PROCESS INDUSTRY PRACTICES

Insulation

PIPELINE INSTALLATION DETAILS

PIP INIH1000
Hot Insulation Installation Details
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PRINTING HISTORY
October 1997 Issued September 2005 Technical Revision September 2012 Reaffirmation with Editorial Revision
February 2002 Editorial Revision October 2007 Editorial Revision

Not printed with State funds
# PIP INIH1000
Hot Insulation Installation Details

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1. Introduction

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

1.2 Scope
This practice provides details for installing hot insulation systems on piping, valves, horizontal and vertical vessels, and heat exchangers.

2. References

Applicable parts of the following industry codes and standards shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles will be used herein where appropriate.

Industry Codes and Standards

- American Society for Testing and Materials (ASTM)
  ASTM C-450 – Standard Practice for Prefabrication and Field Fabrication of Thermal Insulating Fitting Covers for NPS Piping, Vessel Lagging, and Dished Head Segments
SINGLE-LAYER INSULATION

Wires, bands or tapes, as specified

Stagger circumferencial joints, except for hinged products

MULTI-LAYER INSULATION (TYPICAL)

Wire, bands or tapes, subsequent layers

Stagger longitudinal joints 50 (2") (minimum)

(3) - Wires, bands or tapes per section, first layer

Dimensions are given in millimeters. Dimensions in parentheses are in inches, unless noted otherwise.

CAD FILENAME: INIH0002M.dwg
DOUBLE-LAYER INSULATION

Welded or bolted support rings space as specified.

Weatherproof jacketing.

25 (1") blanket insulation (folded in half and compressed).

Double layer of insulation shown (other layers similar).

Keep bands clear of expansion joint.

See S-Clip INIH0059.

Dimensions are given in millimeters. Dimensions in parentheses are in inches, unless noted otherwise.
WEATHERPROOFING JACKETING (SEE INIH0009 FOR REMOVABLE AND REUSABLE)

STUD LENGTH PLUS 25 (1") (TYPICAL BOTH SIDES OF INSULATED AND UN-INSULATED FLANGES)

CAULKING

BANDS

CAULKING

WEATHERPROOF JACKETING END COVERS *

PIPE INSULATION

INSULATED FLANGES  UNINSULATED FLANGES

* BEVELED END CAPS SHALL BE USED WHEN REQUIRED FOR WATERSHED IN VERTICAL APPLICATIONS

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE.
MATERIALS:
1. PACKING GLAND
2. REMOVABLE COVER (2 PIECE SHOWN)
3. MACHINE STITCHING
4. TIES
5. QUILTING PIN
6. LACING HOOKS AND WIRE (OR VELCRO STRAPS)
7. ADJACENT INSULATION
8. IDENTIFICATION TAG

NOTE:
VALVES ARE INSULATED TO A POINT BELOW THE PACKING GLAND TO PREVENT DAMAGE TO THE INSULATION WHEN SERVICING.

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANETHESIS ARE IN INCHES, UNLESS NOTED OTHERWISE.
LEGEND:

A - THICKNESS OF PIPE INSULATION NOT LESS THAN 50 (2")

B - CLEARANCE TO REMOVE BOLTS: BOLT LENGTH PLUS 25 (1")

NOTE:
INSULATE FROM THE BONNET FLANGE TO A POINT BELOW THE PACKING GLAND WHERE DAMAGE WILL NOT OCCUR TO THE INSULATION WHEN SERVICING THE PACKING GLAND.

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES, UNLESS NOTED OTHERWISE.
NOTE: IF HANGER PROTRUDES BEYOND INSULATION, CAULK TO WEATHERPROOF.

CAULKING  BLANKET INSULATION FILLER

INSULATION

SPLIT RING

WEATHERPROOF JACKETING

SPLIT RING HANGER

INSULATION

WEATHERPROOF JACKETING (CIRCUMFERENTIAL SPLICE AT SHOE)

PIPE

CAULKING

SHOE

WELDED SHOE

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES, UNLESS NOTED OTHERWISE.
NOTE: SPACER BLOCKS SHALL ONLY BE USED WHEN MECHANICAL STABILITY OF OVERSIZED INSULATION IS REQUIRED.
BAND

WEATHERPROOF JACKETING

FASTENERS ON 150 (6") CENTERS (MAX) AND ONE FASTENER (MIN) PER METAL HEAD GORE

WEATHERPROOF JACKETING (SHOWN CORRUGATED)

WEATHERPROOF JACKETING 50 (2") MINIMUM OVERLAP W/ "S" CLIP

INTERMEDIATE SUPPORT RING

25 (1") THICK BLANKET INSULATION FOR EXPANSION JOINT (FOLDED IN HALF AND COMPRESSED)

CAD FILENAME: INIH0052M.dwg

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

WEATHERPROOF JACKETING

TOP ANGLE RING

FASTENERS ON 150 (6") CENTERS (MAX) AND ONE FASTENER (MIN) PER METAL HEAD GORE

WEATHERPROOF JACKETING (SHOWN CORRUGATED)

WEATHERPROOF JACKETING

50 (2") MINIMUM OVERLAP W/ "S" CLIP

INTERMEDIATE SUPPORT RING

25 (1") THICK BLANKET INSULATION FOR EXPANSION JOINT (FOLDED IN HALF AND COMPRESSED 50%)

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

CAD FILENAME: INIH0053M.dwg
STYLE 1

NOTE: IF THERE IS NO CENTRAL NOZZLE, USE CIRCULAR SHEETS (DOLLAR PLATES) AS THE FLASHING.

STYLE 2

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

BAND

FASTENER

CAULKING

INSULATION

WEATHERPROOF JACKETING (SLOPE TO SHED WATER)

BANDS

150 (6") LAP (TYP)

STIFFENER

AIR SPACE (TYP)

VEssel I.D.

OUTER BLOCK
50 (2") THICK (MAXIMUM)

BANDS

FASTENER

CAULKING

BAND

WEATHERPROOF JACKETING

NOTE: BODY FLANGE INSULATION SIMILAR TO ABOVE.
**TYPICAL CLIP DETAILS**

**NOTE:**

1. USE 20 (3/4") x 0.5 (0.020") (MINIMUM) STAINLESS STEEL BANDS.
2. LOCATE 600 (24") APART.
3. MINIMUM OF (2) CLIPS PER SHEET.

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**S—CLIP**

**NOTE:**

1. USE 20 (3/4") x 0.5 (0.020") (MINIMUM) STAINLESS STEEL BANDS.
2. LOCATE AS NEEDED.

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**J—CLIP**

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DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANThESIS ARE IN INCHES, UNLESS NOTED OTHERWISE.
25 (1") OVERLAP

FASTENERS (4-MINIMUM) AT 150 (6") MAXIMUM SPACING

CAULK (TYP.)

WEATHERPROOF JACKETING

FASTENERS

DIMENSIONS ARE GIVEN IN MILLIMETERS. DIMENSIONS IN PARANthesis ARE IN INCHES, UNLESS NOTED OTHERWISE.
CIRCUMFERENTIAL SUPPORT RING FOR BANDING INSULATION

VERTICAL NOZZLE/MANWAY (INIH0060)

BANDS FOR JACKETING ON 300 (12") CENTERS

SHELL/HEAD JOINT

HORIZONTAL NOZZLE (INIH0055 - STYLE 1)

METAL CORE HEAD

BANDS FOR INSULATION ON 300 (12") CENTERS

WEATHERPROOF JACKETING LAPPED 50 (2") MINIMUM, BOTH WAYS

HORIZONTAL SUPPORT ROD FOR BANDING INSULATION REQUIRED ONLY ON VESSELS WITH OUTSIDE DIAMETER OVER 2400 (96")

SMOOTH JACKET SEGMENTS

LAP SEAM (INIH0061)

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

CAD FILENAME: INIH0062m.dwg
INSULATION AND WEATHERPROOFING AS SHOWN ON HORIZONTAL VESSEL

METAL JACKET (LAPPED A MIN. OF 75 (3") BOTH DIRECTIONS)

INSULATION AND JACKETING SECUREMENT ON 300 (12") MAX. CENTERS

SHELL & TUBE HEAT EXCHANGER

INSULATION TERMINATIONS FINISHED WITH FLAT JACKETING (TYPICAL)

JACKET BANDS 300 (12") MAXIMUM CENTERS

FLAT JACKETING LAPPED 75 (3") MINIMUM, BOTH WAYS

50 (2") LAP (MINIMUM) OVER PERMANENT INSULATION

END CLOSED WITH BLOCK CUT TO FIT (TYPICAL)

REMOVABLE INSULATION COVER, WHEN SPECIFIED

DOUBLE PIPE HEAT EXCHANGER

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