



Blind Calculation

PREPARED: **P.G.A.Engineering**

CHECKED:

APPROVED:

DATE: 08/05/2012

This calculation is according to EN 13480

Rating	PN10 DN100 (4")			▼
Blind Material	A182 F304H (Forgings)			▼
Design Pression	P	<input type="text"/>	-	bar ▼
Test Pression	P_{TEST}	<input type="text"/>	-	bar ▼
Maximum Temperature	T_{MAX}	<input type="text" value="20"/>		°C ▼
Test Temperature	T_{TEST}	<input type="text" value="20"/>		°C ▼
Corrosion Allowance	c	<input type="text" value="0,0"/>		mm ▼

CALCULATION

DESCRIPTION	DEF.	Imperial		Metric	
		Values	Unit of Measure	Values	Unit of Measure

INPUT

Outside Diameter of Pipe	Do	4,500	in	114,30	mm
Corrosion Allowance	c	0,000	in	0	mm
Design Pressure	P	143	psi	0,98	MPa
Design Pressure at Test Temperature	P_{TEST}	179	psi	1,23	MPa
Maximum Temperature	T_{MAX}	68	°F	20	°C
Test Temperature	T_{TEST}	68	°F	20	°C
Design End Stress at Operating Condition	$f_{E,OP}$	20000	psi	138	MPa
Design End Stress at Test Temperature	$f_{E,TEST}$	20000	psi	138	MPa
Diameter of Bolt Circle	Dt	7,087	in	180	mm
Mean Diameter of Gasket	Dp	5,118	in	130	mm
Effective Width of the Gasket	b	0,394	in	10	mm
Joint Efficiency Factor	z	0,70	-	0,70	-
Gasket Factor	m	3,00	-	3,00	-
Minimum Design Seating Stress	y	10008	psi	69,00	MPa
Quality Factor	E	1	-	1	-

DESCRIPTION	DEF.	Imperial		Metric	
		Values	Unit of Measure	Values	Unit of Measure

Flange Dimension in according to EN 1092-1

Outside Flange Diameter	D	8,661	in	220	mm
Bolt Circle Diameter	K	7,087	in	180	mm
Bolt Hole Diameter	L	0,709	in	18	mm
Number of Bolt	-	8	-	8	-
Bolt Size	-	M16	-	M16	-
Flange Thickness	C	1,181	in	30	mm
Bore Diameter	B1	4,567	in	116	mm



Blind Calculation

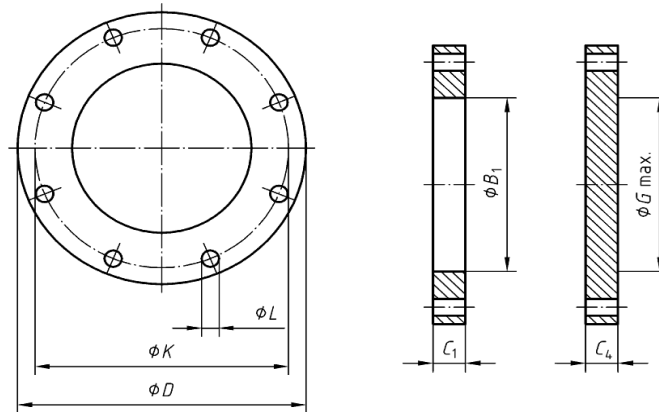
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Blind Dimension in accordance to EN 1092

Outside Blind Diameter	D	6,362	in	162	mm
Bore Blind Diameter	B ₁	4,567	in	116	mm

Thickness Calculation in accordance to EN 13480-3 (7.2.4-6)

Minimum Blind Thickness at Operating Condition	e _{B,OP}	0,246	in	6,237	mm
Minimum Blind Thickness at Test Condition	e _{B,TEST}	0,275	in	6,973	mm
Minimum Blind Thickness Required	e _{B,MIN}	0,275	in	6,973	mm

OUTPUT

Minimum Pipe Thickness at Operating Condition	e _{P,OP}	0,023	in	0,58	mm
Minimum Pipe Thickness at Test Condition	e _{P,TEST}	0,029	in	0,72	mm
Minimum Pipe Thickness Required	e _{P,MIN}	0,029	in	0,72	mm
Minimum Pipe Thickness Garanteed	e _{P,G}	0,295	in	7,49	mm
Minimum End Thickness at Operating Condition	e _{E,OP}	1,079	in	27,40	mm
Minimum End Thickness at Test Condition	e _{E,TEST}	1,079	in	27,40	mm
Minimum End Thickness of peripheral area at O.C.	e _{E1,OP}	1,079	in	27,40	mm
Minimum End Thickness of peripheral area at T.C.	e _{E1,TEST}	1,079	in	27,40	mm
Minimum End Thickness Required	e _{E,MIN}	1,079	in	27,40	mm
Minimum End Thickness Garanteed	e _{E,G}	1,181	in	30,00	mm

VERIFICATION

Description	Formula	CHECK
Minimum Thickness Verification	e _{P,G} ≥ e _P	VERO
Condition for Circumferential Stress Formula Applicability	e _{E,G} ≥ e _E	VERO