



## PRESSURE DROP FOR FLOW THROUGH STANDARD CARBON STEEL DIN 2448 PIPE WITH FITTINGS

### PROJECT DATA (Optional)

Project

Remarks

Your ref                      Client  
 Identification              Client's ref

### CALCULATION INPUT

#### FLUID DATA

Medium

Flowrate                      36    m<sup>3</sup>/h

Density                        1000 kg/m<sup>3</sup>

Dynamic Viscosity 0.138 mPa.s [=cP]

#### PIPE DATA

DIN 2448

Size DN                        50

Thickness requested standard mm

Pipe length                    20    m

### FITTINGS AND VALVES

Number of fittings determined with automatic correlation for average complexity piping

Elbows	90 °	Number	R/D = ...	Type	Connection
		7	R/D = 1	Std Radius	Flanged / Welded
Elbows	<45 °	Number	R/D = ...	Type	Connection
		1	R/D = 1	Std Radius	All Types
Tees used as Elbow		Number	R/D = ...	Type	Connection
		1	R/D = 1	Std Radius	Flanged / Welded
Tee - run through T		Number	R/D = ...	Type	Connection
		1	R/D = 1 ... 1.5	Std / Long	Flanged / Welded
Valves		Number	Type	Special	
		2	Gate, Ball, Plug	Full line size	β = 1
Entrance and Exit		Number			
		1	Entrance, Smooth with Wall - this is a normal entrance		

### CALCULATION RESULTS

External Diameter	60.3 mm	2.374 inch
Wall Thickness	2.9 mm	0.1142 inch
Internal Diameter	54.5 mm	2.1457 inch
Flowrate	0.01 m <sup>3</sup> /s	158.5032 GPM (U.S.)
	36 m <sup>3</sup> /h	1271.328 ft <sup>3</sup> /h
Density	1000 kg/m <sup>3</sup>	62.428 lb/ft <sup>3</sup>



Fluid velocity	4.2866 m/s		14.0638 ft/s
Reynolds Number	1692913 [-]	turbulent flow	
Wall Roughness	0.05 mm		0.002 inch
Relative roughness factor	0.0009 [-]		
Moody Friction Factor	0.0195 [-]		
Pressure Drop straight line	65773 Pa	0.6577 bar	9.5396 psi
Pressure Drop fittings	39657 Pa	0.3966 bar	5.7518 psi
Total Pressure Drop	105430 Pa	1.0543 bar	15.2914 psi