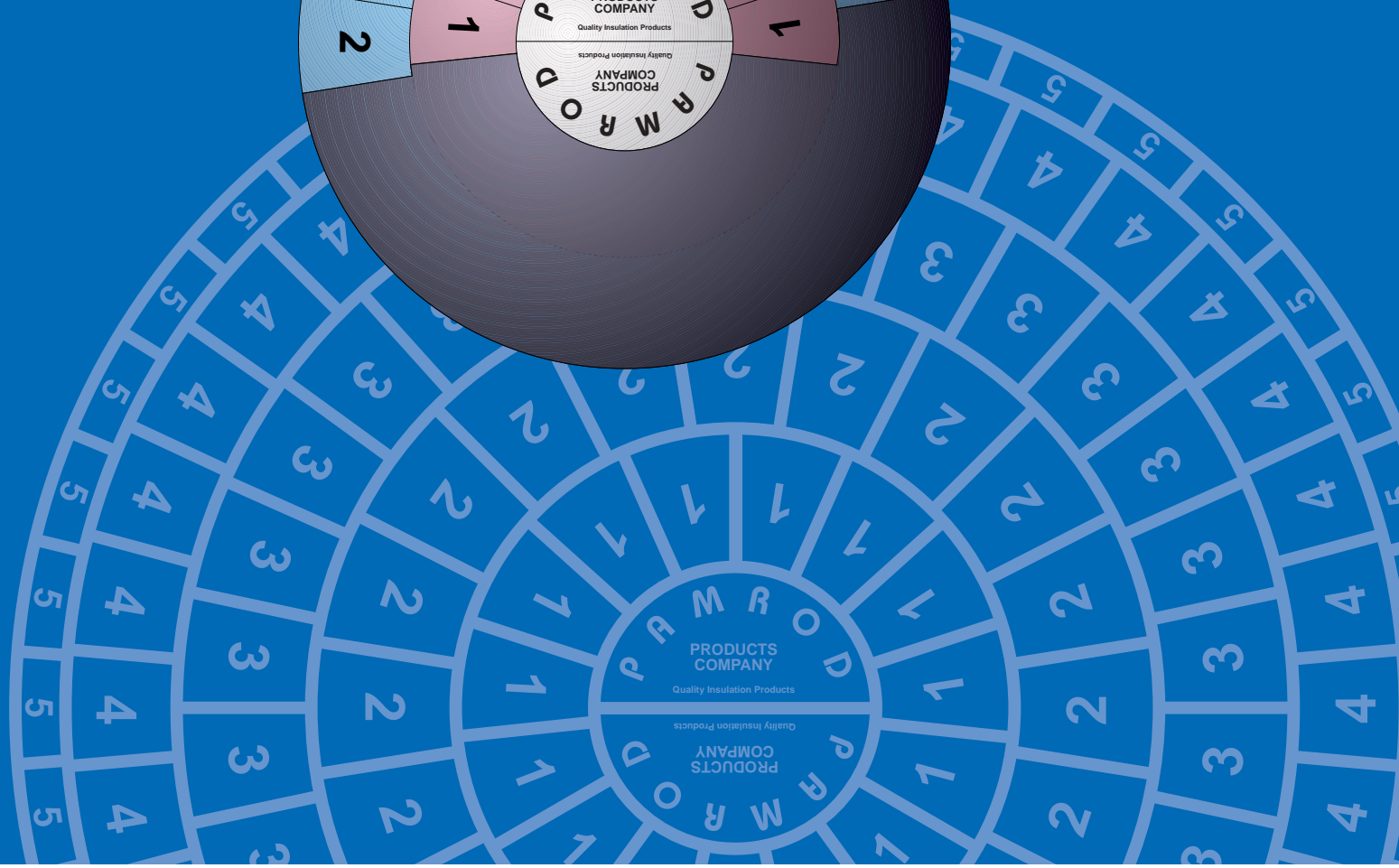
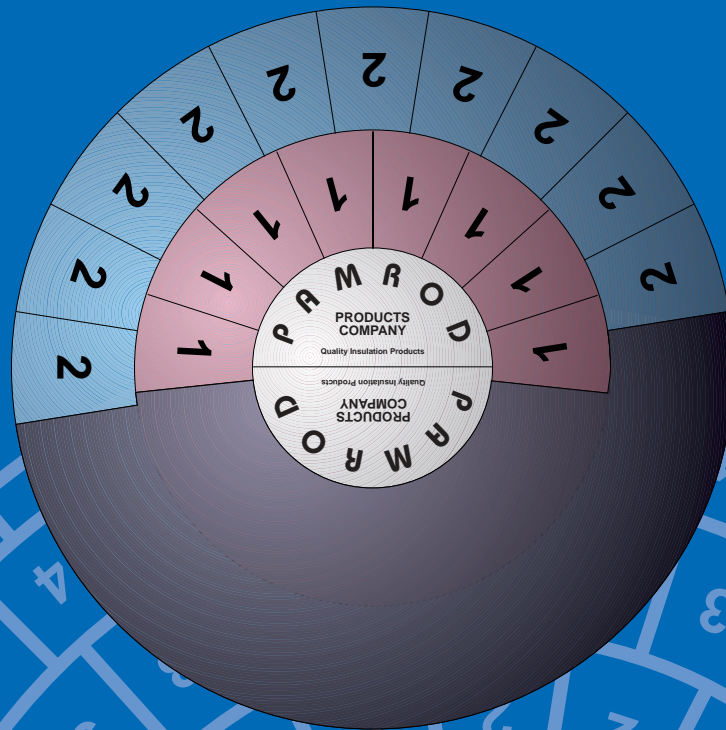


pamrod

PRODUCTS COMPANY
Quality Insulation Products

HIGHLY ADVANCED THERMAL SYSTEMS

*THE SIMPLER SOLUTION FOR
INSULATING VESSEL HEADS.*



CUSTOM ENGINEERED HATS[®] SIMPLIFY



Pamrod HATS installed around a center nozzle.



Field cutting insulation for this storage tank would not appear nearly as precise as the Pamrod HATS installed here.

Why hassle with field cutting and fitting insulation for vessel heads? Pamrod's Highly Advanced Thermal Systems (HATS[®]) simplify installation, provide optimum thermal performance and ensure outstanding cost effectiveness.

PAMROD: 40 YEARS OF INNOVATION

Forty years ago, Pamrod Products Company originated the concept of prefabricated, custom engineered insulation for vessel heads and other curved surfaces. We also developed the equipment and systems for producing our unique product line. Today, our manufacturing and technical capabilities continue to expand, as we carry on our tradition of developing new and improved solutions for the industrial, commercial, refrigeration and cold storage insulation markets.

PREFABRICATED HATS FOR ANY SIZE HEAD

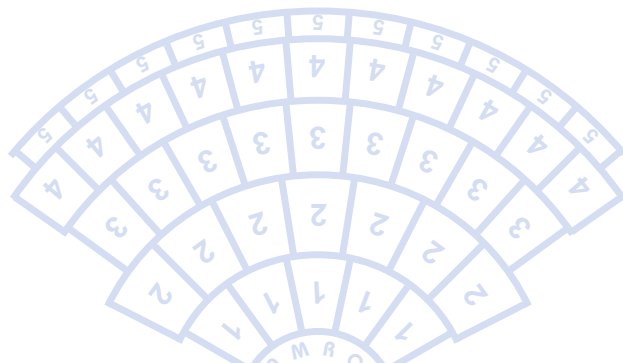
Pamrod **HATS** are custom insulation segments engineered to fit all standard pressure vessel heads. The segments are machined on six sides to create a precise fit with adjoining segments. Numbered for easy installation, **HATS** segments are applied in concentric circles, or courses, around the center. Segments increase in size with the vessel diameter from as small as 6" x 8" to as large as 18" x 24".

HATS can be designed for all standard pressure vessel heads including:

- 2:1 Elliptical
- ASME Flanged and Dished
- Conical or Toriconical
- Hemispherical
- Single Radius
- 80-10° Heads

A PERFECT FIT

Pamrod **HATS** are a perfect fit for your application, your business and your bottom line.



CURVED INSULATION APPLICATIONS

PRECISION AND PERFORMANCE

Pamrod **HATS**® provide a fit and thermal performance difficult to obtain with the conventional method of field cutting flat block at the project site. Each segment is custom designed for an exact fit. On heads with center nozzles 16" IPS and larger, the first course is cut to fit around the nozzle. On bottom skirted heads, the last course is designed to fit "inside the skirt," simplifying installation and reducing field labor.

SUPERIOR MATERIALS FOR THERMAL PERFORMANCE

Pamrod **HATS** are custom designed to meet high-performance thermal requirements. Segments are available in single layer thickness from 1½" to 4" and multiple layers from 3" and up. Multiple layered heads are designed with staggered joints. We can fabricate segments in the thickness required for your vessel head, and **HATS** are available in the following materials:



Expanded perlite



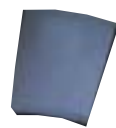
Polyisocyanurate



Polystyrene



Cellular glass



Phenolic foam

OUTSTANDING COST EFFECTIVENESS

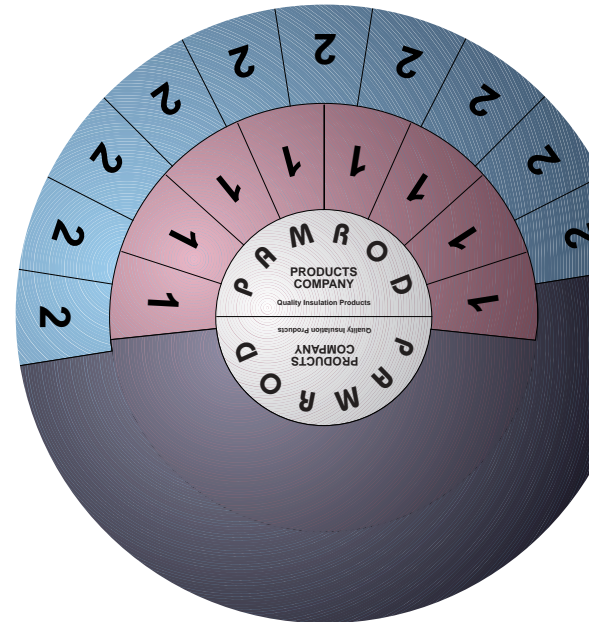
Because Pamrod **HATS** are prefabricated and shipped ready to install, the need for field cutting is virtually eliminated. You not only benefit from a quicker installation but also a precision fit that ensures outstanding cost effectiveness and thermal performance. This superior fit and finish is achieved without additional cost to your project. Pamrod's numbering system simplifies installation without extensive personnel training. The uniform thickness and precise fit of Pamrod **HATS** provide a smooth outer surface of insulation that allows for a quick and neat metal, PVC or mastic finish.

SUPERIOR QUALITY — GUARANTEED!

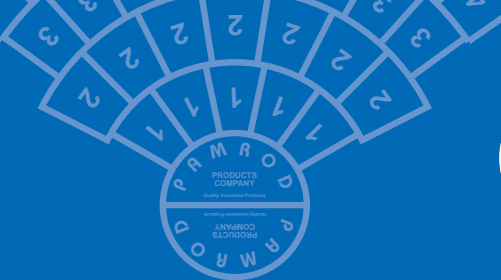
Mis-cut flat block insulation can cost you — in time, dollars and thermal performance. Each Pamrod **HATS** segment is custom engineered, numbered and individually wrapped and packaged to prevent damage in shipping. Most importantly, **HATS** segments are guaranteed to fit your application.

ON-TIME, WORLDWIDE DELIVERY

Wherever you are, you can count on Pamrod. We ship our **HATS** daily, by land, sea and air to locations throughout the world.



Pamrod HATS were installed while this cryogenic tank was in operation.



ORDERING IS EASY

ORDERING INFORMATION

PAMROD HATS® MATERIAL AVAILABILITY

- Cellular Glass ASTM C-522 Pittsburgh Corning Foamglas®
- Polyisocyanurate ASTM C-591 Dow Trymer®
- Expanded Perlite ASTM C-610 Calsilite Sproule® and Howred Goodtemp™
- Polystyrene ASTM C-578 Dow Styrofoam®
- Phenolic Foam ASTM C-1126-94 Kingspan Koolphen® K

PAMROD HATS VESSEL HEADS FIT

- 2:1 Elliptical
- ASME Flanged and Dished
- Hemispherical
- 80 -10° Heads
- Conical or Toriconical
- Single Radius

ORDERING REQUIREMENTS

When you request a quote or order **HATS**, please supply the following information:

- Vessel O.D. (or I.D. and the wall thickness).
- Type of vessel head.
- Insulation thickness and number of layers needed.
- Identification of any center nozzles which are 16" IPS or larger.
- Identification of any bottom skirted heads.

Or, send us your equipment drawings, and we can identify the elements for you.



Curves? No hassle. Each ethylene tank had Pamrod HATS custom cut to fit.

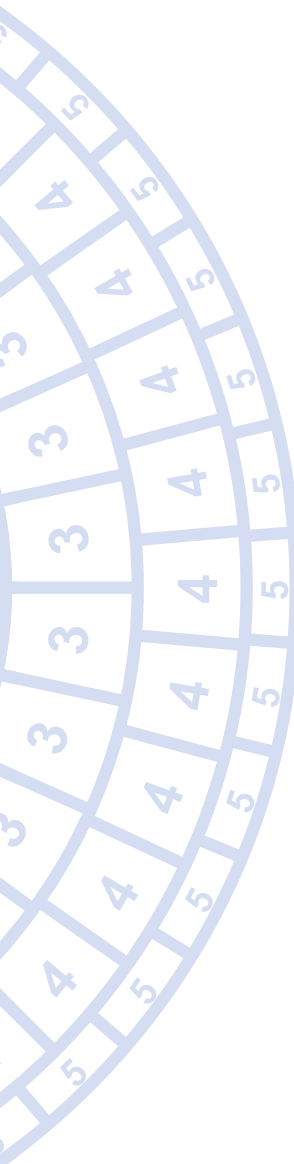


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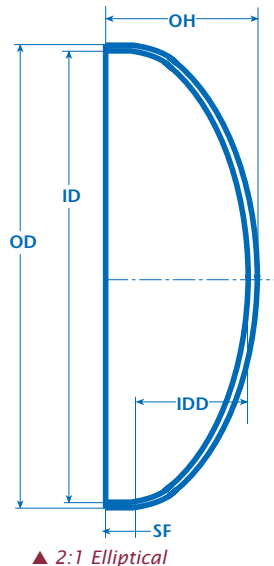
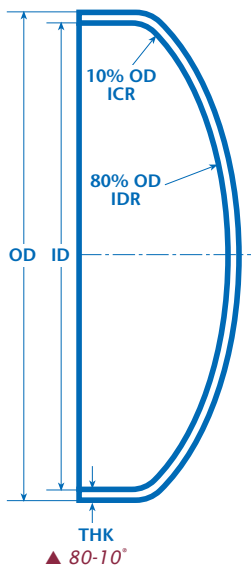
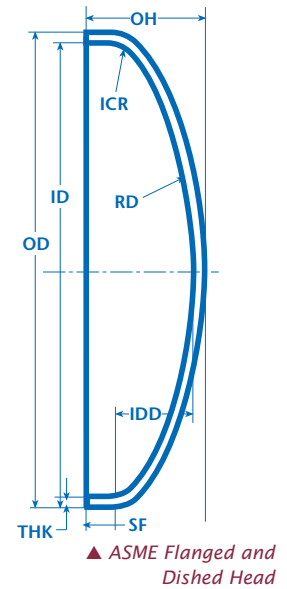
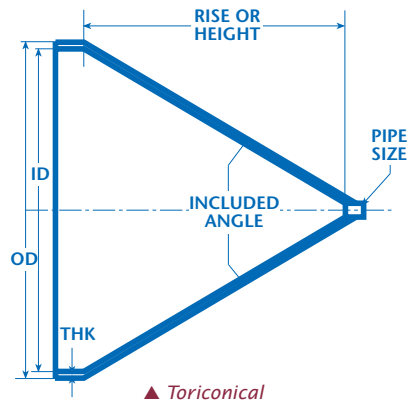
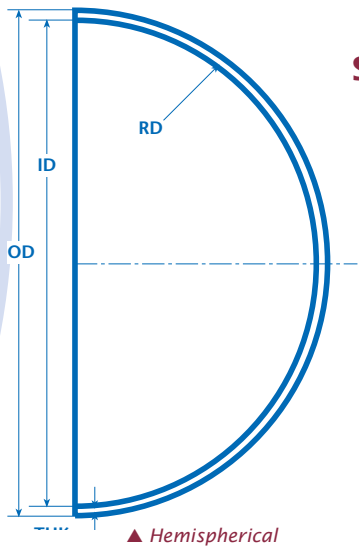
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Fax: (830) 372-4233
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Email: pamrod@spi-co.com



These buried hot and chilled water tanks were insulated with Pamrod HATS for trouble-free performance.



STANDARD VESSEL HEADS



GLOSSARY

- DR Dish radius, also referred to as the crown radius
- ID Inside diameter of head, or insulation
- IDR Inside dome radius
- IDD Inside depth of head dish
- ICR Inside corner radius, also known as the Knuckle Radius (KR) of a vessel head. For ASME code heads, the ICR is a minimum of 6% of the head diameter.
- OH Overall height of head
- OD Outside diameter of head or insulation
- RD Radius
- SF Straight flange, the extension beyond the head tangent to weld the head to the shell.
- THK Thickness



A division of



We Cover the Curves

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Phone: (830) 372-1500 · Fax: (830) 372-4233

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