

Flanges que podem ser fabricados de Chapa Grossa

Conforme código ASME VIII 1 App. 2

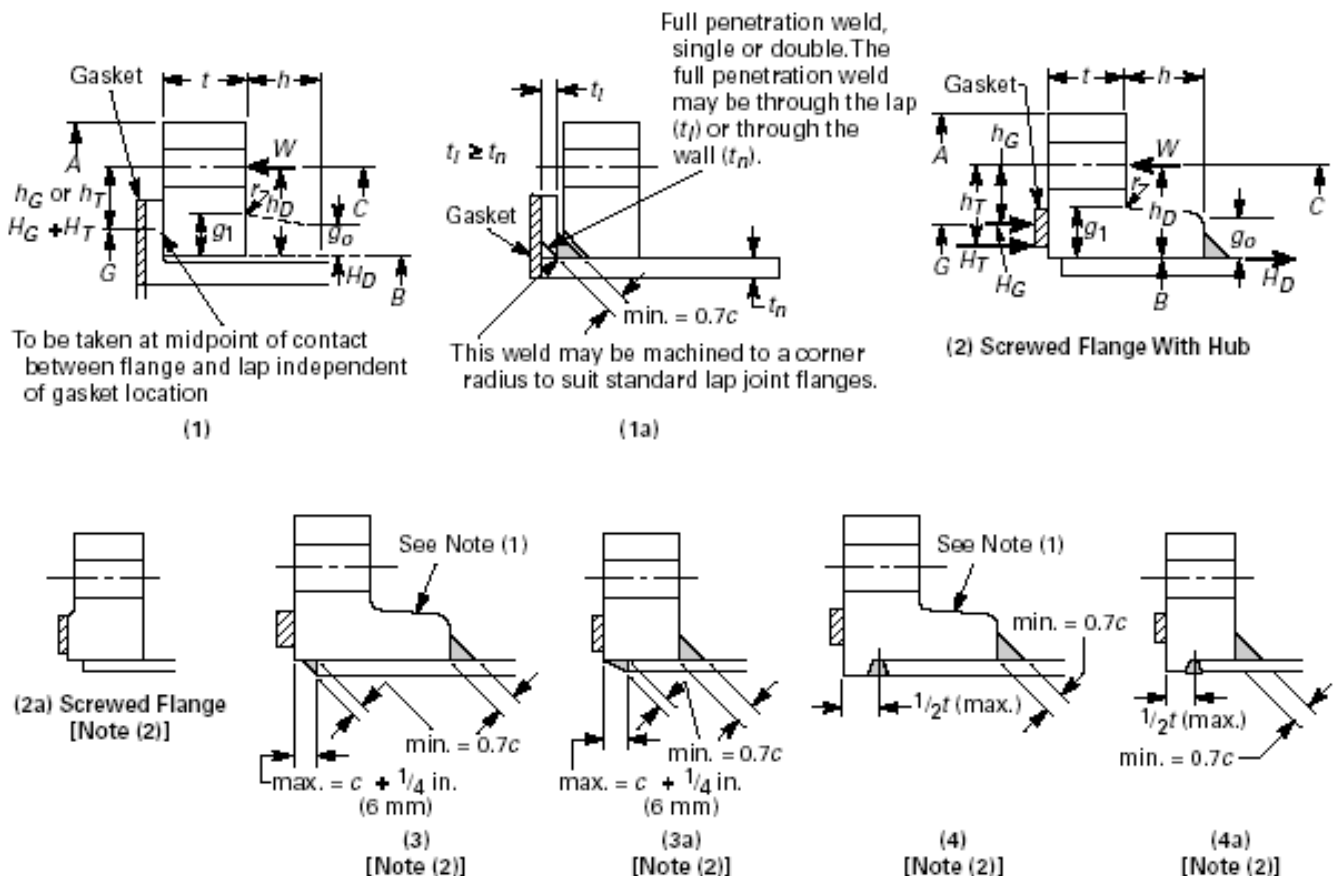
1- Flanges soltos (“Loose Type Flanges”)

This type covers those designs in which the flange has no direct connection to the nozzle neck, vessel, or pipe wall, and designs where the method of attachment is not considered to give the mechanical strength equivalent of integral attachment.

See Fig. 2-4 sketches (1), (1a), (2), (2a), (3), (3a), (4), and (4a) for typical loose type flanges and the location of the loads and moments.

Welds and other details of construction shall satisfy the dimensional requirements given in Fig. 2-4 sketches (1), (1a), (2), (2a), (3), (3a), (4), and (4a).

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NOTES (Loose Type Flanges):

(1) For hub tapers 6 deg or less, use $g_o = g_1$.

(2) Loading and dimensions for sketches (2a), (3), (3a), (4), and (4a) not shown are the same as for sketch (2).

Loose Type Flanges

2- Flanges opcionais (“Optional Type Flanges”)

This type covers designs where the attachment of the flange to the nozzle neck, vessel or pipe wall is such that the assembly is considered to act as a unit, which shall be calculated as an integral flange, except that for simplicity the designer may calculate the construction as a loose type flange provided none of the following values is exceeded:

$$g_0 = \frac{5}{8} \text{ in. (16 mm)}$$

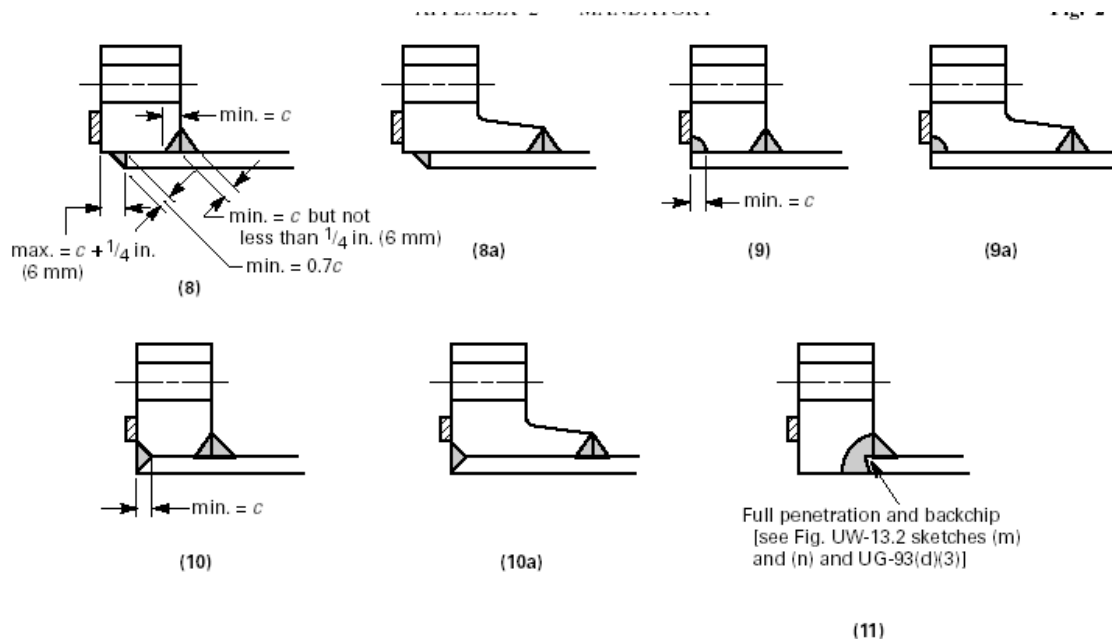
$$B/g_0 = 300$$

$$P = 300 \text{ psi (2 070 kPa)}$$

operating temperature = 700°F (371°C)

See Fig. 2-4 sketches (8), (8a), (9), (9a), (10), (10a), and (11) for typical optional type flanges. Welds and other details of construction shall satisfy the dimensional requirements given in Fig. 2-4 sketches (8), (8a), (9), (9a), (10), (10a), and (11).

ASME Sec VIII Div 1 App. 2 FIG. 2-4



GENERAL NOTES: (Optional Type Flanges):

- Optional type flanges may be calculated as either loose or integral type. See 2-4.
- Loadings and dimensions not shown in sketches (8), (8a), (9), (9a), (10), and (10a) are the same as shown in sketch (2) when the flange is calculated as a loose type flange and as shown in sketch (7) when the flange is calculated as an integral type flange.
- The groove and fillet welds between the flange back face and the shell given in sketch (8) also apply to sketches (8a), (9), (9a), (10), and (10a).

Optional Type Flanges

Calculation of flange stresses

For **loose type flanges without hubs and loose type flanges with hubs** which the designer chooses to calculate without considering the hub [Fig. 2-4 sketches (1), (1a), (2), (2a), (3), (3a), (4), and (4a)] **and optional type flanges calculated as loose type** [Fig. 2-4 sketches (8), (8a), (9), (9a), (10), (10a), and (11)]:

$$S_T = \frac{YM_o}{t^2B}$$

$$S_R = 0 \quad S_H = 0$$

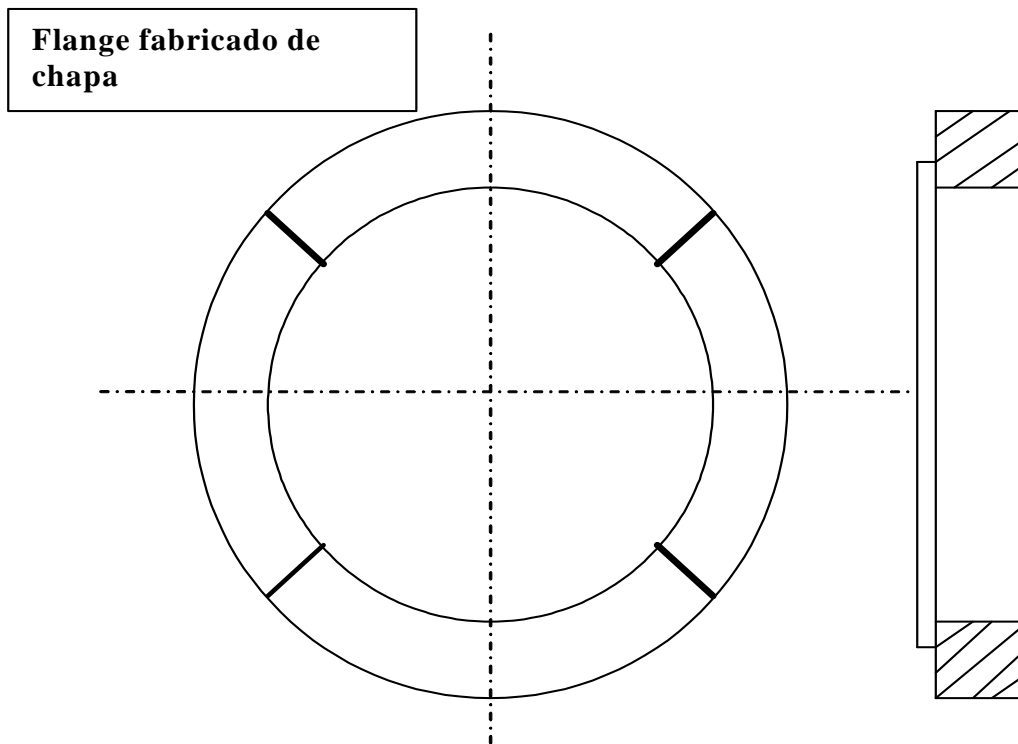
The total flange moment M_o is the sum of the three individual moments MD , MT , and MG , as defined in 2-3 and based on the flange design load of Formula (3) with moment arms as given in Table 2-6.

1- MOMENT ARMS FOR FLANGE LOADS FOR OPERATING CONDITIONS

	h_D	h_T	h_G
Loose type, except lap-joint flanges [see Fig. 2-4 sketches (2), (2a), (3), (3a), (4), and (4a)]; and optional type flanges calculated as loose type [see Fig. 2-4 sketches (8), (8a), (9), (9a), (10), (10a), and (11)]	$\frac{C - B}{2}$	$\frac{h_D + h_G}{2}$	$\frac{C - G}{2}$

2- MOMENT FOR GASKET SEATING,

$$W = \frac{(A_m + A_b) S_a}{2}$$



É o flange conhecido como solto ("**loose type**") e é possível fabricá-lo de chapa grossa.

Recomendações:

- 1- É importante verificar a planicidade e paralelismo das faces, após as soldas.
- 2- As soldas intermediárias devem ser examinadas com radiografia total e superficialmente com líquido penetrante.
- 3- O dimensionamento ou verificação d flange deve ser conforme o documento anexo.
- 4- A fixação do flange ao tubo deve ser como os "sketches" (3a) ou (4a) da Fig. 2-4, dos ASME Sec VIII Div 1, que está no anexo.