PIP
Process Industry Practices
Insulation

PIP INIC1000
Cold Insulation Installation Details
PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

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1. Introduction

1.1 Purpose
This Practice provides installation details for cold insulation systems.

1.2 Scope
This practice provides details for installing cold insulation systems on piping, valves, horizontal and vertical vessels, and heat exchangers.
DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES, UNLESS NOTED OTHERWISE.

CAD FILENAME: INIC0001.DWG
SINGLE-LAYER INSULATION

JOINT SEALER (TYP)

SECUREMENT

STAGGER CIRCUMFERENTIAL JOINTS

A = APPROX. 200 (8") FOR 600 (2") LONG INSULATION SEGMENTS

A = APPROX. 300 (12") FOR 900 (3") LONG INSULATION SEGMENTS

MULTI-LAYER INSULATION (TYPICAL)

JOINT SEALER (TYP) (OUTER LAYER ONLY)

STAGGER LONGITUDINAL JOINTS 50 (2") (MINIMUM)

SECUREMENT (3) PER SECTION

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE

CAD FILENAME: INIC0002M.DWG
**T** = SINGLE LAYER THICKNESS OR THICKNESS OF INNER LAYER(S)

**t** = 2/3t, 25 (1") MIN. FOR PIPING AND 40 (1 1/2") FOR EQUIPMENT

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANANTHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE.
WEATHERPROOF JACKETING

ADHESIVE (TYPICAL – INDICATED BY HEAVY LINES)

BLANKET INSULATION FOR CONTRACTION JOINT

METALLIC CONTRACTION JOINT COVER

VAPOR BARRIER

FLEXIBLE SEAL
1.2 (0.050") BUTYL RUBBER SHEET

T = SINGLE LAYER THICKNESS OR THICKNESS OF INNER LAYER(S)

t = 2/3T, 25 (1") MIN. FOR PIPING AND AND 40 (1 1/2") FOR EQUIPMENT

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARATHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE
WEATHERPROOF JACKETING

FLEXIBLE SEAL 1.2 (0.050") BUTYL RUBBER SHEET

VAPOR BARRIER

OUTER LAYER

INNER LAYER

T = THICKNESS OF INNER LAYER(S)

T1 = OUTER LAYER THICKNESS

ADHESIVE (TYPICAL – INDICATED BY HEAVY LINES)

BLANKET INSULATION FOR CONTRACTION JOINT

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANTHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE.
NOTES: ALL JOINTS SHALL BE FILLED WITH JOINT SEALER
VALVE MANUFACTURER TO MARK VALVE BONNET TO SHOW INSULATION TERMINATION / LIMIT

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANtheses ARE IN INCHES, UNLESS NOTED OTHERWISE

CAD FILENAME: INIC0010D.WG
NOTE
ALL JOINTS
SHALL BE FILLED WITH
JOINT SEALER

WEATHERPROOF JACKETING

CAULK

VAPOR BARRIER

VAPOR STOP
(TYPICAL)

BANDS (TYP)

PIPE INSULATION

STUD
LENGTH PLUS 25 (1") MIN

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANTHESES ARE IN INCHES, UNLESS NOTED OTHERWISE

CAD FILENAME: INIC0011M.DWG
VERTICAL VESSELS
WITH OUTSIDE DIAMETERS OVER 900 (36"

NOTE: FILL ALL INSULATION JOINTS
WITH JOINT SEALER

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARATHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE
VERTICAL NOZZLE (INIC0055)

WEATHERPROOF JACKETING LAPPED MINIMUM 50 (2") BOTH WAYS

LOCK FORMED SEAM

SECTIONAL OR SEGMENTAL PIPE INSULATION

VAPOR BARRIER

S - CLIP (INIC0059)

HORIZONTAL NOZZLE (INIC0055)

BANDS ON 300 (12") CENTERS

J - CLIP (INIC0059)

BLOCK INSULATION

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANTHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE

CAD FILENAME: INIC0051.MDWG
NOTE: MECHANICAL INTERLOCKING SEAMS WITHOUT SCREWS OR ELASTOMERIC BACKING MAY BE SUBSTITUTED IF APPROVED BY PURCHASER.
10 (3/8") DIAM. ROUND BAR WITH 25 (1") STAND-OFF CLIPS SPACED ON 600 (24") CENTERS (ONE PER LAYER)

10 (3/8") DIAM. FLOATING BAND ANCHOR RING (ONE PER LAYER)

VAPOR BARRIER

WEATHERPROOF JACKETING

41.610 (24") MINIMUM

VAPOR BARRIER

WEATHERPROOF JACKETING

VAPOR STOP

BOTTOM SUPPORT

VAPOR STOP

SUPPORT RING

SKIRT

CENTER NOZZLE
WEATHERPROOF JACKETING

VAPOR BARRIER

VAPOR STOP

STUD LENGTH PLUS 25 (1") MIN.

t

VAPOR BARRIER

HEAD BAND

FLOATING RING

VAPOR STOP

VAPOR BARRIER

WEATHERPROOF JACKETING

VESSEL HEAD

VAPOR STOP

\[ t = \text{THICKNESS REQUIRED FOR PIPING} \]
NOTE: BODY FLANGE INSULATION SIMILAR TO ABOVE.

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES, UNLESS NOTED OTHERWISE.
NOTE:
1. USE 20 (3/4") x 0.5 (0.020") (MINIMUM) STAINLESS STEEL BANDS.
2. LOCATE 610 (24") APART.
3. MINIMUM OF (2)—CLIPS PER SHEET.

S—CLIP

SCREW AT RIDGE OF CORRUGATED WEATHERPROOF JACKETING.
(DO NOT PENETRATE VAPOR BARRIER)

NOTE:
1. USE 12 (1/2") x 0.5 (0.020") (MINIMUM) STAINLESS STEEL BANDS.
2. LOCATE AS NEEDED.

J—CLIP

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANTHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE.

CAD FILENAME: INIC0059M.DWG
WEATHERPROOF JACKETING

SHEET METAL SCREW LOCATED ON 150 (6") CENTERLINE (DO NOT PUNCTURE VAPOR BARRIER)

20 (3/4") ELASTOMERIC FOAM BACKING LAYER

VAPOR BARRIER

INSULATION

NOTE: MECHANICAL INTERLOCKING SEAMS WITHOUT SCREWS OR ELASTOMERIC BACKING MAY BE SUBSTITUTED IF APPROVED BY PURCHASER

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES, UNLESS NOTED OTHERWISE.

CAD FILENAME: INIC0061M.DWG
NOTE: INSULATION SHALL EXTEND DOWN ON TO SADDLE
A DISTANCE OF 4T FROM LOW POINT OF VESSEL
SHELL, LEAVING BOTTOM 150 (6") MIN UNINSULATED

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES, UNLESS NOTED OTHERWISE
NUMBER OF TAB ANCHOR CIRCUMFERENTIAL BANDS REQUIRED IS DETERMINED AS FOLLOWS:

\[ N = 2 + \text{Vessel O.D. in Feet} \]

MIN. OF 3

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES, UNLESS NOTED OTHERWISE.