \right) \leq 0,8 \right| \\ \sum_{i=1}^6 A_i \left(\frac{d}{f} \right)^{i-1} & \left| 0 < \left(\frac{d}{f} \right) \leq 0,8 \right| \end{cases}$$

$$A_1 = 1,489\,146\,00$$

$$A_2 = -0,239\,349\,90$$

$$A_3 = -0,335\,179\,80$$

$$A_4 = 0,085\,211\,76$$

Figure 13 — Coefficient de calcul C_E pour des tôles plates rectangulaires ou elliptiques

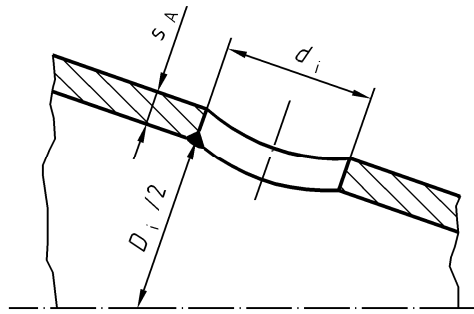


Figure 15

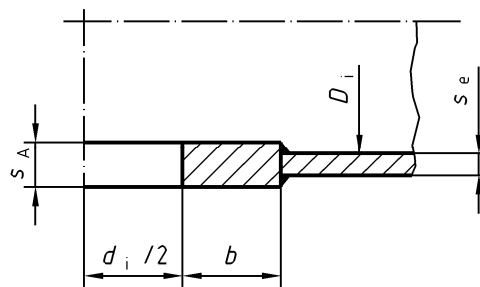


Figure 17

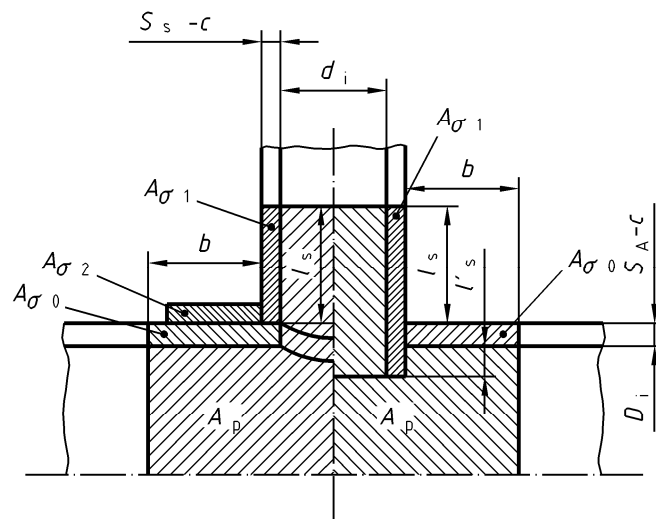


Figure 22

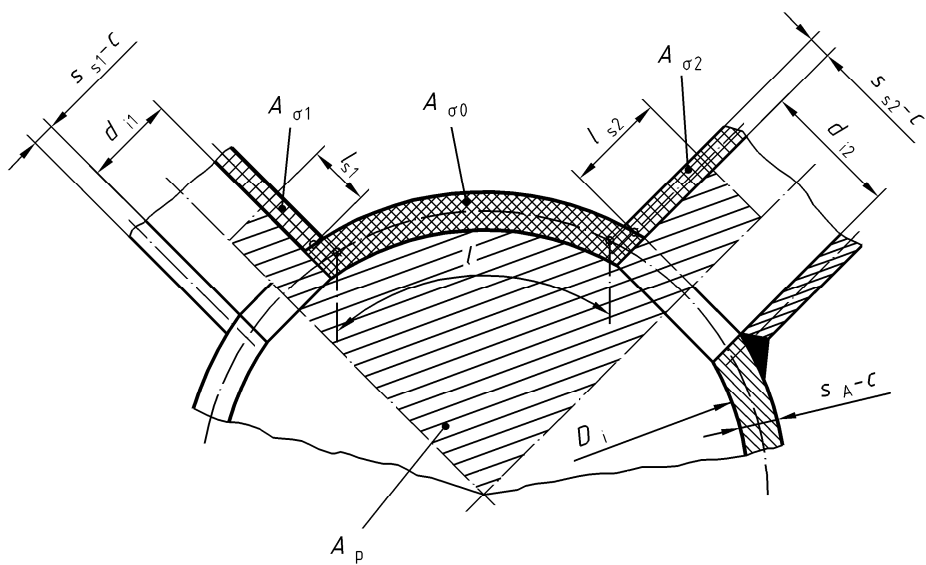


Figure 26

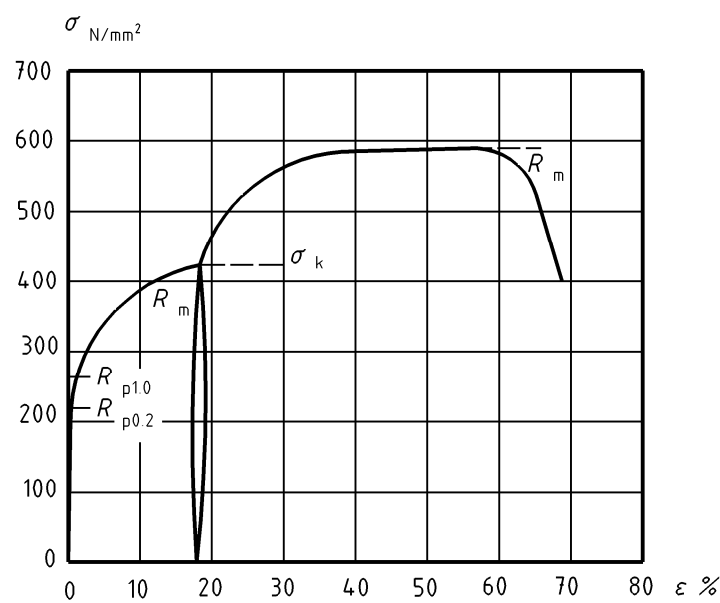


Figure C.2

Remplacer le Tableau C.2 par le suivant:

Tableau C.2 – Modification des formules pour le calcul des récipients écrouis sous pression

Paragraphe de la présente norme		Modification, voir paragraphe dans la présente annexe
4.3.5.1	Cylindres et sphères soumis à la pression interne	C.5.2.3.3
4.3.5.4	Fonds bombés soumis à la pression interne ou externe 4.3.5.4.4 Calcul de la pression interne (pression sur une surface concave)	C.5.2.3.4
4.3.5.3	Cônes soumis à la pression interne ou externe 4.3.5.5.6 Calcul de la pression interne (pression sur une surface concave) $ \varphi \leq 70^\circ$ 4.3.5.5.7 Calcul de la pression interne (pression sur une surface concave) $ \varphi > 70^\circ$	C. 5.2.3.4 C.5.2.3.2
4.3.5.4	Fonds plats	C. 5.2.3.2
4.3.5.5	Ouvertures dans les cylindres, les sphères et les cônes	C.5.2.3.5

C.7.3.1, quatrième alinéa; remplacer "(C.1)" par "(C.8)"

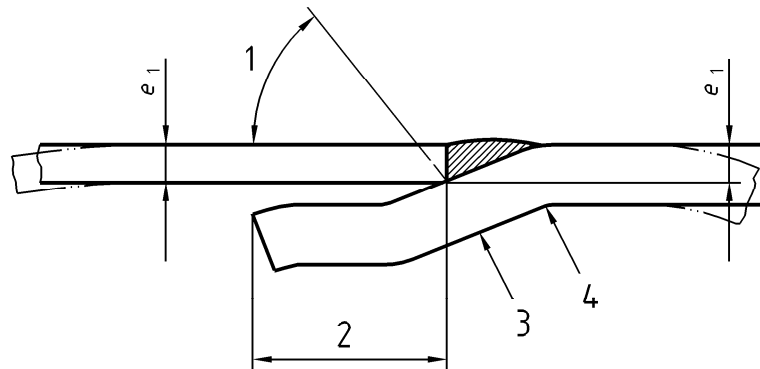


Figure E.1

Deutsche Fassung

Die folgenden Bilder sind wie folgt zu ersetzen:

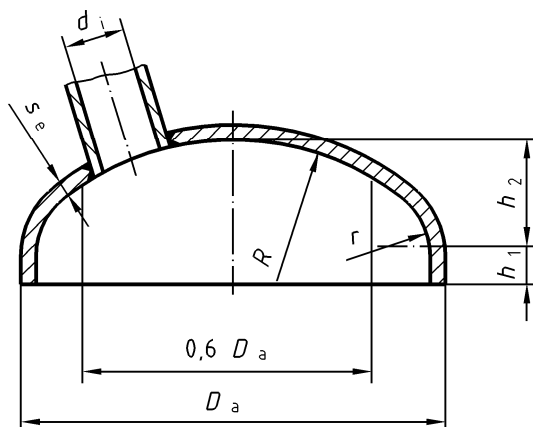


Bild 4b)

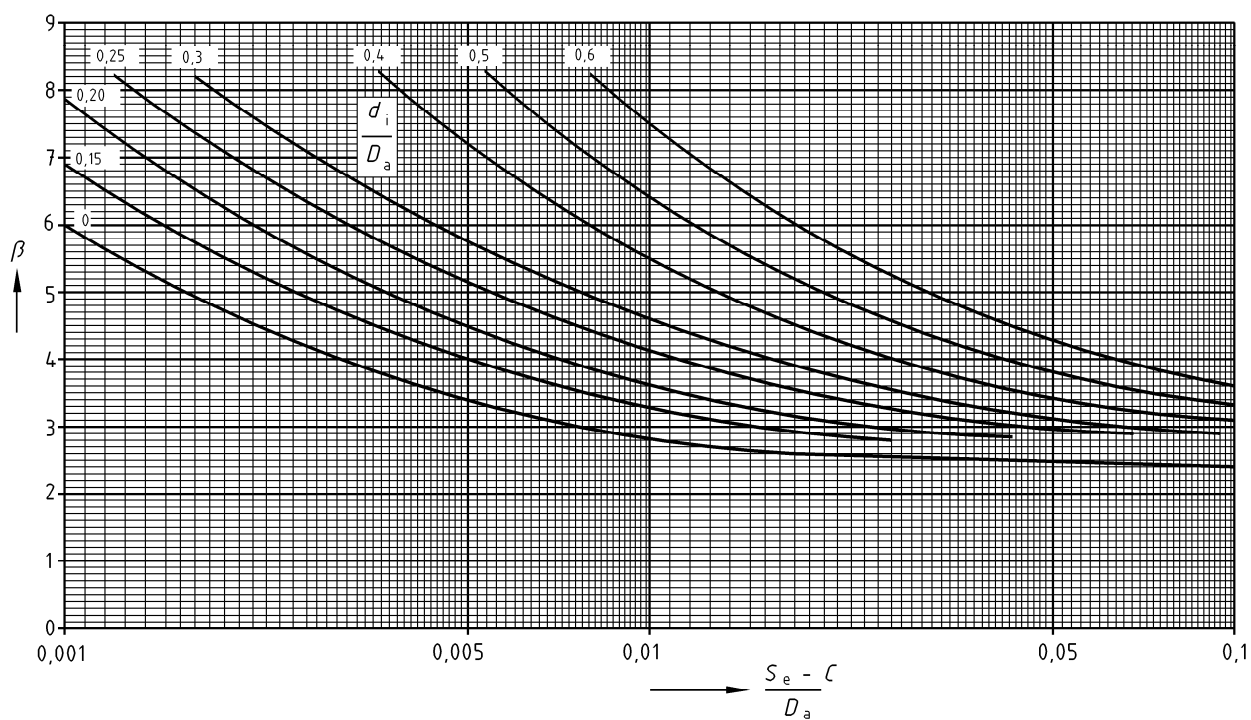
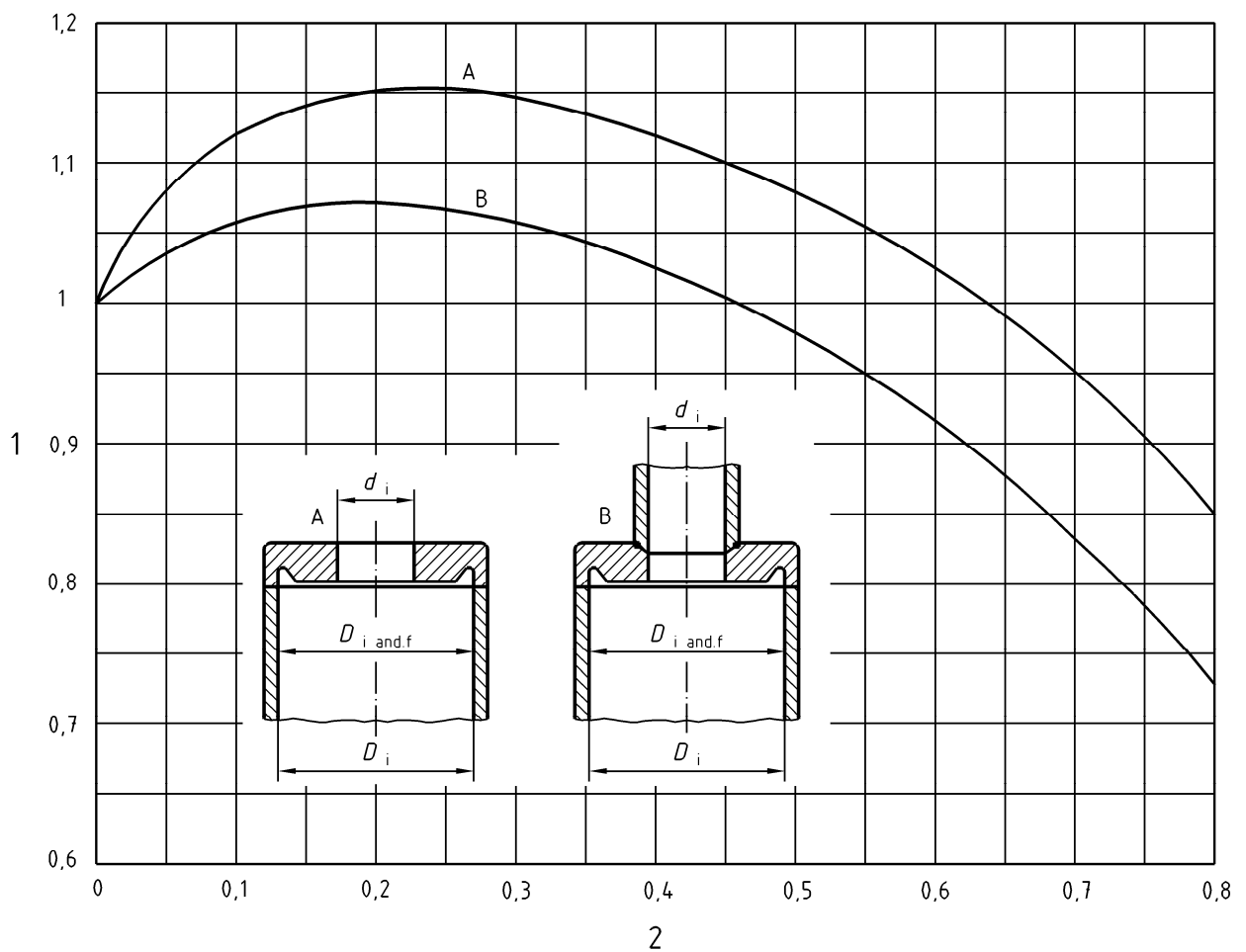


Bild 5

**Bild 11**

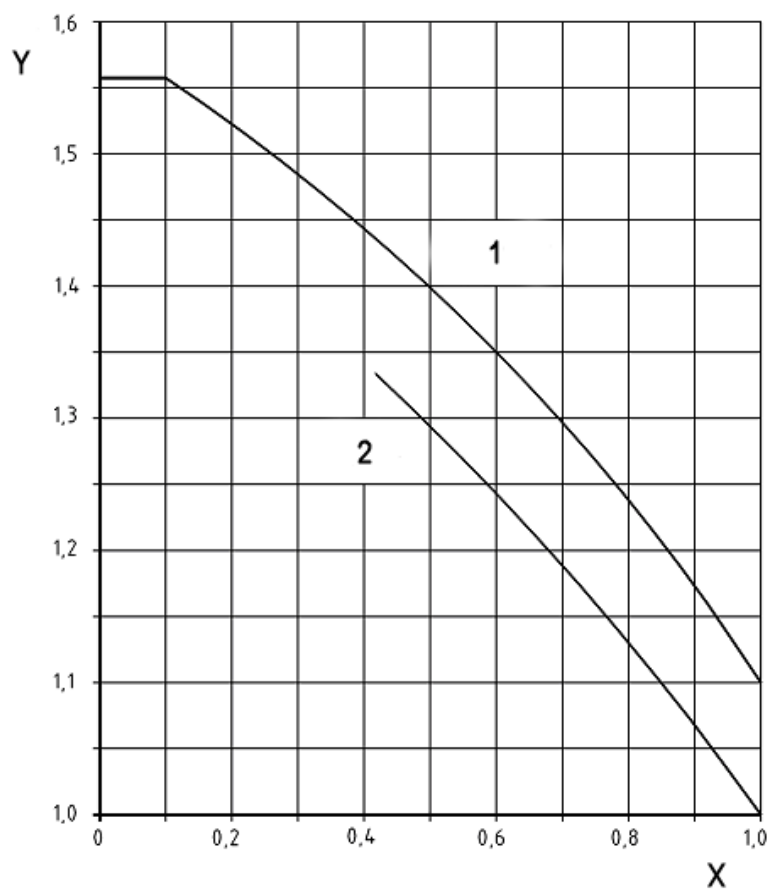
Das **Bild 12c)** ist wie folgt zu modifizieren: "Ebene Platte, nur von einer Seite in den Mantel eingeschweißt"

Design factor C : for $s \leq 3 s_1 = 0,45$; for $s > 3 s_1 = 0,50$

Das **Bild 12e)** ist wie folgt zu modifizieren: "Ebene Platte, von beiden Seiten in den Mantel eingeschweißt"

Design factor C : for $s \leq 3 s_1 = 0,35$; for $s > 3 s_1 = 0,40$

Das Bild 13 ist zu ersetzen und die Legende ist wie folgt zu modifizieren:



Legende

1 Rechteck

2 Ellipse

Y Berechnungsbeiwert C_E

X Verhältnis f/e

Rechteckige Platten

f = schmale Seite der rechteckigen Platte

e = breite Seite der rechteckigen Platte

$$C_A = \left[\sum_{i=1}^4 A_i \cdot \left(\frac{f}{e} \right)^{i-1} \mid 0,1 < \left(\frac{f}{e} \right) \leq 1,0 \right]$$

$$\left[1,562 \mid 0,1 < \left(\frac{f}{e} \right) \leq 1,0 \right]$$

$$A_1 = 1,58914600$$

$$A_2 = -0,23934990$$

$$A_3 = -0,33517980$$

$$A_4 = 0,08521176$$

Elliptische Platten

f = schmale Seite der rechteckigen Platte

e = breite Seite der rechteckigen Platte

$$C_A = \left[\sum_{i=1}^6 A_i \left(\frac{d}{D_i} \right)^{i-1} \mid 0 < \left(\frac{d}{D_i} \right) \leq 0,8 \right]$$

$$\left[\sum_{i=1}^6 A_i \left(\frac{d}{f} \right)^{i-1} \mid 0 < \left(\frac{d}{f} \right) \leq 0,8 \right]$$

$$A_1 = 1,48914600$$

$$A_2 = -0,23934990$$

$$A_3 = -0,33517980$$

$$A_4 = 0,08521176$$

Bild 13 — Berechnungsbeiwert C_E rechteckiger oder elliptischer Platten

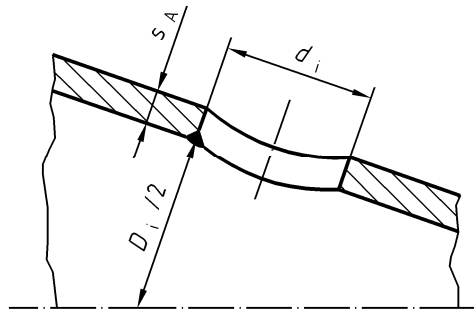


Figure 15

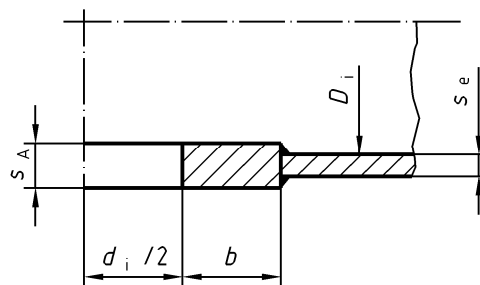


Figure 17

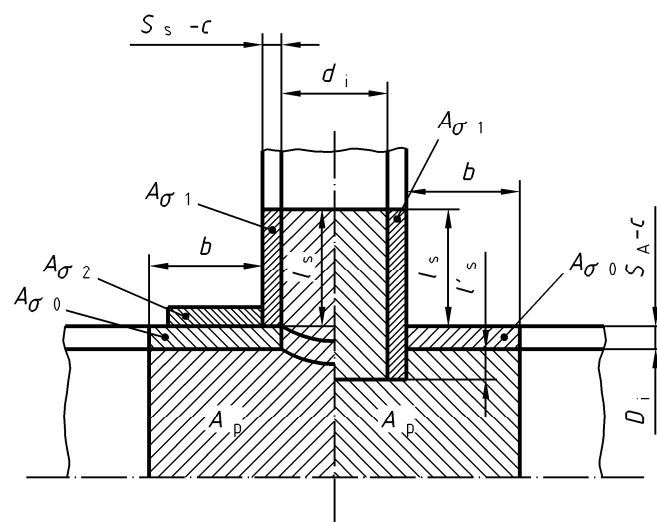


Figure 22

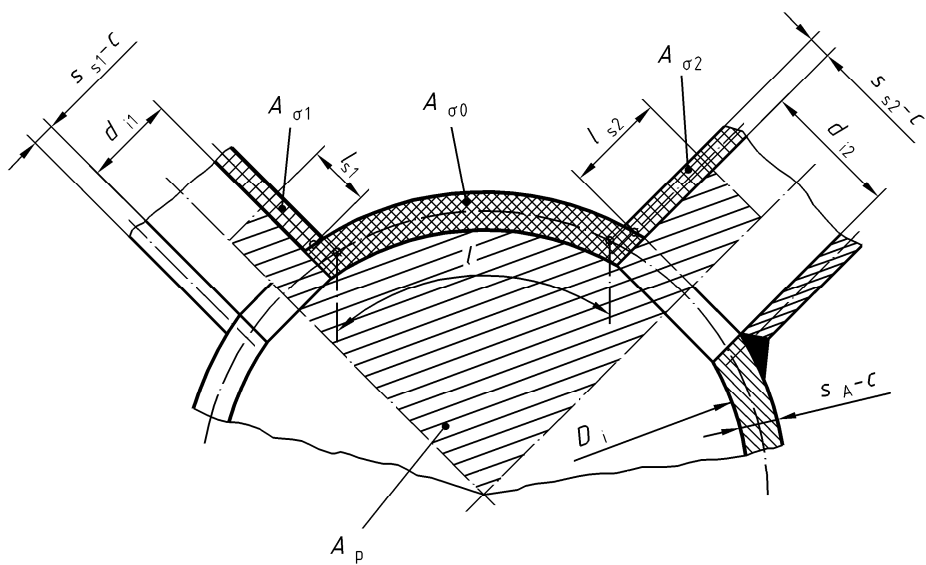


Figure 26

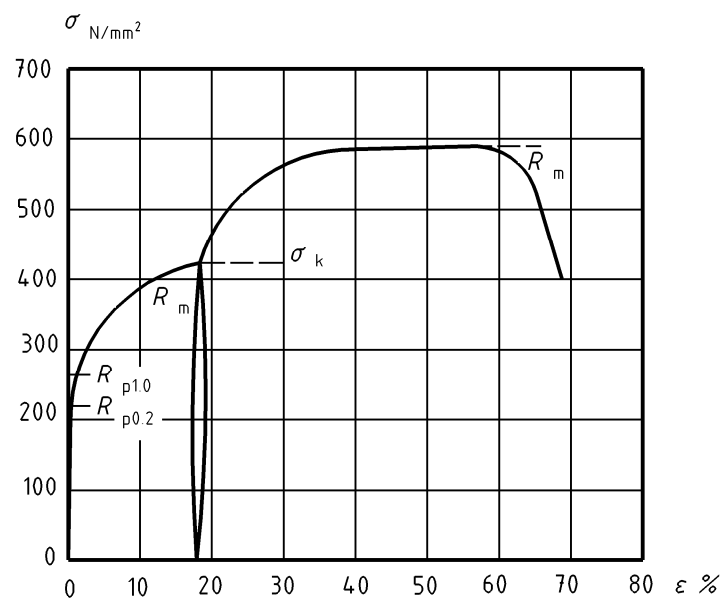


Figure C.2

Die Tabelle C.2 ist wie folgt zu ersetzen:

Tabelle C.2 – Modifizierungen der Gleichungen für die Bemessung druckfester Behälter

Abschnitt dieser Norm		Modifikation, siehe Abschnitt dieses Anhangs
4.3.5.1	Zylinder- und Kugelschalen unter innerem Überdruck	C.5.2.3.3
4.3.5.4	Gewölbte Böden unter innerem und äußerem Überdruck 4.3.5.4.4 Berechnung bei innerem Überdruck (Druck auf die konkav gewölbte Oberfläche)	C.5.2.3.4
4.3.5.3	Kegelförmige Mäntel unter innerem und äußerem Überdruck 4.3.5.5.6 Berechnung bei innerem Überdruck $ \varphi \leq 70$ 4.3.5.5.7 Berechnung bei innerem Überdruck $ \varphi > 70$	C. 5.2.3.4 C.5.2.3.2
4.3.5.4	Ebene Böden/Platten	C. 5.2.3.2
4.3.5.5	Ausschnitte in Zylindern, Kugeln und Kegeln	C.5.2.3.5

C.7.3.1, dritter Absatz: "(C.1)" ist durch "(C.8)" zu ersetzen.

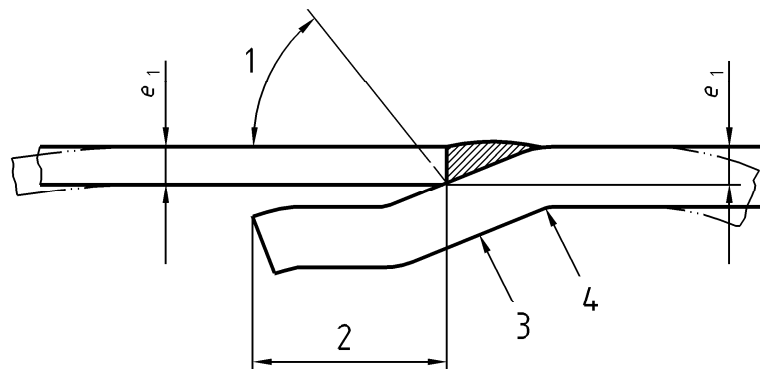


Figure E.1