**GENERAL NOTES:**

1. DANGER FROM OVERHEATING CAN BE MINIMIZED BY "LIGHT TRACING" IN WHICH DIRECT CONTACT BETWEEN THE TRACER AND LINE OR INSTRUMENT IS PREVENTED BY THE USE OF INSULATION OR SPACING.

2. THE SUPPLY HEADER SHOULD BE AT THE HIGHEST POINT AND SHUTOFF VALVE SHOULD BE PROVIDED FOR EACH TRACER, SO THE SHUTTING OFF STEAM TO ONE HOUSING FOR SERVICING DOES NOT AFFECT OTHER INSTRUMENTS.

3. TRACING SHOULD SLOPE DOWNWARD CONTINUOUSLY TO AVOID POCKETS AND FACILITATE DRAINAGE.

4. A SEPARATE TRAP AND CONDENSATE ISOLATING VALVE SHOULD BE PROVIDED FOR EACH TRACER.

5. JOINTS IN TRACING TUBING SHOULD BE AVOIDED IF POSSIBLE WHERE THEY ARE NECESSARY, THEY SHOULD BE MADE OUTSIDE THE INSULATION WITH EXPANSION LOOPS TO PREVENT STRESS ON THE FITTINGS.

6. ALL TRACERS SHALL HAVE SHUTOFF VALVE AT SOURCE AND STEAM TRAP OR VALVE AT TERMINATION FOR CONDENSATE DISPOSAL.

7. WHERE MAXIMUM HEAT IS REQUIRED, THE TRACER TUBING CAN BE CEMENTED TO THE LINES WITH HEAT TRANSFER CEMENT OR MORE THAN ONE TRACER CAN BE USED.

8. EITHER COPPER OR STAINLESS STEEL TUBING WHICH ARE SIZED FOR THE PARTICULAR SERVICE SHOULD BE USED TO CARRY HEATING STEAM.

9. FOR THE INSTRUMENTS WHICH REQUIRE FREQUENT SERVICING OR ACCESS, THE USE OF A HEATED AND INSULATED HOUSING AND TRACING ARRANGEMENT, AS SHOWN IN FIG-4, IS ADVISABLE.
STEAM TRACING AND INSULATION METHODS
FOR INSTRUMENT LINES

HEAVY TRACING

LIGHT TRACING

FIG. 1

TRACER CONTACTS INSTRUMENT LINES

BLOCK INSULATION

WEATHERPROOFING PIPE COVERING

INSULATING PAPER

METER LINES TRACER

TO TRAP

INSULATE TRACER ALL CASES

FIG. 2

TYPICAL FOR SEAL POTS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SIZE</th>
<th>DESCRIPTION</th>
<th>MATERIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3/8&quot;(10mm)</td>
<td>TRACER TUBE</td>
<td>COPPER OR S.S.</td>
</tr>
<tr>
<td>2</td>
<td>7/8&quot;(22mm)</td>
<td>TRACER TUBE</td>
<td>COPPER OR S.S.</td>
</tr>
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<td>3</td>
<td>7/8&quot;(22mm)</td>
<td>MAGNESIA OR EQUIVALENT</td>
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</table>

IRANIAN PETROLEUM STANDARDS

IMPACT OF PETROLEUM STANDARDS
STEAM TRACING AND INSULATION METHODS

TYPICAL FOR GAUGES

INSULATING PAPER

BLOCK INSULATION

TO TRAP

WEATHERPROOFING

PROVIDE TRACER WITH DISCONNECT UNIONS FOR EASY REMOVAL OF GAUGE TRACING FOR GAUGE WITH BLOWOUT BACK

FIG - 3

TYPICAL FOR GAUGES
STEAM TRACING AND INSULATION METHODS

NOTES: INSULATION MUST NOT BE APPLIED IN MANNER WHICH WILL OBSTRUCT GAUGE BLOWOUT PROTECTION FEATURES.

<table>
<thead>
<tr>
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<td>TRACER TUBE</td>
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IRANIAN PETROLEUM STANDARDS

NO REVISION PERMITTED UNLESS APPROVED BY STANDARD ORGANIZATION
**Heating Steam Header**

**Steam Trap and Hand Valve**

**Condensate Disposal**

**Typical Method or Steam Tracing and Housing for Field-Mounted Pressure Instrument**

*Insulation*

See Fig. 1 & 2 for details.

*Insulated Housing*

Heating coil mounted on bottom or side of housing. Anchor and shield to prevent accidental contact and burns. Coil may be made in field from copper tubing. Use 3/8" or larger tubing. Radiating surface required varies with climate. Size of housing, housing insulation, and steam pressure.

**Fig. 4**

<table>
<thead>
<tr>
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**Iranian Petroleum Standards**

No Revision permitted unless approved by standard organization.

A

Standard Drawing: Steam Tracing Details

Rev

Description

Date

Drawing No.

A

IPS-D-IN-107
NOTES:

1. USE LIGHT TRACING ON ELECTRIC TRANSMITTERS.
2. PROVIDE DISCONNECT UNIONS IN TRACER TO PERMIT EASY REMOVAL OF TRANSMITTER.

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<td>3</td>
<td>3/8&quot;(10mm)</td>
<td>FEMALE CONNECTION (REDUCER)</td>
<td>BRASS OR S.S.</td>
</tr>
<tr>
<td>4</td>
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<td>UNION</td>
<td>BRASS OR S.S.</td>
</tr>
<tr>
<td>5</td>
<td>1/2&quot;(15mm)</td>
<td>PIPE</td>
<td>CARBON STEEL</td>
</tr>
</tbody>
</table>
USE LIGHT OR HEAVY TRACING AS REQUIRED SEE FIG. 1 & 2

TRACE AND INSULATE LINES TOGETHER
LIGHT TRACING

ITEM | SIZE | DESCRIPTION | MATERIAL
1  | 1/4"(6mm) | TRACER TUBE | COPPER OR S.S.
2  | 3/8"(10mm) | TRACER TUBE | COPPER OR S.S.
3  | 3/8"x1/2" | FEMALE CONNECTION (REDUCER) | BRASS OR S.S.
4  | 3/8"(10mm) | UNION | BRASS OR S.S.
5  | 1/2"(15mm) | PIPE | CARBON STEEL

FIG - 6

SEAL METER

TO STEAM TRAP

LIQUID METER

TO STEAM TRAP

IRANIAN PETROLEUM STANDARDS
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STANDARD DRAWING: STEAM TRACING DETAILS
DATE | DRAWING NO. |_usrrev
- | - | -
IPS-D-IN-107
INSULATE GAUGE WITH INSULATING PAPER FOR LIGHT TRACING.

TRACER PIPE COVERING WEATHERPROOFING REFLEX GAUGE.

METHOD OF RUNNING TRACER FOR HEAVY TRACING OF TRANSPARENT GAUGE.

WEATHERPROOFING PIPE COVERING TRACER INSULATE GAUGE WITH INSULATING PAPER FOR LIGHT TRACING.

TO STEAM TRAP

FIG. 7

TYPICAL GAUGE GLASS TRACING

HEATED GAUGE GLASS (OR "STEAM-CUTTED")

FIG. 8

<table>
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<td>3/8&quot; x 1/2&quot;</td>
<td>FEMALE CONNECTION (REDUCER)</td>
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IRANIAN PETROLEUM STANDARDS

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REV DESCRIPTION DATE DRAWING No. EXT REV

STANDARD DRAWING: STEAM TRACING DETAILS

IPS-D-IN-107
TYPICAL TRACING
GAUGE GLASS AND
FLOAT LEVEL INSTRUMENT

FIG - 9

TYPICAL
GAUGE GLASS TRACING

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<td>TRACER TUBE</td>
<td>COPPER</td>
</tr>
<tr>
<td>3</td>
<td>3/8&quot;x1/2&quot;</td>
<td>FEMALE CONNECTION (REDUCER)</td>
<td>BRASS OR S.S.</td>
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IRANIAN PETROLEUM STANDARDS
PRESSURE GAUGE
FOR HIGH PRESSURE SERVICE

FIG - 9

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