CH6511 Process Equipment Design - I

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Mechanical Design of Chemical Process Equipments

Dished Ends

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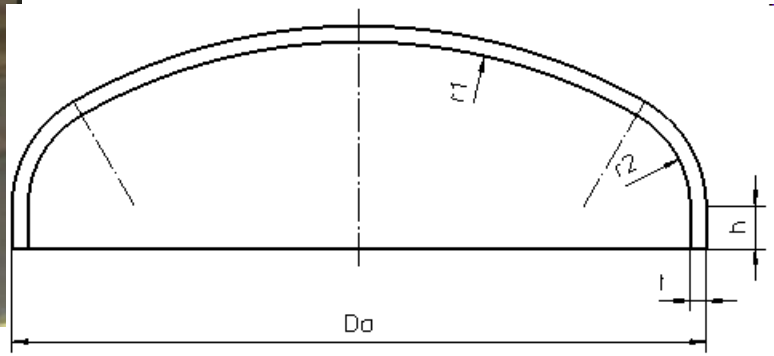
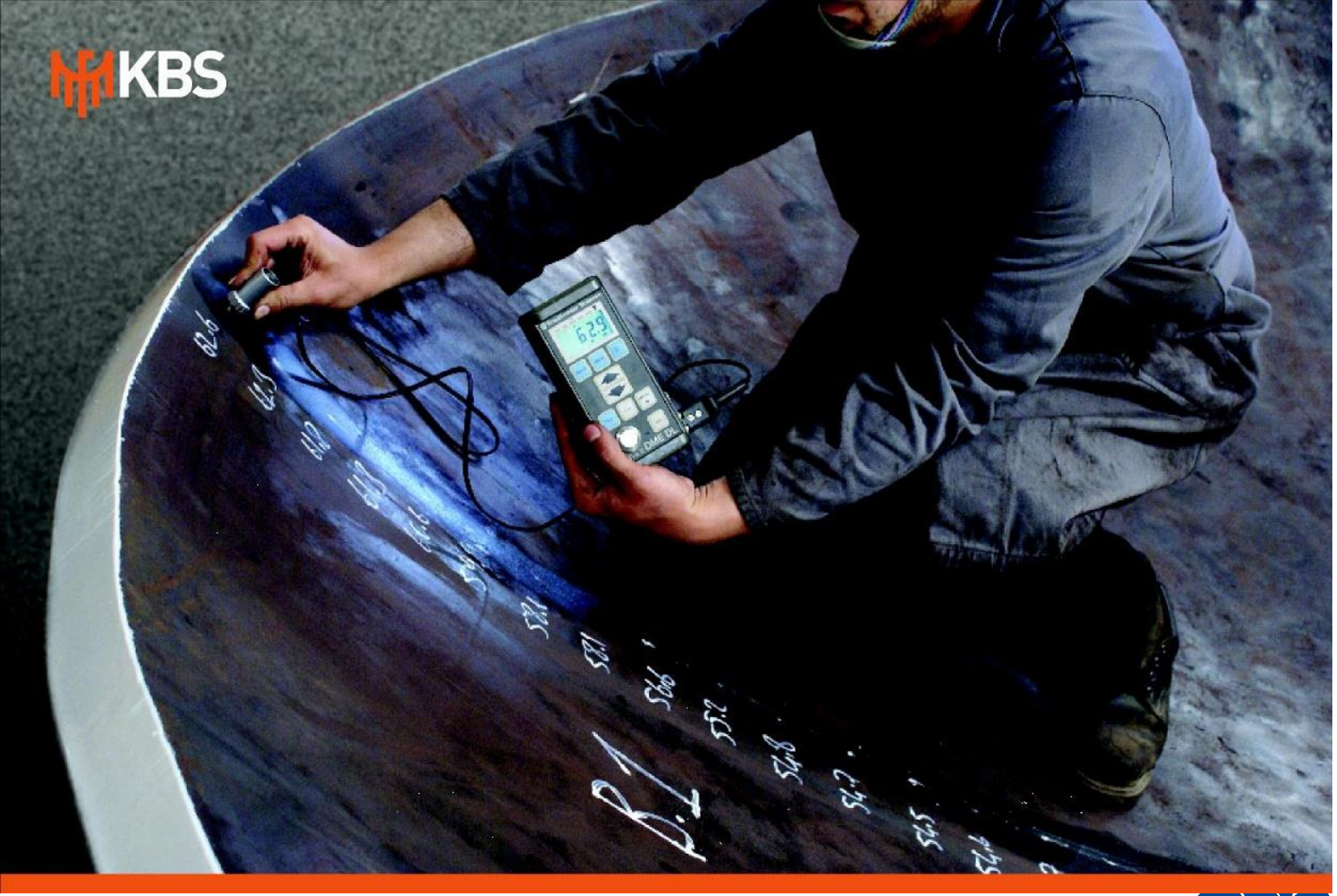
Dished Ends


11 7:57PM



The manufacturing of such an end is easier than that of a hemisphere. The starting material is first pressed to a radius r1 and then curled at the edge creating the second radius r2. Vessel dished ends can also be welded together from smaller pieces.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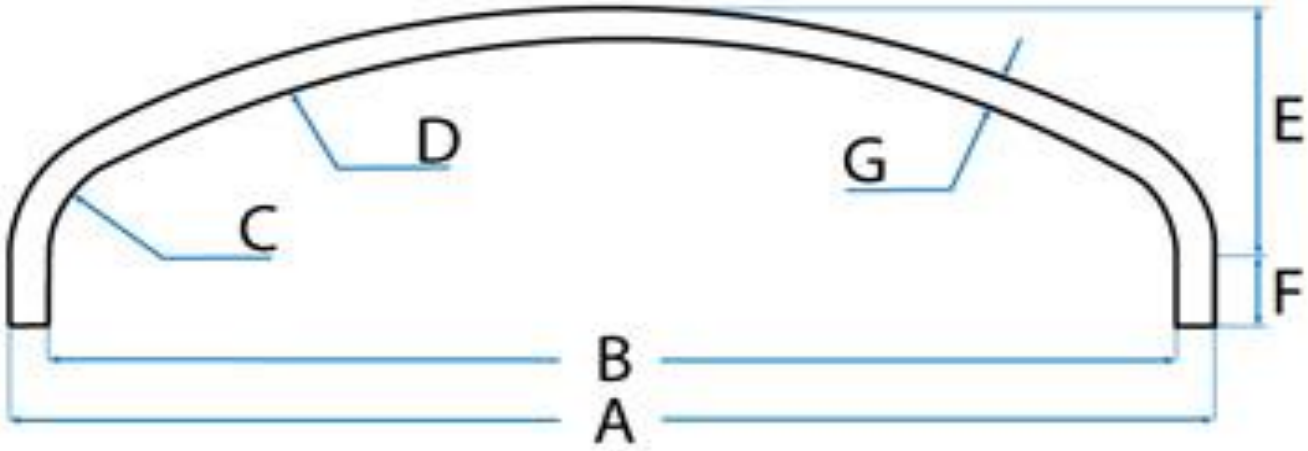
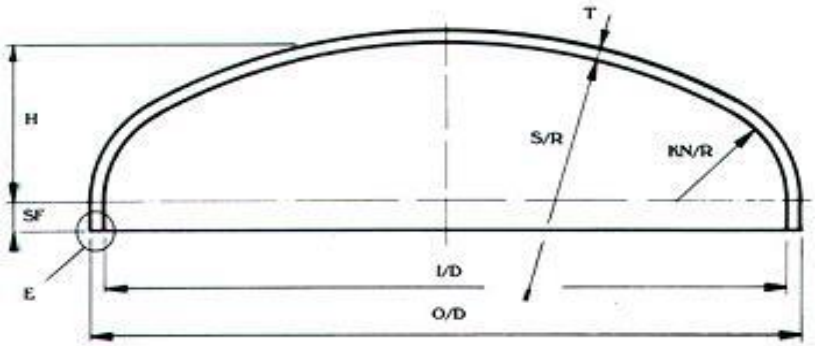


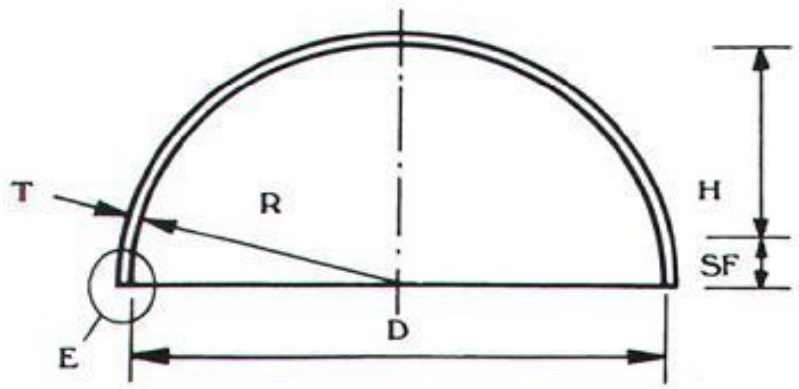
A OUTSIDE DIAMETER
B INSIDE DIAMETER
C KNUCKLE REDIUS
D INSIDE CROWN RADIUS OR SPHERICAL RADIUS
E INTERNAL TANGENTIAL HEIGHT
F STRAIGHT FLANGE
G MATERIAL THICKNESS FORMED FROM

Types of Ends

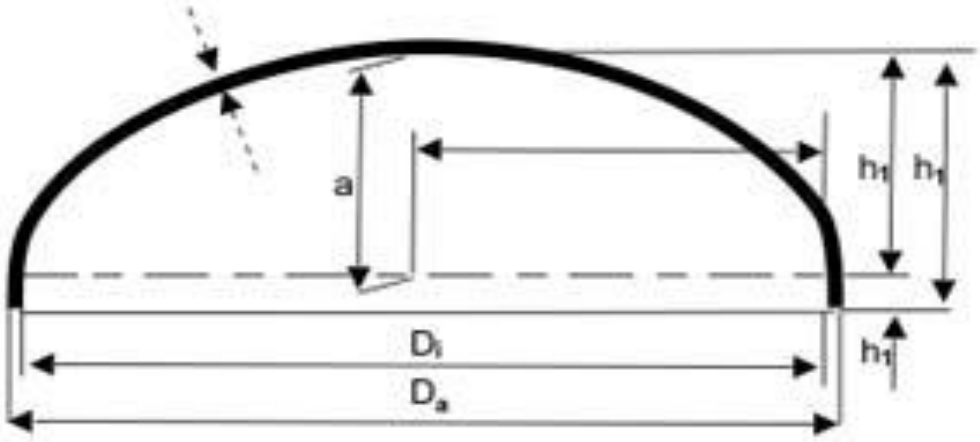
- Flanged
- Ellipsoidal
- Torispherical
- Hemispherical
- Conical
- Toriconical



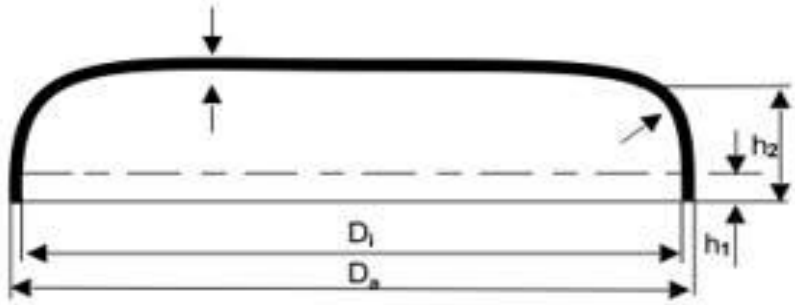
Torispherical



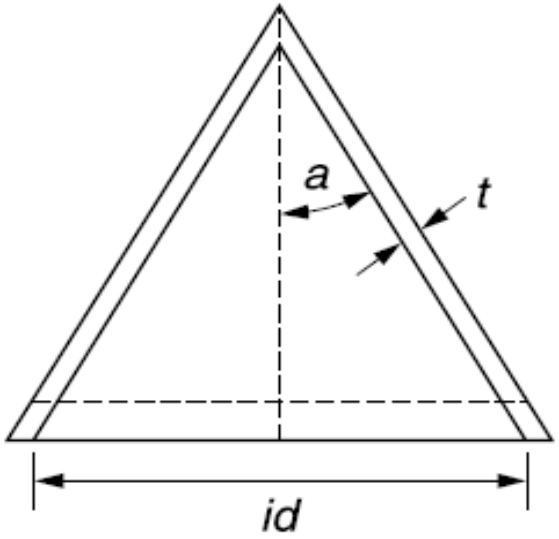
Hemispherical



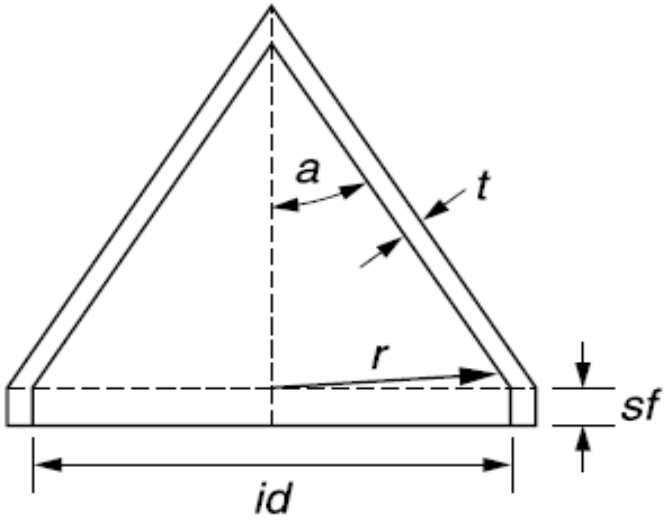
Ellipsoidal



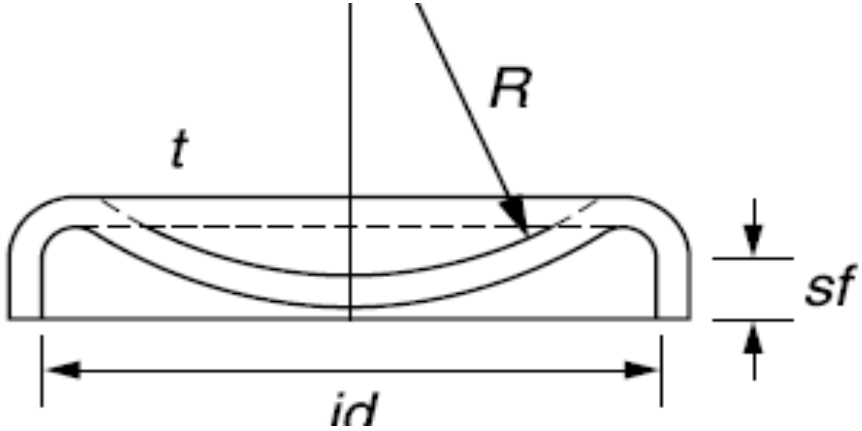
Flanged only



Conical

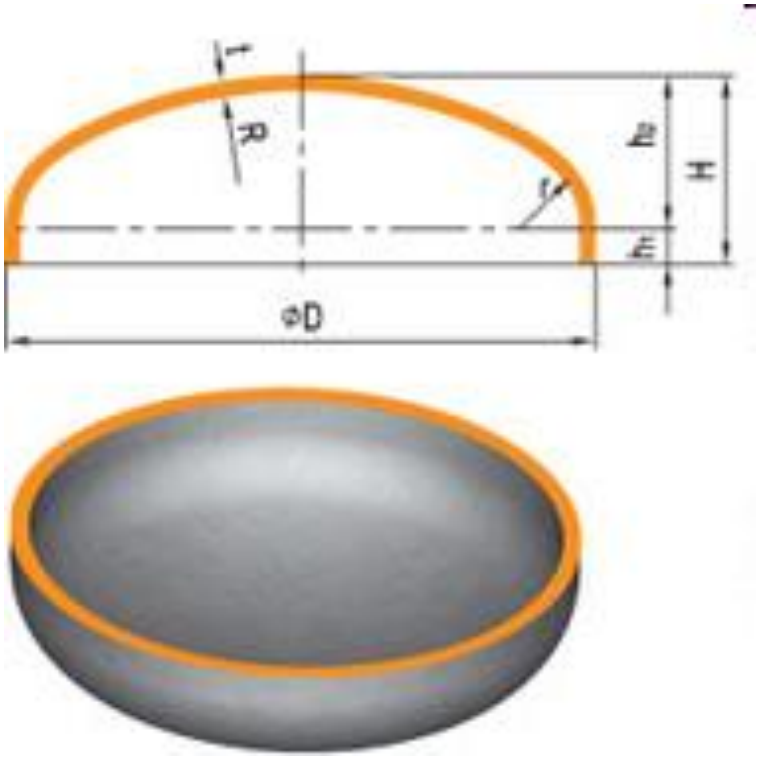


Toriconical

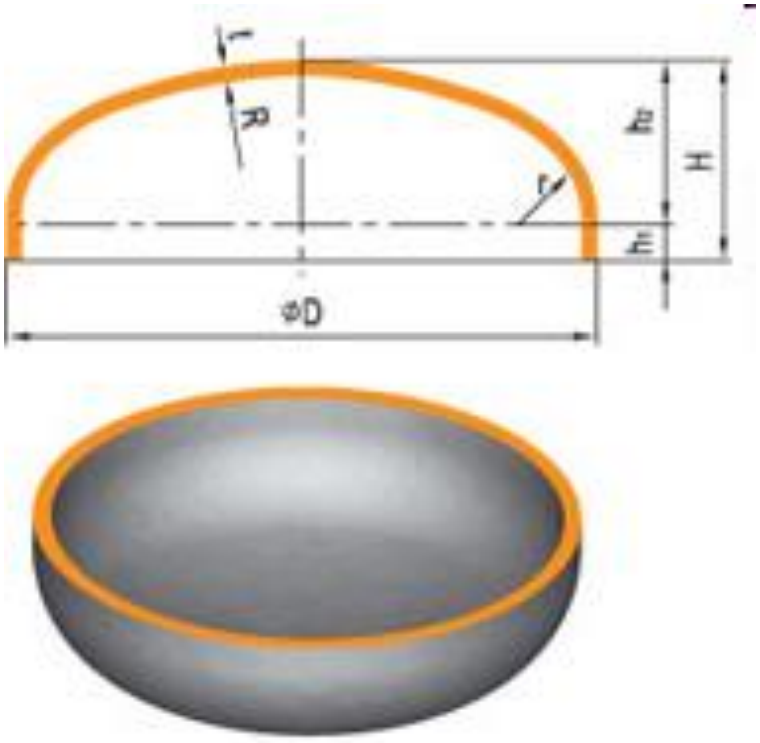


Reverse dished

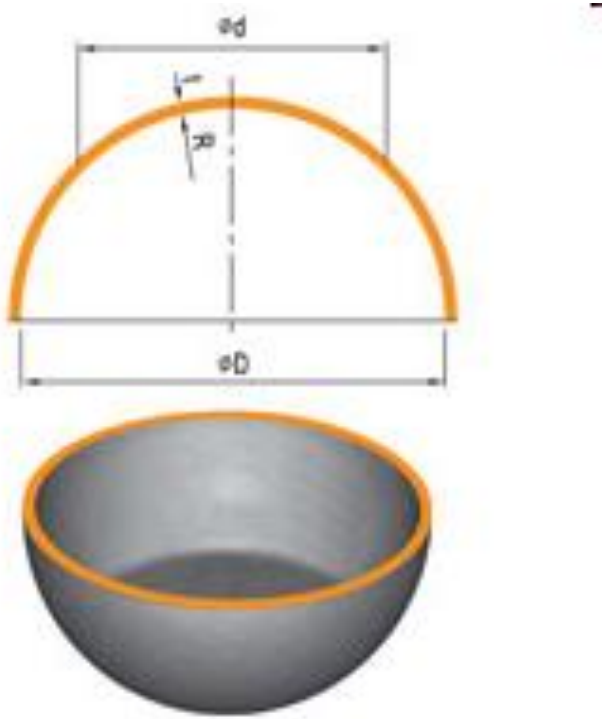
Tori-spherical



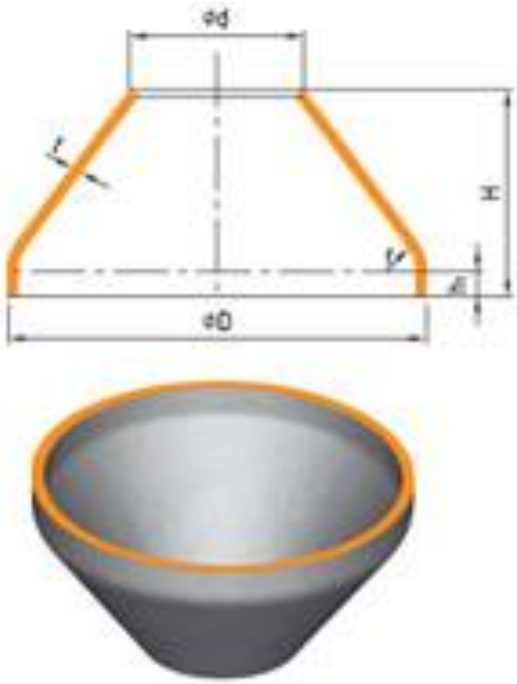
Ellipsoidal



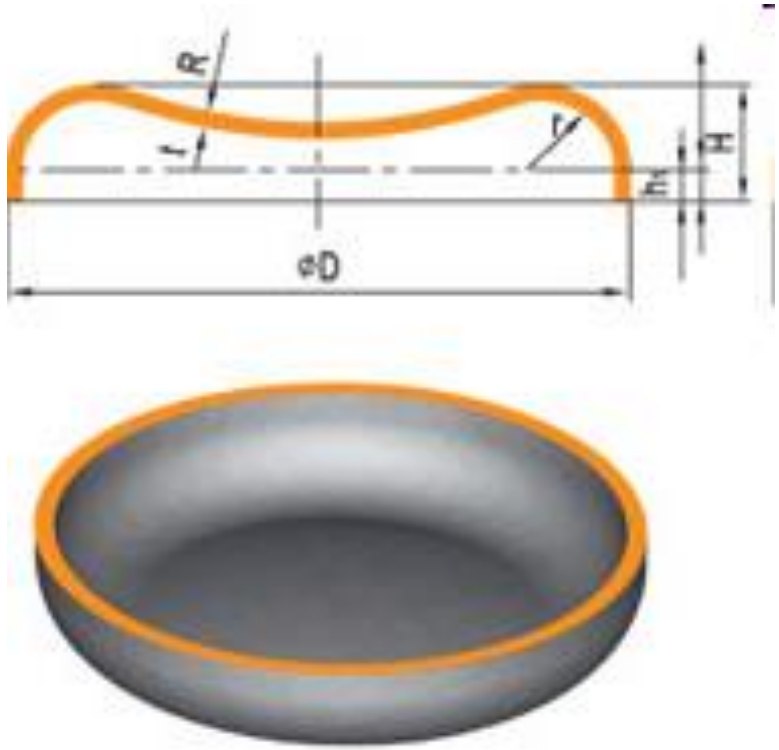
Hemi-Spherical (Deep Drawn)



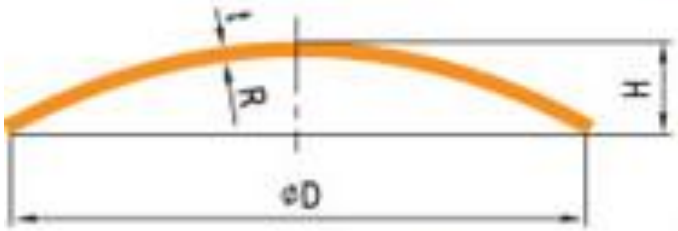
Hemi-spherical (Segmental)



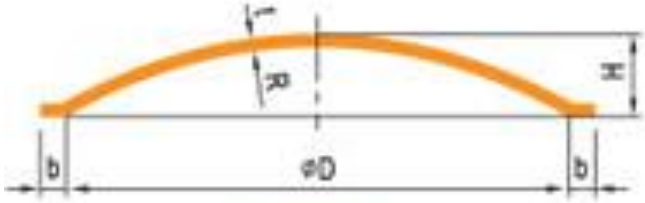
Diffuser Head



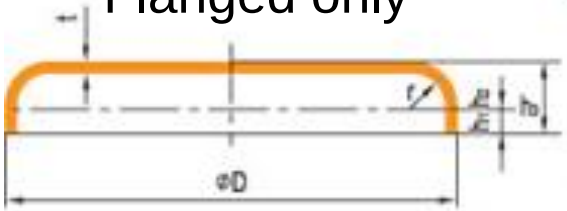
Dished Only Head

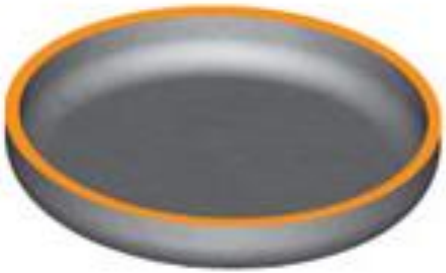


Dished & Flared Head



Flanged only





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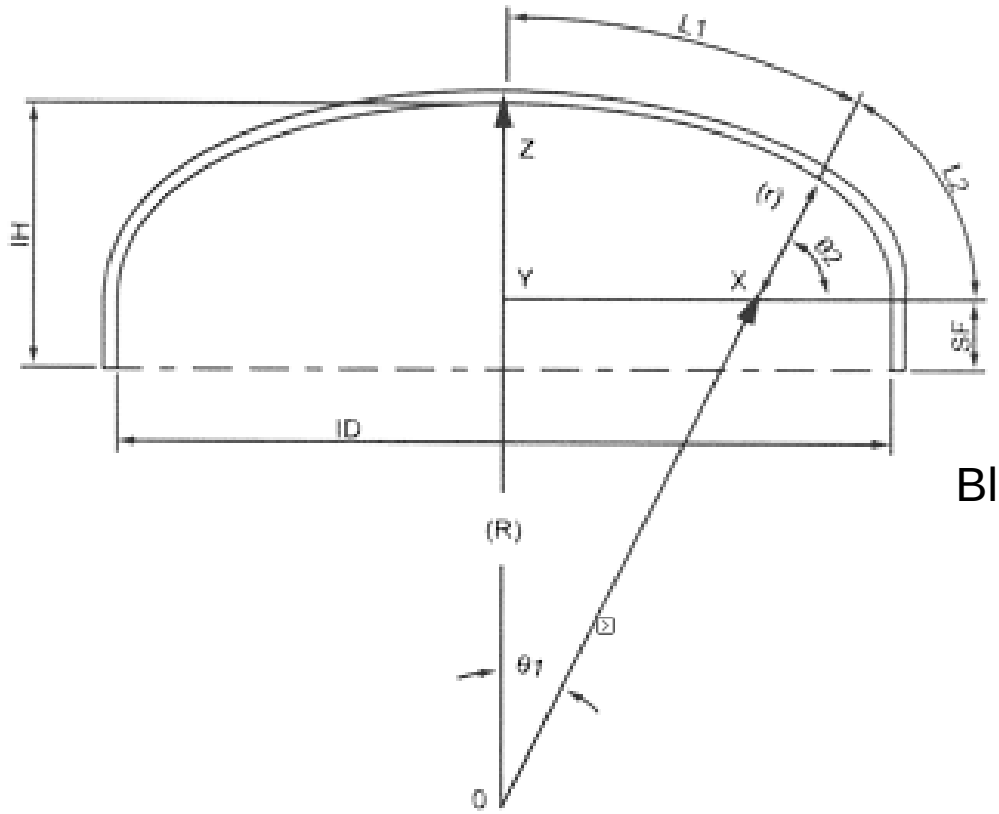
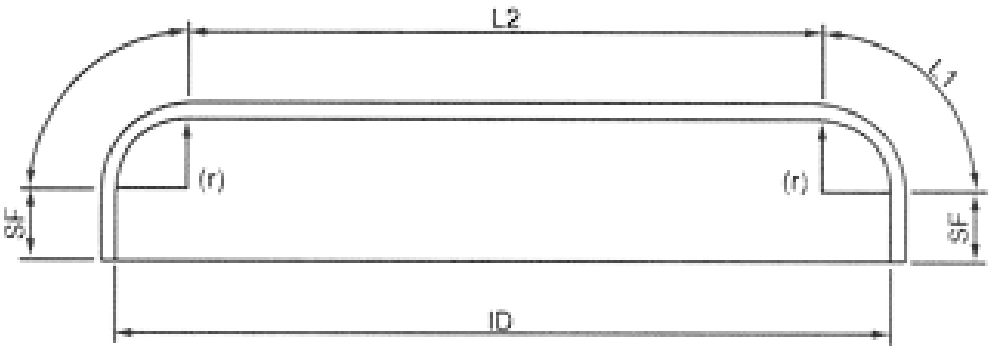


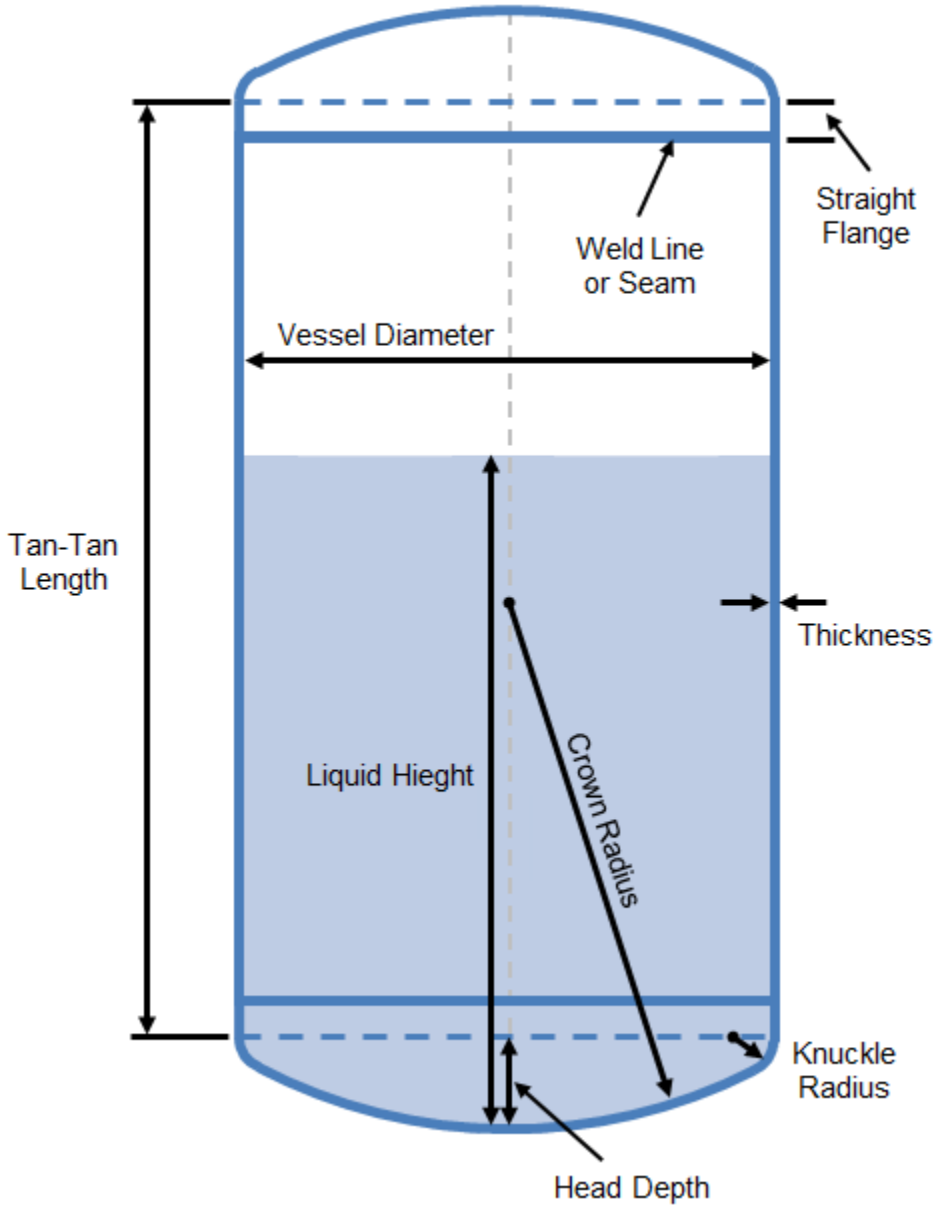
XY = ID/2 - r, OX = R - r

Ø1 = Sin XY / OX , Ø2 = 90° - Ø1

Blank Plate Diameter (BPD) = 2 (L1+ L2+L1)



OD = outside diameter	ID = inside diameter
R = crown radius	r = knuckle radius
t = wall thickness	h = height of dished portion (straight flange not incl.)
SF = straight flange	IH = total inside height


Straight
Flange
Weld Line
or Seam
Vessel Diameter
Tan-Tan
Length
Thickness
Liquid Hieght
Crown Radius
Knuckle
Radius
Head Depth

Drawing an Ellipse