CALCULATIONS SUMMARY SHEET

	CODE	SEC.	
MIN THK PIPE	B31.3	304.1.2	O.D. $t_m = \frac{PD}{2(SE + Py)} + C$ I.D. $t_m = \frac{P(d+2c)}{2[SE - P(1-y)]} + C$
MIN THK PIPE	574	11.2	$t_m = \frac{PD}{2SE} + C$ - Alternative Barlow Formula from API RP 574
PRESSURE OF PIPE (MAWP)	B31.3 570	304.1 7.2	NEW P = $\frac{2SE(t-c)}{D}$ (This is "Design" Pressure per B31.3) c = Corr Allowance or other additional thickness OLD P = $\frac{2SE[t-(2xCRxYRS)-c]}{D}$ (This is "MAWP" per 570)
BLANKS	B31.3	304.5.3	t_m = dg $\sqrt{\frac{3P}{16SE}}$ +C
FILLET WELDS	B31.3	328.5.2 328.5.4	LEG = 1.414 x THROAT THROAT = .707 x LEG Xmin (REQUIRED LEG) for Socket/Slip on Flanges t_c = .5 t_R or .7 t min. (Required throat) for Branch Connections/repads
FLANGES	B16.5		Allowable Press - Table 1A and Table 2 Min Thickness - Table 1A and Tables 7 thru 27 Max Hydro Press - Par 2.5 – 1.5 x system design pressure-rounded to 25 psi (whole) Types 150, 300, 400, 600, 900, 1500, 2500 NPS 1/2 thru NPS 24
FLANGED FITTINGS	B16.5	ANNE X D	Tables 1A and 7 thru 27 - New/Cold, if info. to calculate is unknown from the problem
FLANGED FITTINGS	B31.3 574	304.1.2 11.2	Old/corroded: $t_m = \frac{1.5PD}{2SE} + C$ If unknown materials, use 7000 for S(Calculated)
FLANGED FITTINGS	B16.5	ANNE X D	New/Cold t = $\frac{1.5Pcd}{(2S - 1.2Pc)}$ Use 7000 for Stress if unknown (Calculated)
VALVES MIN THK	B31.3 574	304.1.2 11.2	$t_m = \frac{1.5PD}{2SE} + C$ If unknown materials, use 7000 for S(Calculated)
HYDRO PRESS PIPE	B31.3	345.4.2	Min Press $P_T = \frac{1.5PST}{S}$ ST = Stress Value/Test Temp S = Stress Value/Design Temp

HYDRO PRESS FITTINGS	B16.5		Max Press = 1.5 x 100° Flange Rating (Round to next 25 PSI) 1 min for NPS 2 and ↓ and 2 min for NPS 2 1/2 - 8 3 min 10↑
AIR PRESS PIPE	B31.3	345	Pneumatic 1.1xP
JOINT EFF/ QUALITY FACTOR	B31.3		Castings Table 302.3.3C Piping Table A-1A through A-1B (Add NDE See Table 302.3.4)
FLANGED FITTINGS AREAS BELOW MINt	B16.5	6.1.1	Diameter = $.35\sqrt{dtm}$ d = ID Meas Thk = .75tm Area = πR^2 Dist Appart = $1.75\sqrt{dtm}$ t = Min Wall From Charts Tables 13 - 28
CORROSION RATES	570	7.1.1	RL = $\frac{t_{actual} - t_{required}}{C_R}$ (LT)CR = $\frac{t_{initial} - t_{actual}}{years}$ or (ST)CR = $\frac{t_{previous} - t_{actual}}{years}$
TENSION TESTS	SEC.IX	QW.152	Turn Spec. Area = πR^2 or .7854 D^2 Reduce Spec. Area = Width x Thickness Tensile Strength = Load/Area Load = Area x Tensile Strength
PWHT (BRANCH CONNECTIONS)	B31.3	331.1.3	MUST BE 2X THICKNESS FOR GIVEN MATERIAL IN Table 331.1.1 Sketch 1 - branch thickness + fillet throat Sketch 2 - header thickness + fillet throat Sketch 3 - greater of branch + fillet throat or repad + fillet throat Sketch 4 - Header thickness + repad thickness + fillet throat Sketch 5 - same as Sketch 1

1. SCOPE

The Scope of API RP 574 covers recommended inspection practices for piping, tubing, valves, (not control valves) and fittings. Specialty items can also be inspected to RP 574.

2. REFERENCED CODES

Explanation (Not in RP 574):

In the design and planning stages of a system or assembly, engineering assigns a code/class designation to components based on the medium, pressure, temperature and intended service, e.g. safety, primary cooling or heat removal, etc.

A code consists of a set of rules of procedure and standards of materials designed to secure uniformity and to protect the public interest in matters such as building construction, established usually by a public agency. A standard is something that is established by a recognized authority, custom, or general consent as a model or example to be followed. These two terms have become almost interchangeable.