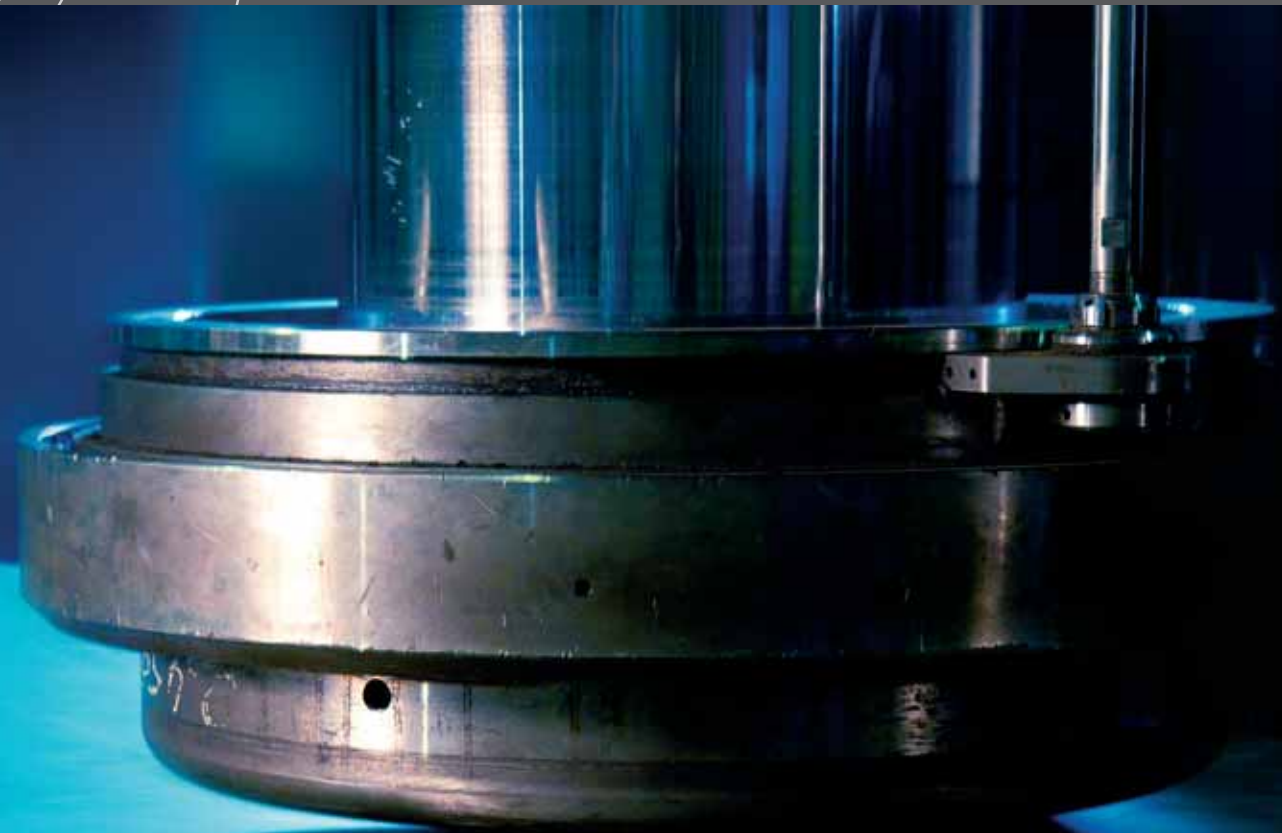


FONDEYUR, S.L.
Pol. Ind. Bildosola. Parcela A-3
E-48142 ARTEA (Vizcaya) SPAIN

Phone: +34 94 631 79 82
Phone/Fax: +34 94 631 79 79

www.fondeyur.com
fondeyur@fondeyur.com

COLD
FORMED
HEADS





**Experience and technology
at your service**

PRESENTATION

Fondeyur, S.L., is a company engaged in the business of cold forming dished heads for tanks, boilers, industrial equipment, etc.

Equipped with latest-generation machinery and supported by its staff's professionalism and long experience in manufacturing dished ends, it has become firmly established in the market as a sound, reliable alternative, backed by the great response of its customers.

We also manufacture cones, hemispheres and embossed plates at the radius required by our customers.

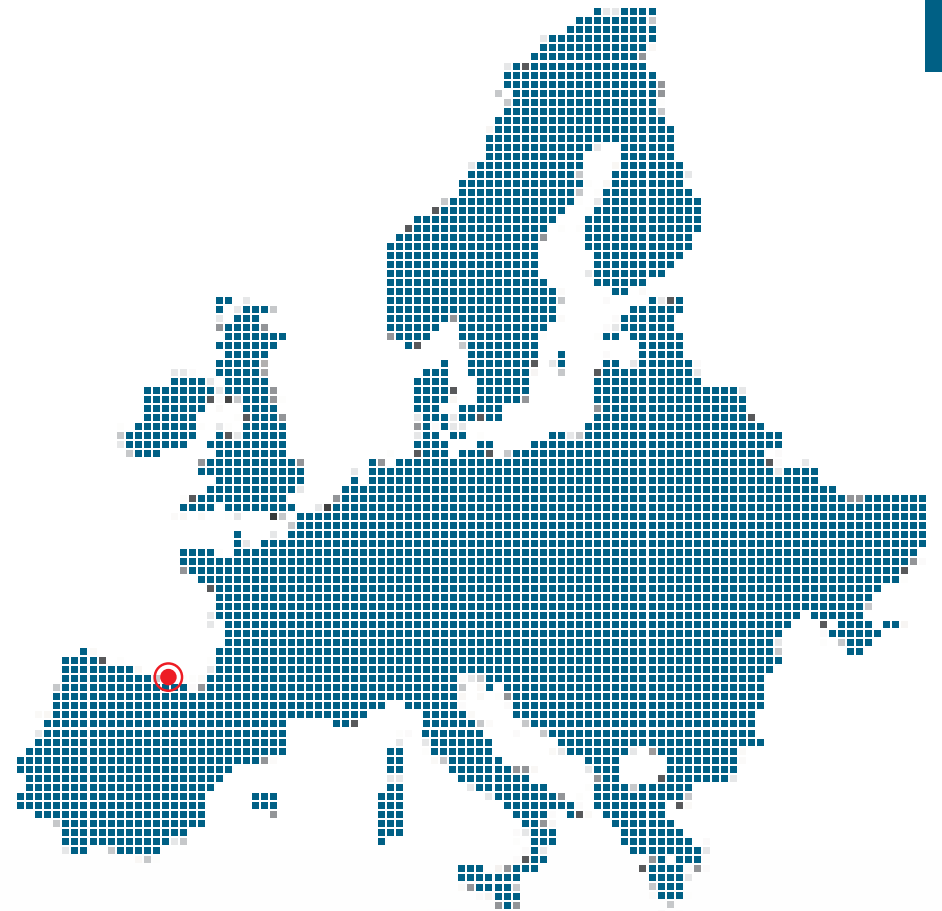


FONDEYUR, S.L.

Pol. Ind. Bildosola, Parcela A 3
48142 Artea (Vizcaya) - SPAIN

Phone +0034 94 631 79 82
Fax.+0034 94 631 79 79

Administration Dept.:
gbilbao@fondeyur.com
Technical/Commercial Dept.:
jbarreiro@fondeyur.com
Export: export@fondeyur.com
General: fondeyur@fondeyur.com

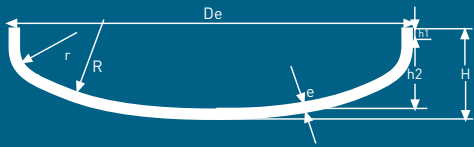




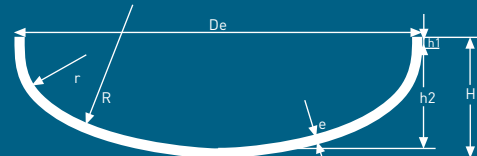
KEY TO SYMBOLS

De:	Outside diameter
e:	Initial thickness
R:	Inside Dish radius
r:	Knuckle radius
h1:	Straight flange
H:	Total height
V:	Volume
Dd:	Diameter of the disc
Di:	Inside diameter
h2:	Height of dished part
Hc:	Center height

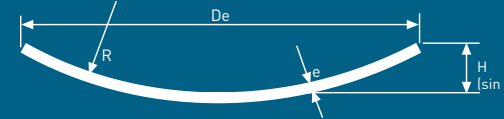




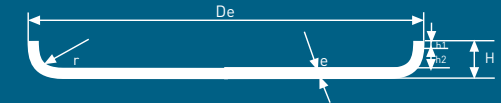
Ref. F1
KLOPPER (DIN-28011)



Ref. F2
KORBBOGEN (DIN-28013)



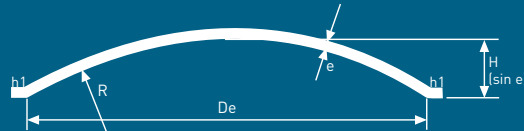
Ref. F3
SPHERICAL CAP



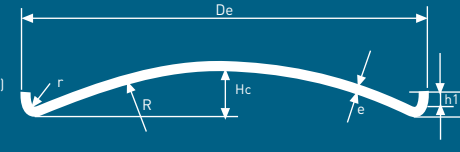
Ref. F4
FLAT HEAD



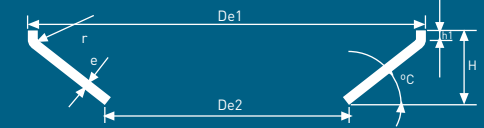
Ref. F5
DISHED HEAD FOR LOW PRESSURE



Ref. F6
SPHERICAL COVER



Ref. F7
DIFFUSION HEAD



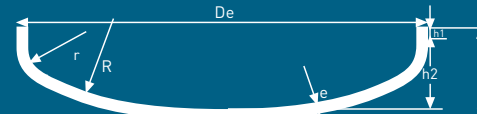
Ref. F8
CONE HEAD



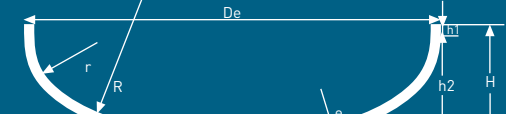
Ref. F9
P.R.C. (E81-101)



Ref. F10
M.R.C. (E 81-104)



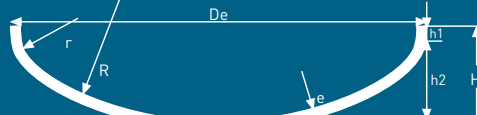
Ref. F11
G.R.C. (E 81-102)



Ref. F12
ELLIPTICAL HEAD (E 81-103)



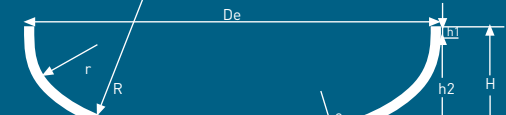
Ref. F13
FLANGED & DISHED



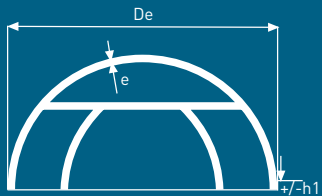
Ref. F14
80-10 FLANGED & DISHED



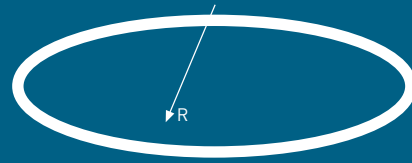
Ref. F15
HIGH CROWN FLANGED & DISHED



Ref. F16
ELLIPTICAL HEAD 2:1



Ref. F17
HEMISPHERICAL HEAD

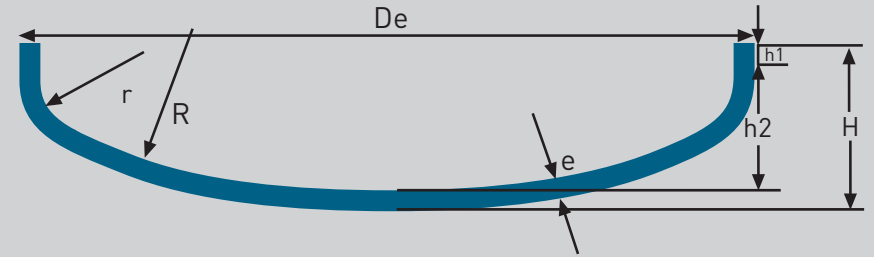


Ref. F18
OVAL

**Our manufacturing range
can be adapted to your needs
millimeter by millimeter**

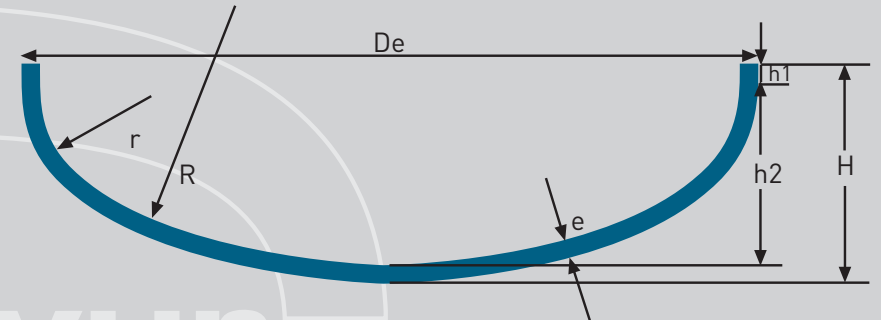
REFERENCE		TYPE				
F1		KLOPPER (DIN-28011)				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	2000	200	50	442	776

NORM	DIN
R=De	r=0.1De
	h1≥3.5e
	h2=0.1935De-0.455e
	H=h2+h1+e
	Dd=1.11De+1.85h1
	V(h2)=0.1(Di) ³



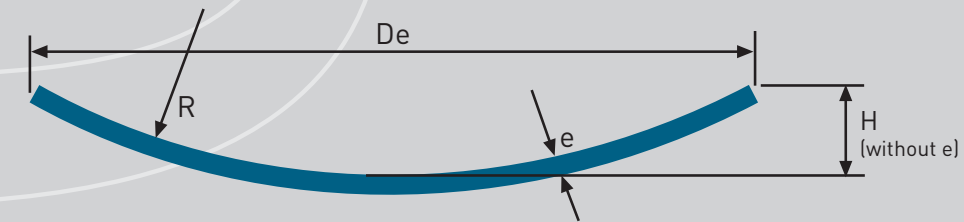
REFERENCE		TYPE				
F2		KORBBOGEN (DIN-28013)				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	1600	308	50	564	1008

NORM	DIN
R=0.8De	r=0.154De
	h1≥3e
	h2=0.255De-0.635e
	H=h2+h1+e
	Dd=1.16De+2h1
	V(h2)=0.1298(Di) ³



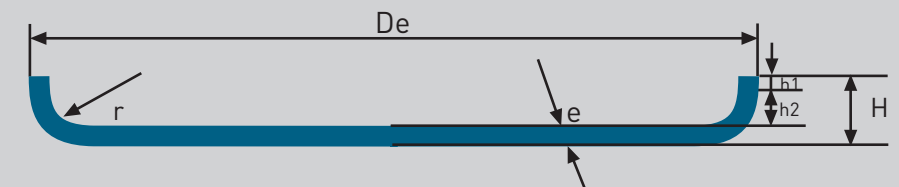
REFERENCE		TYPE				
F3		SPHERICAL CAP "R" to be defined by the client				
EXAMPLE						
De	e	R	r	h1	H (without e)	V
2000	10	2000			268	432

	R=De	R=0.8De	R=1.5De
H(sin e)=	0.134De	0.175De	0.085De
Dd=	1.04De	1.08De	1.02De
V≈	0.054De ³	0.072De ³	0.034De ³



REFERENCE		TYPE				
F4		FLAT HEAD "r" to be defined by the client				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10		50	50	110	147

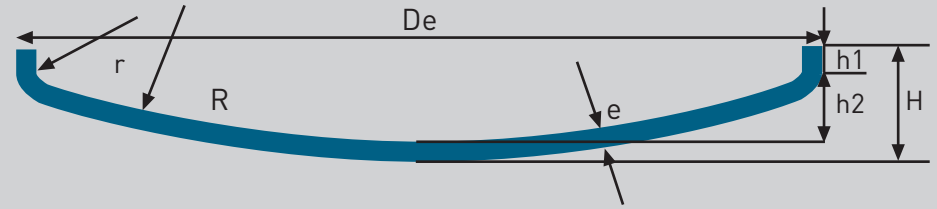
h2=r
H=r+h1+e
Dd=De+r+2h1
V(h2)≈0.75.Di ² .h2



Fondeyur

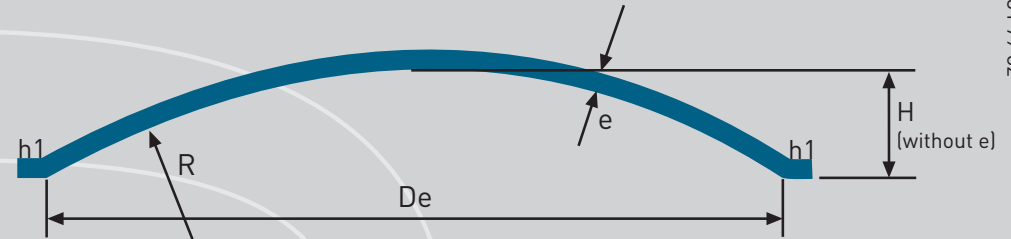
REFERENCE		TYPE				
F5		DISHED HEAD FOR LOW PRESSURE "R" and "r" to be defined by the client				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	3000	50	50	264	360

	R=De	R=1.5De	R=2De
$h2=$	$R - \sqrt{(R-r)^2 - \left(\frac{Di}{2} - r\right)^2}$		
$Dd=$	$\frac{1.03De+r}{+1.7h1}$	$\frac{1.02De+r}{+1.7h1}$	$\frac{1.01De+r}{+1.7h1}$
$H=h1+h2+e$	$V(h2) \approx (De+r)^2 \cdot 0,42h2$		



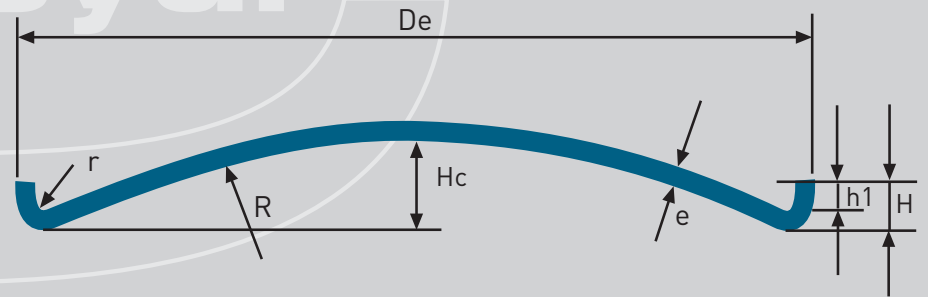
REFERENCE		TYPE				
F6		SPHERICAL COVER "R" to be defined by the client				
EXAMPLE						
De	e	R	r	h1	H (without e)	V
2000	10	2000		100	268	432

	R=De	R=0.8De	R=1.5De
$H(\sin e)=$	0.134De	0.175De	0.085De
$Dd=$	$\frac{1.04De+2h1}{1.08De+2h1}$	$\frac{1.08De+2h1}{1.02De+2h1}$	
$V \approx$	$0.054De^3$	$0.072De^3$	$0.034De^3$



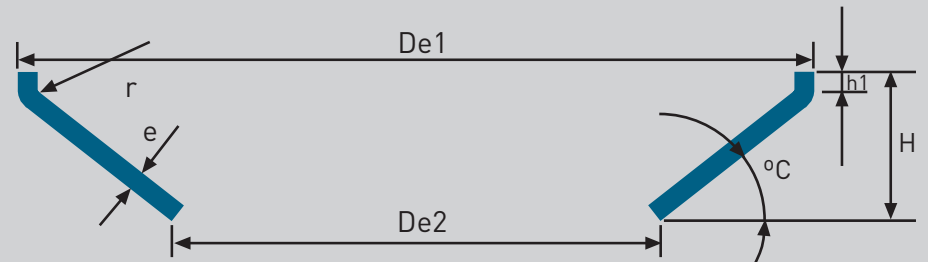
REFERENCE		TYPE				
F7		DIFFUSION HEAD "R" and "r" to be defined by the client				
EXAMPLE						
De	e	R	r	h1	H	Hc
2000	10	2000	50	50	110	228

$H=r+h1+e$
$Hc=R+r - \sqrt{(R+r)^2 - (1/2Di-r)^2}$
$Dd(R=D)=1.02De+r+1.7h1$



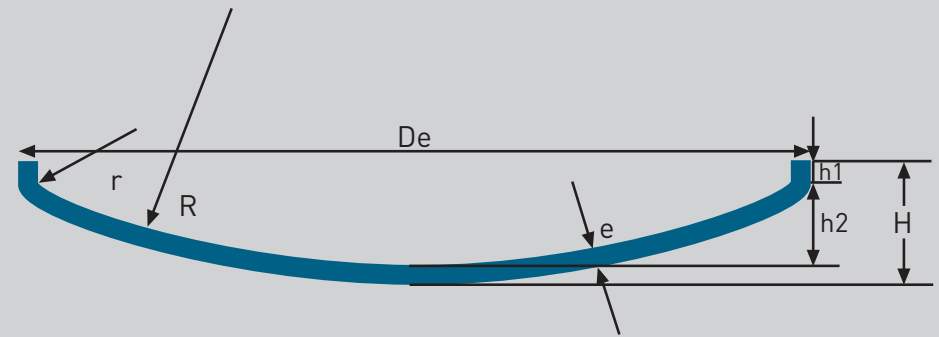
REFERENCE		TYPE				
F8		CONE HEAD "r" to be defined by the client				
EXAMPLE						
De1	e	R	r	h1	H	De2
2000	10		50	50	500	1250

DIMENSIONS TO BE DEFINED BY THE CLIENT



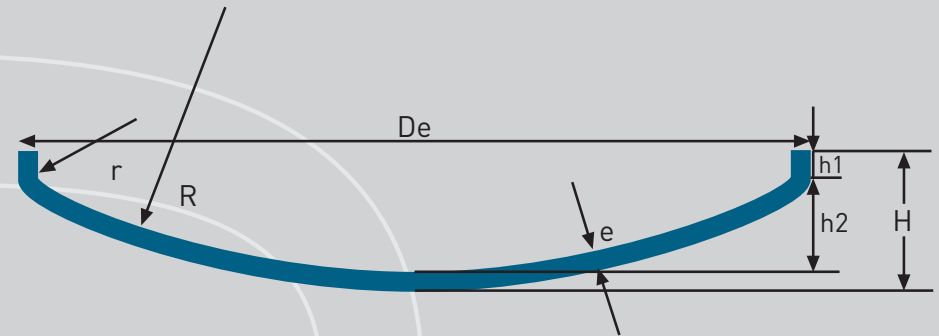
REFERENCE		TYPE				
F9		P.R.C. (E 81-101)				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	2300	50	50	316	457

NORM	
NF	$h2 = R \cdot \sqrt{(R-r)^2 - \left(\frac{Di}{2} - r\right)^2}$
	$H = h2 + h1 + e$
	$V(h2) \approx (Di + 0,2)^2 \cdot 0,455h2$



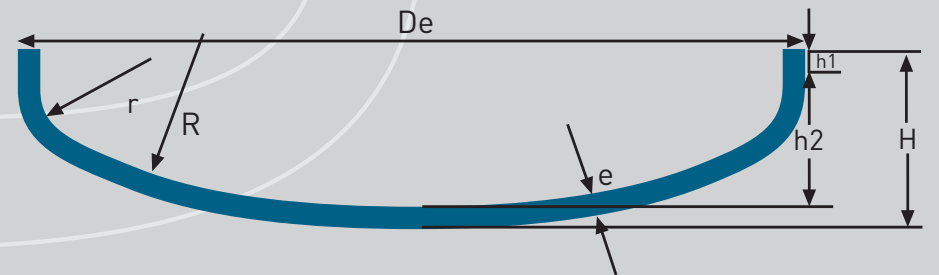
REFERENCE		TYPE				
F10		M.R.C. (E 81-104)				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	2000	66	50	361	540

NORM	
NF	$R = De$
	$h2 = R \cdot \sqrt{(R-r)^2 - \left(\frac{Di}{2} - r\right)^2}$
	$H = h2 + h1 + e$
	$V(h2) \approx (De + r)^2 \cdot 0,42h2$



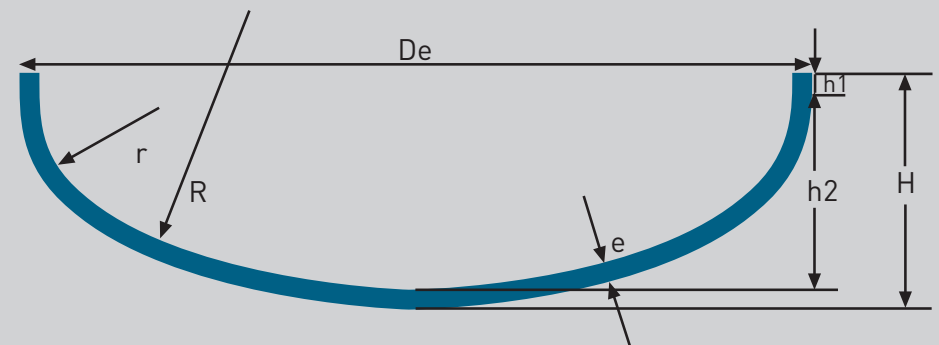
REFERENCE		TYPE				
F11		G.R.C. (E 81-102)				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	2000	200	50	442	776

NORM	
NF	$R = De$
	$r = 0,1De$
	$h1 \geq 3,5e$
	$h2 = 0,1935De - 0,455e$
	$H = h2 + h1 + e$
	$Dd = 1,11De + 1,85h1$
	$V(h2) \approx 0,1(Di)^3$



REFERENCE		TYPE				
F12		ELLIPTICAL HEAD (E 81-103)				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	1716	366	50	581	1069

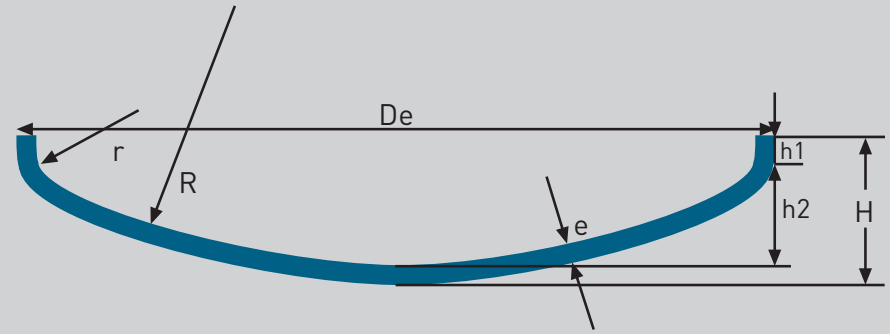
NORM	
NF	$R \approx 0,856De$
	$r \approx 0,183De$
	$h1 \geq 3e$
	$h2 = Di/3,8$
	$H = h2 + h1 + e$
	$V(h2) \approx (Di \cdot 1,06)^2 \cdot 0,466h2$



Fondeyur

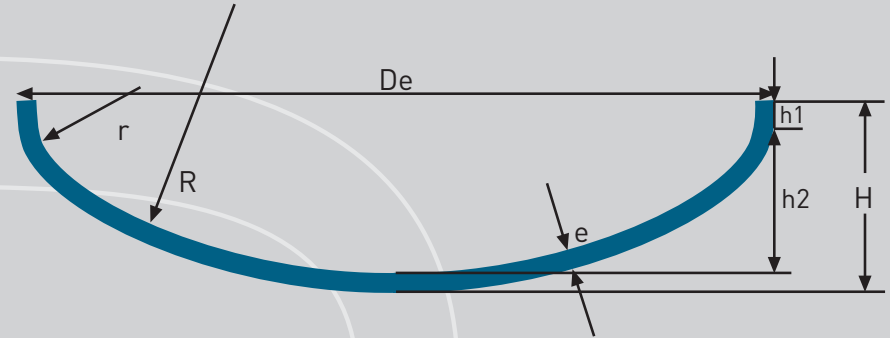
REFERENCE		TYPE				
F13		FLANGED & DISHED				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	2000	120	50	393	616

NORM	R=De r=0.006De $h2 = R \cdot \sqrt{(R-r)^2 - \left(\frac{Di}{2} - r\right)^2}$ H=h2+h1+e $V(h2) \approx \left(\frac{Di}{25,4}\right)^3 \cdot 0,0013$
A S M E	



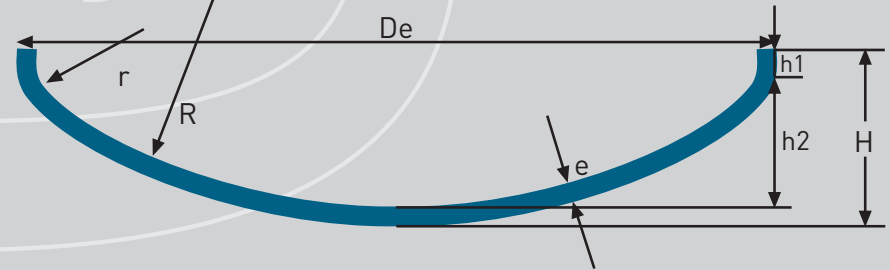
REFERENCE		TYPE				
F14		80-10 FLANGED & DISHED				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	1600	200	50	504	900

NORM	R=0.8De r=0.1De $h2 = R \cdot \sqrt{(R-r)^2 - \left(\frac{Di}{2} - r\right)^2}$ H=h2+h1+e $V(h2) \approx \left(\frac{Di}{25,4}\right)^3 \cdot 0,0019$
A S M E	



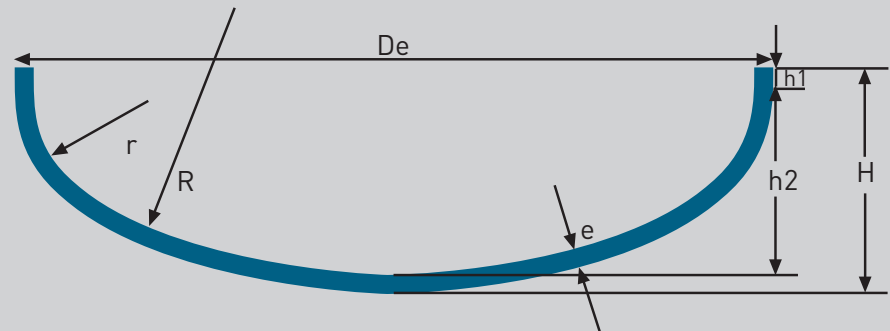
REFERENCE		TYPE				
F15		HIGH CROWN FLANGED & DISHED				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	1600	120	50	463	758

NORM	R=0.8De r=0.006De $h2 = R \cdot \sqrt{(R-r)^2 - \left(\frac{Di}{2} - r\right)^2}$ H=h2+h1+e $V(h2) \approx \left(\frac{Di}{25,4}\right)^3 \cdot 0,0016$
A S M E	



REFERENCE		TYPE				
F16		ELLIPTICAL HEAD 2:1				
EXAMPLE						
De	e	R	r	h1	H	V (h2)
2000	10	1800	340	50	555	1009

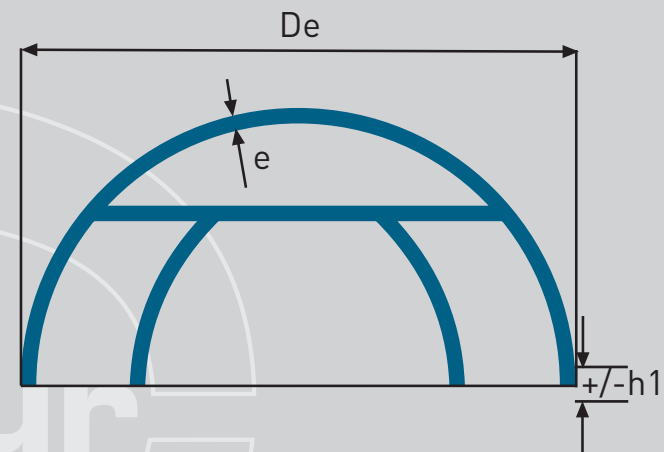
NORM	R≈0.9De r≈0.17De h2=Di/4 H=h2+h1+e $V(h2) \approx 0,52Di^2 \cdot h2$
A S M E	



Fondeyur

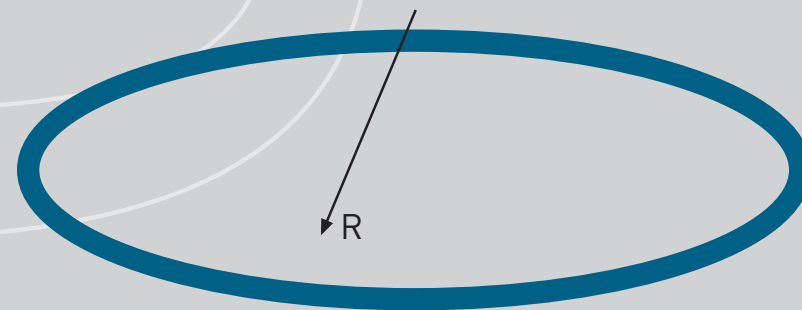
REFERENCE		TYPE				
F17		HEMISPHERICAL HEAD				
EXAMPLE						
De	e	R	r	+/- h1	H	V
2000	10	990		To be defined	1000	2032

$R=0.5D_i$
 SPHERICAL CAP AND
 SEGMENTS
 $V=0,2618D_i^3$



REFERENCE		TYPE	
F18		OVAL	
		"R" to be defined by the client	

DISH RADIUS
 TO BE DEFINED



Upon request of our customer, we polish both the interior and exterior surface of the dished heads in stainless steel to achieve a top-quality finish.

EDGE PREPARATION

1. WITHOUT TAPER

SQUARE EDGE	SINGLE OUTSIDE BEVEL	SINGLE INSIDE BEVEL	DOUBLE "V" BEVEL

2. WITH INSIDE CONICAL TAPER

SQUARE EDGE	SINGLE OUTSIDE BEVEL	SINGLE INSIDE BEVEL	DOUBLE "V" BEVEL

3. WITH OUTSIDE CONICAL TAPER

SQUARE EDGE	SINGLE OUTSIDE BEVEL	SINGLE INSIDE BEVEL	DOUBLE "V" BEVEL





COLD FORMED HEADS

FONDEYUR, S.L.
Pol. Ind. Bidosola. Parcela A-3
E-48142 ARTEA (Vizcaya) SPAIN

Phone +34 94 631 79 82
Phone/Fax: +34 94 631 79 79

www.fondeyur.com
fondeyur@fondeyur.com

