

Temperature Sensor

Model 4271B

Overview

AMOT Model 4271B Temperature Sensor provides a low cost, reliable sensor which will allow continuous temperature monitoring of critical machine parts. The environmentally sealed design provides constant protection against oil and other contaminants from entering the sensing tip area when correctly installed.



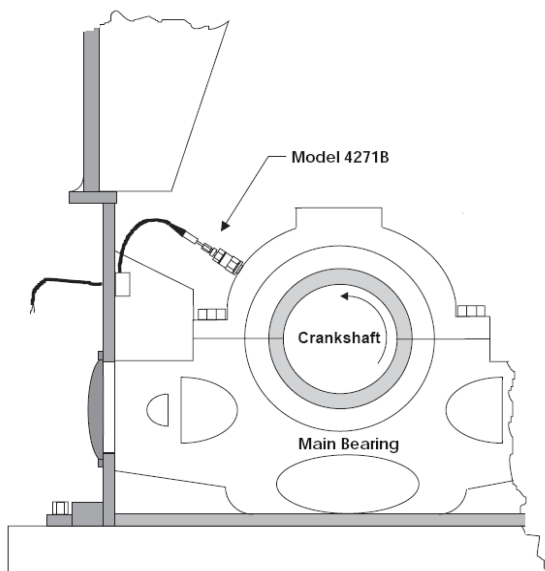
**Model 4271B
Temperature Sensor**

Typical applications

- Bearing temperature
- Fluid temperature
- Power or compressor cylinder overload
- Packaging gland temperature detection
- Compressor discharge temperature (when used with thermowell)

Key benefits

- Continuous monitoring
- Spring loaded
- Environmentally sealed
- Replaced model 4103D
- Corrosion resistant
- RTD or thermocouple configuration
- Can be installed where hazardous fluids and high pressures are present



Installation

Installation of AMOT Model 4271B can be performed by following the required procedure:

1. Remove bearing cap from crankshaft.
2. Remove bearing from cap.
3. Locate a point on the bearing cap which complies with the available installed depth dimensions offered on the 4271B. This location should be perpendicular and centered with the bearing surface.
4. With the proper equipment, drill a 29/64" hole through the bearing cap, using information from step 3.
5. Using a tap (1/2-20 NF), thread the outer portion of the newly drilled hole on the bearing cap to the required depth.
6. After procedures 4 and 5 have been completed, reinstall the bearing and cap to their proper location on the machine.
7. Install a correctly selected 4271B temperature sensor into the pre drilled hole (see 4) and tighten body down until sensing probe moves approximately 1/8" to 1/4" from rest position.

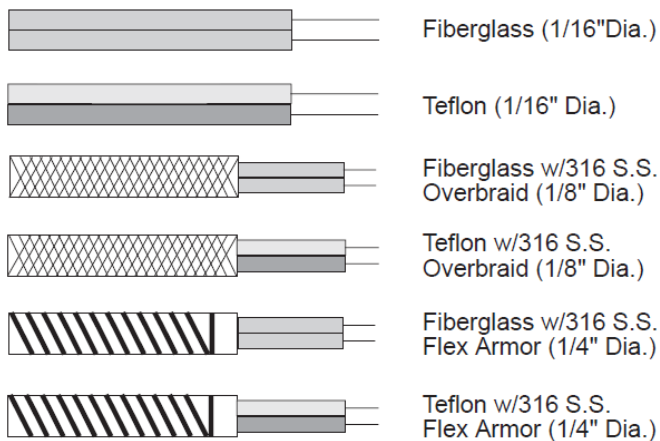
8. Tighten locknut to hold body into position.
9. Place sensor wire along a specified path, so as not to interfere with machine operation, and secure it into position Note: all connections should terminate into correctly specified equipment or junction box to meet the required system codes.
10. Connect to temperature monitoring device

AMOT Model 4271B Temperature Sensors can be used as the basic sensing units in a safety system. The use of barriers or approved IS power source(s) is recommended if the monitoring system is not rated for Div. 1 or Div. 2 use.

AMOT is ready to aid the user in applications of Model 4271B Temperature Sensors to the extent of its knowledge and experience. Decisions such as actual location of the installation, insertion length, details of machining, and connection to a safety related system should only be made by the user after he or she has physically checked the equipment under consideration.

Maintenance

LEAD WIRE TYPE



AMOT recommends regular maintenance, including visual inspection at the major overhaul of the engine or yearly if lacquering of the lube oil is observed. Excessive lacquering can cause poor heat transfer, which can produce inaccurate temperature reading and slower response to changing temperatures.

To remove sensor, unscrew the tension cap on the main body and remove the RTD or thermocouple. Visually examine the sensing tip for debris or other foreign matter (such as lube oil). If debris is present, remove the body and spring seat assembly from the sensor hole, clean all parts/components, then reassemble to original orientation.

Clean sensor and other associated components, fit sensing probe assembly back through body, making sure tip is firmly fitted into spring seat, then tighten tension cap.

Temperature Sensor - Model 4271B

How to order

| | | | | | | | | | |
|-----------------------------|-------|---|---|---|----|------------|-----------------|---------------------------------|-------------|
| Example | 4271B | A | B | 1 | C | 07 | A | | |
| | | | | | | | | Basic Model | |
| Basic Model | 4271B | | | | | | | Model Code and Revision Level | |
| | | | | | | | | Thread | |
| Mounting Thread | A | | | | | | | 1/2-20NF | |
| | | | | | | | | Sensor | |
| Sensor | A | | | | | | | 2-wire RTD | |
| | B | | | | | | | 3-wire RTD | |
| | J | | | | | | | Thermocouple, Type J | |
| | K | | | | | | | Thermocouple, Type K | |
| | | | | | | | | Conductor | |
| Conduit Conductor | | | | 1 | | | | None | |
| | | | | | | | | Lead Wire | |
| Lead Wire Protection | A | | | | | | | Fiberglass Coated | |
| | B | | | | | | | Teflon Coated | |
| | C | | | | | | | Fiberglass with S.S. Overbraid | |
| | D | | | | | | | Teflon with S.S. Overbraid | |
| | E | | | | | | | Fiberglass with S.S. Flex Armor | |
| | F | | | | | | | Teflon with S.S. Flex Armor | |
| | | | | | | | | Installed Depth | |
| Installed Depth | | | | | | | | mm | inch |
| | | | | | | 03 | 27 to 40 | 1-1/16 to 1-9/16 | |
| | | | | | | 04 | 48 to 57 | 1-7/8 to 2-1/4 | |
| | | | | | | 05 | 57 to 70 | 2-1/4 to 2-3/4 | |
| | | | | | | 06 | 73 to 83 | 2-7/8 to 3-1/4 | |
| | | | | | | 07 | 86 to 95 | 3-3/8 to 3-3/4 | |
| | | | | | | 08 | 98 to 108 | 3-7/8 to 4-1/4 | |
| | | | | | | 09 | 111 to 121 | 4-3/8 to 4-3/4 | |
| | | | | | | 10 | 124 to 133 | 4-7/8 to 5-1/4 | |
| | | | | | | 11 | 137 to 146 | 5-3/8 to 5-3/4 | |
| | | | | | | 12 | 149 to 159 | 5-7/8 to 6-1/4 | |
| | | | | | | 13 | 162 to 171 | 6-3/8 to 6-3/4 | |
| | | | | | | 14 | 175 to 185 | 6-7/8 to 7-1/4 | |
| | | | | | 15 | 187 to 197 | 7-3/8 to 7-3/4 | | |
| | | | | | 16 | 200 to 210 | 7-7/8 to 8-1/4 | | |
| | | | | | 17 | 213 to 222 | 8-3/8 to 8-3/4 | | |
| | | | | | 18 | 225 to 235 | 8-7/8 to 9-1/4 | | |
| | | | | | 19 | 238 to 248 | 9-3/8 to 9-3/4 | | |
| | | | | | 20 | 251 to 260 | 9-7/8 to 10-1/4 | | |
| | | | | | | | | Wire Length | |
| Wire Length | A | | | | | | 4.5 meters | 15 feet | |
| | B | | | | | | 7.6 meters | 25 feet | |

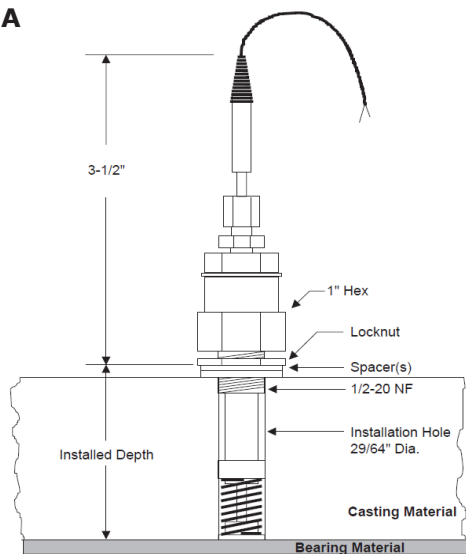
Temperature Sensor - Model 4271B

Specification

| | | |
|----------------------------------|-------------------------------|------------------|
| Body material | 316 Stainless steel and brass | |
| Seal material | Viton | |
| Sensing probe material | 316 Stainless steel | |
| Wire type | See Lead Wire Type | |
| Temperature sensing range | -101°C to 537°C | -150°F to 1000°F |

Alternative Installations

Figure A

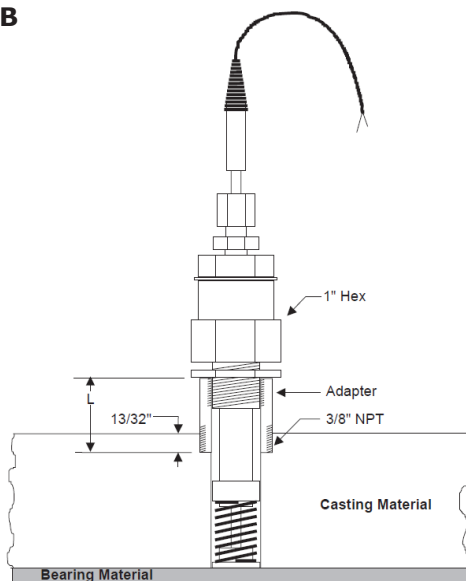


Spacers: To provide a customer with installation flexibility, the use of spacers create variable installation depths which range from 0 to 1/2" depending upon application, see Figure A.

Example: 4271BAJ1D03B

| | Installed depth (max) | |
|--------------------|-----------------------|---------|
| | mm | inches |
| No nut or spacers | 40 | 1-9/16" |
| Nut only | | 1-7/16" |
| Nut plus 1 Spacer | | 1-5/16" |
| Nut plus 2 Spacers | | 1-3/16" |
| Nut plus 3 Spacers | 27 | 1-1/16" |

Figure B

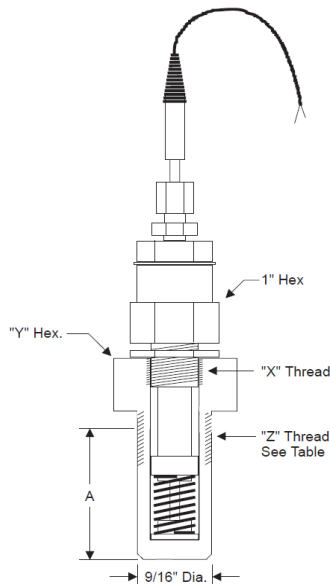


Adapters: To adapt the Model 4271B for applications which involve shallow or thin mounting surfaces, the use of a specific size adapter can provide an alternative in these situations. To select the appropriate size adapter use the following chart:

| Adapter | Length (L) | |
|----------|------------|--------|
| | mm | inches |
| 6660L001 | 111 | 4-3/8" |
| 6660L002 | 63.5 | 2-1/2" |
| 6660L003 | 31.7 | 1-1/4" |
| 6660L004 | 152 | 6" |
| 6660L005 | 127 | 5" |
| 6660L006 | 73 | 2-7/8" |
| 6660L007 | | 4-5/8" |
| 6660L008 | 38.1 | 1-1/2" |

Temperature Sensor - Model 4271B

Alternative installations (continued)



Thermowells: The Model 4271B can be with an optional thermowell. The use of thermowells allow for Model 4271B to be installed where hazardous fluids and high pressures are present. Thermowells also allow removal of the sensing probe, without interfering with the sensed fluid.

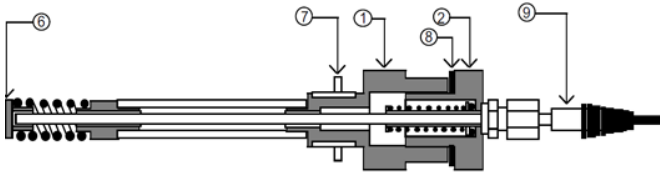
A = Installed depth. See 'How to order' on page 3. Minimum dimensions minus 1/8

Selection of thermowells is as follows:

| Example | 6721L | 1 | 15 | Basic Model | | |
|-----------------|-------|---|------------|-------------------|------------------|------------|
| Basic Model | 6721L | | | Basic Model | | |
| | | | | Thermowell Thread | | |
| | | | | "X" Thread | "Y" Thread | "Z" Thread |
| Thread | 0 | | | 1/2-20 UNF | 1" | 1/2 NPT |
| | 1 | | | 1/2-20 UNF | 1" | 1/2 BSP |
| | | | | Installed Depth | | |
| | | | | mm | inch | |
| Installed Depth | 03 | | | 27 to 40 | 1-1/16 to 1-9/16 | |
| | 04 | | | 48 to 57 | 1-7/8 to 2-1/4 | |
| | 05 | | | 57 to 70 | 2-1/4 to 2-3/4 | |
| | 06 | | | 73 to 83 | 2-7/8 to 3-1/4 | |
| | 07 | | | 86 to 95 | 3-3/8 to 3-3/4 | |
| | 08 | | | 98 to 108 | 3-7/8 to 4-1/4 | |
| | 09 | | | 111 to 121 | 4-3/8 to 4-3/4 | |
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| | 14 | | | 175 to 185 | 6-7/8 to 7-1/4 | |
| | 15 | | | 187 to 197 | 7-3/8 to 7-3/4 | |
| | 16 | | | 200 to 210 | 7-7/8 to 8-1/4 | |
| | 17 | | | 213 to 222 | 8-3/8 to 8-3/4 | |
| | 18 | | | 225 to 235 | 8-7/8 to 9-1/4 | |
| | 19 | | | 238 to 248 | 9-3/8 to 9-3/4 | |
| 20 | | | 251 to 260 | 9-7/8 to 10-1/4 | | |

| Example | 9859L | 0 | 4 | Basic Model | | |
|-----------------|-------|---|------------|-------------------|------------------|------------|
| Basic Model | 9859L | | | Basic Model | | |
| | | | | Thermowell Thread | | |
| | | | | "X" Thread | "Y" Thread | "Z" Thread |
| Thread | 0 | | | 1/2-20 UNF | 1-5/16" | 3/4NPT |
| | | | | | | |
| | | | | Installed Depth | | |
| | | | | mm | inch | |
| Installed Depth | 03 | | | 27 to 40 | 1-1/16 to 1-9/16 | |
| | 04 | | | 48 to 57 | 1-7/8 to 2-1/4 | |
| | 05 | | | 57 to 70 | 2-1/4 to 2-3/4 | |
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Sensor replacement



Replacement seal (8) p/n 11283L008

To replace sensor (9), loosen nut (7), withdraw the entire probe assembly (body, rod and loading spring assembly) from the sensing port. Loosen the ferrule cap, which secures the sensor to the spring/body assembly, and separate the probe from the body. To install a new sensing rod (9), push rod through the top of the ferrule cap and feed through body until tip has been securely set into the spring seat (6). Tighten the ferrule cap to lock sensing rod into position. Install sensor assembly into the sensing port of the machine and tighten body until probe (9) moves approximately 1/8" to 1/4" from rest position, then lock into place with nut (7).

Service parts

| | | | | | | |
|----------------------|--------|----|---|------------|---------------------------------|------------------|
| Example | 4265X1 | A | 4 | A | | |
| | | | | | Basic Model | |
| Basic Model | 4265X1 | | | | Type J | |
| | 4266X1 | | | | Type K | |
| | 4267X1 | | | | RTD | |
| | | | | | Lead Wire | |
| Lead Wire Protection | | A | | | Fiberglass Coated | |
| | | B | | | Teflon Coated | |
| | | C | | | Fiberglass with S.S. Overbraid | |
| | | D | | | Teflon with S.S. Overbraid | |
| | | E | | | Fiberglass with S.S. Flex Armor | |
| | | F | | | Teflon with S.S. Flex Armor | |
| | | | | | Installed Depth | |
| | | | | | mm | |
| | | | | | inch | |
| Installed Depth | | 03 | | | 27 to 40 | 1-1/16 to 1-9/16 |
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| | 19 | | | 238 to 248 | 9-3/8 to 9-3/4 | |
| | 20 | | | 251 to 260 | 9-7/8 to 10-1/4 | |
| | | | | | Wire Length | |
| Wire Length | | A | | | 4.5 meters | 15 feet |
| | | B | | | 7.6 meters | 25 feet |

Europe and Africa

AMOT
Western Way
Bury St Edmunds
Suffolk, IP33 3SZ
England

Tel +44 (0) 1284 762222
Fax +44 (0) 1284 760256
Email info@amot.com

AMOT Controls GmbH
Rondenbarg 25
22525 Hamburg
Germany

Tel +49 (0) 40 8537 1298
Fax +49 (0) 40 8537 1331
Email germany@amot.com

Asia and Australasia

AMOT Shanghai
Rm A8-671 Jiahua Business Center
808 Hongqiao Road
Shanghai 200030
China

Tel +86 (0) 21 6447 9708
Fax +86 (0) 21 6447 9718
Email shanghai@amot.com

AMOT Singapore
10 Eunos Road 8 #12-06
Singapore Post Centre
Singapore 408600

Tel +65 6408 6265
Fax +65 6293 3307
Email singapore@amot.com

Americas

AMOT USA
8824 Fallbrook Dr
Houston, TX 77064
USA

Tel +1 (281) 940 1800
Fax +1 (713) 559 9419
Email sales@amotusa.com