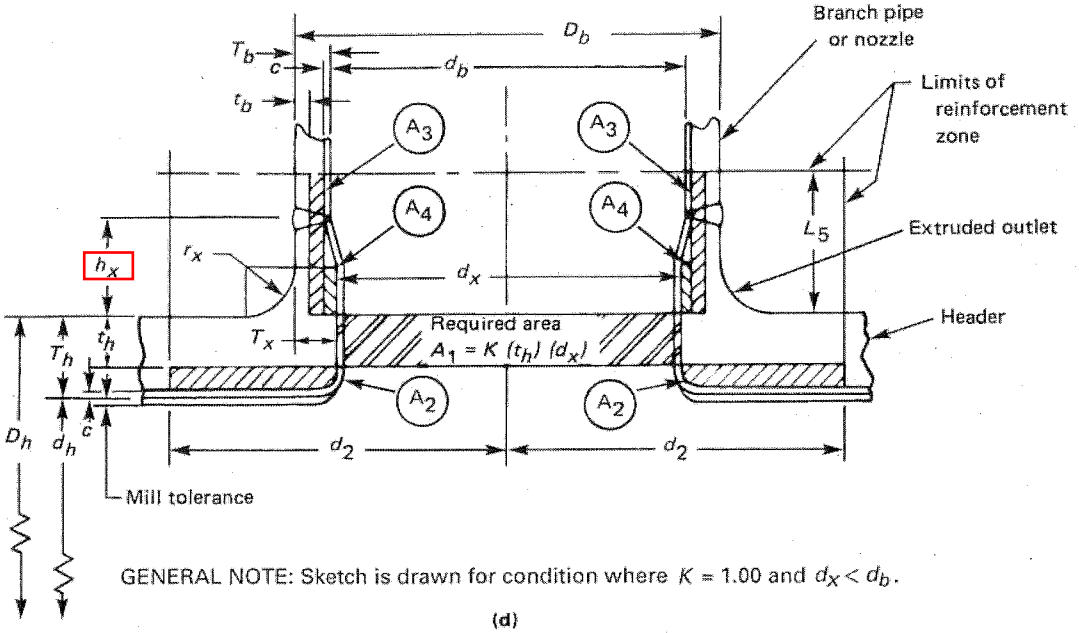
Fig. 304.3.4 Extruded Outlet Header Nomenclature (Cont'd)

This Figure illustrates the nomenclature of para. 304.3.4. It does not indicate complete details or a preferred method of construction.



GENERAL NOTE: Sketch is drawn for condition where $K = 1.00$ and $d_X < d_b$.

(d)

Where these requirements are not met, or where nonintegral material such as a ring, pad, or saddle has been added to the outlet, pressure design shall be qualified as required by para. 304.7.2.

(c) Nomenclature. The nomenclature used herein is illustrated in Fig. 304.3.4. Note the use of subscript x signifying extruded. Refer to para. 304.3.3(a) for nomenclature not listed here.

d_x = the design inside diameter of the extruded outlet, measured at the level of the outside surface of the header. This dimension is taken after removal of all mechanical and corrosion allowances, and all thickness tolerances.

d_2 = half width of reinforcement zone (equal to d_x)

h_x = height of the extruded outlet. This must be equal to or greater than r_x [except as shown in sketch (b) in Fig. 304.3.4].

L_5 = height of reinforcement zone
$= 0.7\sqrt{D_b T_x}$

r_x = radius of curvature of external contoured portion of outlet, measured in the plane containing the axes of the header and branch

T_x = corroded finished thickness of extruded outlet, measured at a height equal to r_x above the outside surface of the header

(d) Limitations on Radius r_x. The external contour radius, r_x, is subject to the following limitations:

(1) minimum r_x: the lesser of $0.05D_b$ or 38 mm (1.50 in.)

(2) maximum r_x shall not exceed

(a) for $D_b <$ DN 200 (NPS 8), 32 mm (1.25 in.)

(b) for $D_b \geq$ DN 200, $0.1D_b$ + 13 mm (0.50 in.)

(3) for an external contour with multiple radii, the requirements of (1) and (2) above apply, considering the best-fit radius over a 45 deg arc as the maximum radius

(4) machining shall not be employed in order to meet the above requirements

(e) Required Reinforcement Area. The required area of reinforcement is defined by

$$A_1 = Kt_h d_x \tag{9}$$

where K is determined as follows:

(1) For $D_b/D_h > 0.60$, $K = 1.00$.

(2) For $0.60 \geq D_b/D_h > 0.15$, $K = 0.6 + \frac{2}{3}(D_b/D_h)$.

(3) For $D_b/D_h \leq 0.15$, $K = 0.70$.

(f) Available Area. The area available for reinforcement is defined as

$$A_2 + A_3 + A_4 \geq A_1 \tag{9a}$$

These areas are all within the reinforcement zone and are further defined below.