



Model 2230/4430

2-Way Temperature Sensing Valves

FEATURES

- COMPACT RUGGED DESIGN
- FACTORY SET, FIELD ADJUSTABLE
- COMPATIBLE IN HYDRAULIC OR GAS SYSTEMS
- EASY MAINTENANCE; FEW MOVING PARTS
- COMPATIBLE WITH COMPLETE AMOT SHUTDOWN SYSTEMS
- NO ELECTRICITY REQUIRED; FAIL SAFE
- NO WIRES TO BREAK OR CORRODE
- VITON SEALS STANDARD
- BRASS (2230) OR STAINLESS STEEL CONSTRUCTION (4430)

APPLICATIONS

Protects engines, compressors, pumps, gear cases, and industrial machinery from over-temperature of:

- LUBE OIL
- JACKET WATER
- DISCHARGE GASES
- BEARINGS OR PACKING



Models 2230 and 4430 are normally-closed, 2-way valves which are opened by increasing temperature of engine cooling water, lubricating oil, high pressure gas or other fluids. They can also be used for sensing high bearing or packing temperatures. Opening of the valve vents control pressure from an AMOT Master Safety Control such as Model 2800, 4261 or 1476, and protects the engine. As many temperature valves may be used in the system as desired, with one valve for each sensing point. Refer to Application Diagram enclosed.

Model 2230 is suitable for a variety of gases and fluids and is available in brass or nickel-plated brass. Model 4430 is the stainless steel version. Both models can be used on lubricating oil, gas, and air control systems.

Temperature settings are available in 5°F increments from 95°F to 245°F, also a high temperature unit exists for 265°F. Models are available with temperature sensing element extensions from 2-3/16" to 5" (see Table C). The maximum pressure at the IN port is 125 psi; the maximum external pressure on the temperature sensing element is 800 psi.

HOW TO ORDER

When ordering please specify the following:

1. Select AMOT Model 2230D (brass) or Model 4430B (stainless steel).
2. Temperature Setting in °C or °F.
3. Any of the following special features if required:
 - a. Electroless nickel plated finish overall (instead of brass).
 - b. BSP tapered threads (instead of NPT).
 - c. Temperature element extension, see Table C.
 - d. Well type, see Table E.

OPERATION

Model 2230/4430 operation is simple and straight forward. As the temperature of the sensed fluid increases, wax enclosed in the valve's temperature sensing element expands against a push rod, which in turn unseats a valve allowing flow to travel from the valve's IN port and out the valve's VENT port. For visual indication that the temperature valve has tripped, use AMOT Model 4054 Trip Indicator (see Form 575).

Model 2230/4430 Temperature Valves are set at the factory, and the tripping temperature is stamped on the

valve body. The valve will start to bleed control pressure at 2 to 4°F below its calibrated setting. Do not operate Models 2230/4430 beyond the valves' maximum continuous operating temperature (Table D below).

Models 2230/4430 are field serviceable/adjustable. See "ADJUSTMENT".

INSTALLATION

Before Installing the Model 2230/4430, it is advisable to run a 23/32" dia. tap drill through the pipe fitting in which the unit will be placed. Some commercial fittings are not tapped deep enough and the threads may damage the valve's temperature element cup. Apply a quality thread sealant such as Loctite™ Pipe Sealant to pipe thread connections. Avoid introducing the sealant or other contaminants into the system.

On a system using lubricating oil for control pressure, the vent port is connected to the engine oil sump. If natural gas is used, the vent port is connected to the system vent. No vent connection is required where air is the control medium, but the port should be protected from contamination by an AMOT 4125 vent closure or a tubing elbow turned downward.

MODEL CODE SYSTEM

Letters and numbers in the MTO space, other than nothing, A1 or AA, indicate that the unit is built to special requirements and some of the other code numbers may not be valid. Check with the factory for full specification of such models.

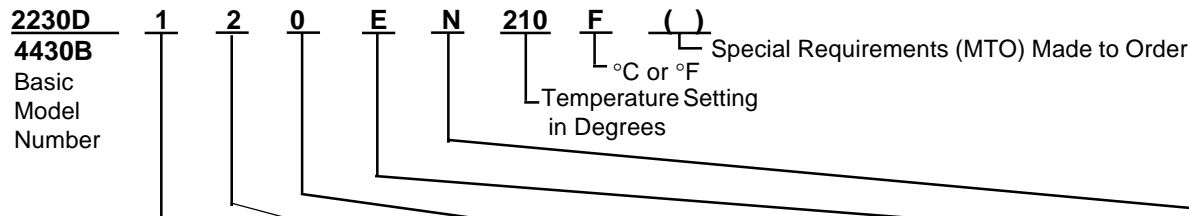


Table A		Table B		Table C				Table D				Table E	
Finish & Thread Code No Code No. - Description		Seal Material Code No.		Temperature Element Extension		Installed Depth of Wells		Temperature Range				Thermal Well Code	
				Code No.	Installed Depth "L"	3/4" 3802L Well "M"	1" 2766L Well "N"	Code No.		Temp Range without Well °F	Max. Continuous Allowable Temp °F	Code	Description
								Std. Element	Plated Element				
1 - Standard, NPT		2 - Viton	0	1-3/8 (34.9)	(no exten.)		1	A	K	65-95	120	N	Not Fitted
2 - Standard, BSP (TR)*			1	2-3/16 (55.6)		1-11/16 (42.9)	2 (50.8)	B	M	96-130	155	V	Calibrated in a Well (Well not Fitted)
3 - Plated NPT			2	2-1/2 (63.5)		1-15/16 (49.2)	2-1/4 (57.2)	C	N	131-160	185		
4 - Plated, BSP (TR)*			3	3 (76.2)		2-7/16 (61.9)	2-3/4 (69.9)	D	P	161-180	215	1	3/4" NPT
			4	3-1/2 (88.9)		2-15/16 (74.6)	3-1/4 (82.6)	E	R	181-210	230	2	1" NPT
			5	4 (101.6)		3-7/16 (87.3)	3-3/4 (95.3)	F	S	215-225	245		
			6	4-1/2 (114.3)		3-15/16 (100.0)	4-1/4 (107.6)	G	T	226-245	255		
			7	5 (127.0)		4-7/16 (112.7)	4-3/4 (120.7)	H	W	265	275		

Dimensions in inches; millimeters in ()

Add 10°F if in a Well

* Available from U.K. factory only.

Indicates Non-Standard or Special Order.

SPECIFICATIONS

2230D Standard Materials - Body & Nut Brass
 Seals Viton
 Element Brass
 Extensions Brass

4430B Standard Materials - Body & Nut 316 SS
 Seals Viton
 Element Brass
 Extensions 316 SS

Max. Pressure on Temp. Element 800 psi

Max. Pressure at IN Port 125 psi

Max. Net Weight (4430) 1-1/4 lbs (0.57 kg)

Max. Net Weight (2230) 1-1/4 lbs (0.57 kg)

Max. Net Weight of Well 1 lb (0.45 kg)

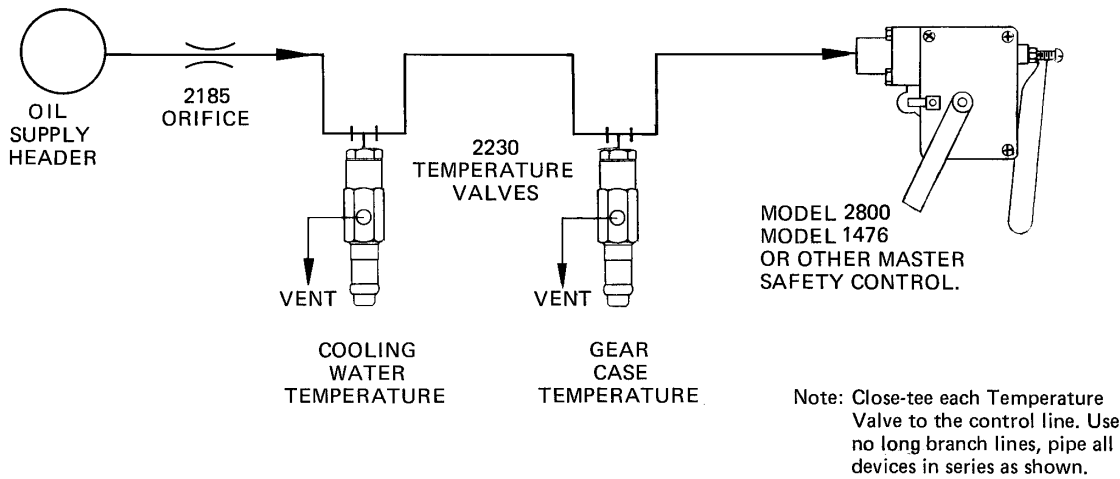
When a plated body is requested, a plated element should always be used, extensions supplied with plated elements are plated also.

STAINLESS STEEL WELLS

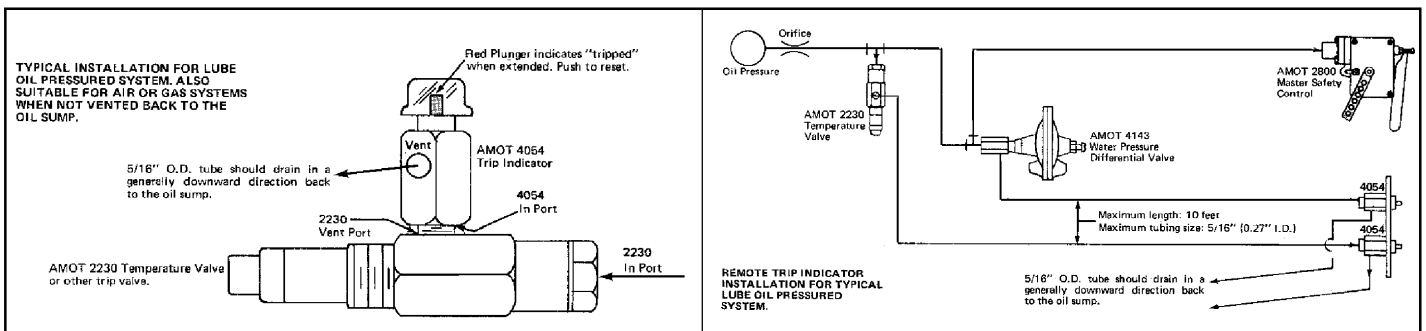
Two types of stainless steel wells may be used with Model 2230/4430 Temperature Valves. The 2766L well has a 1" NPT insertion connection, and a heavy wall thickness for pressures to 10,000 psi. The 3802L well has a 3/4" NPT connection, a thinner wall and is good for 5,000 psi. Pressures are the maximum allowable. To obtain working pressure, factors of safety should be applied as required by appropriate codes or regulations. In certain adverse conditions, a corrosion or erosion allowance should also be made.

Valves ordered with wells will be assembled at the factory, using AMOT 907L002 Heat Transfer Compound in the well. This is necessary to reduce the temperature lag experienced by controls when fitted to immersion wells. Lag will vary according to the fluid and flow conditions.

TYPICAL INSTALLATION DIAGRAM



OPTIONAL VISUAL TRIP INDICATORS (See Form 575)

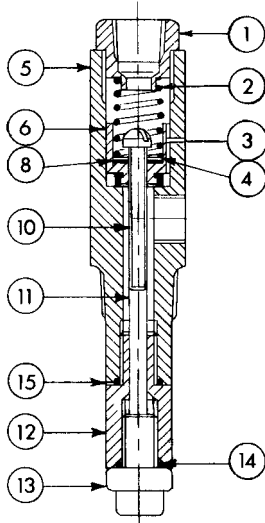


AMOT designs and tests all its products to ensure that high quality standards are met. For good product life, carefully follow AMOT's installation and maintenance instructions; failure to do so could result in damage to the equipment being protected.

When communicating with AMOT regarding operation of a control, always give the Model No. and Serial No. If ordering Service Parts, also including the Description, Part No. and Quantity desired. If any parts are ordered by Reference No. only, please also include the Form No., Revision No., and date of this brochure.

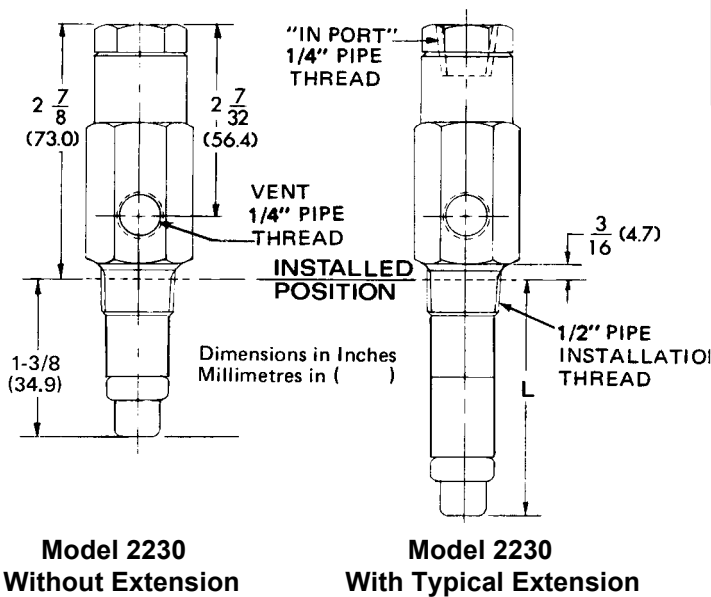
ADJUSTMENT

Refer to cut-away view. To adjust the temperature setting of the 2230/4430, place a screw driver through the IN PORT and in the slot of Adjusting Screw (Item 10). To RAISE the temperature setting turn the screw counter-clockwise, to LOWER the setting turn the screw clockwise. One turn equals about 10°F. When changing the tripping temperature be sure that valve is not adjusted beyond the range limit.



DIMENSIONS

(Refer to Table C of the Model Code systems for dimensions L, M and N.)



MAINTENANCE

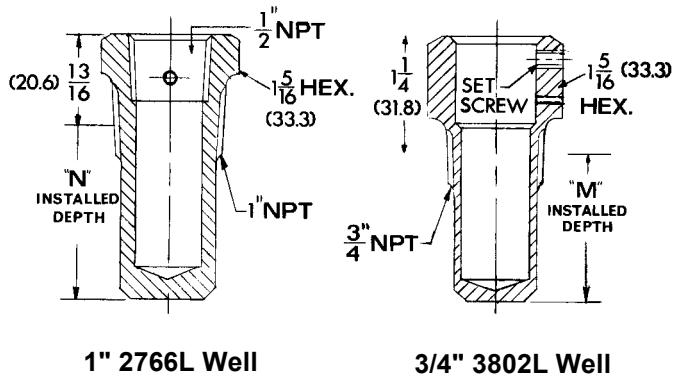
It is recommended that any safety control system be checked every few months to be sure it is functioning properly. The 2230/4430 Temperature Valve can be checked by allowing the fluid temperature to rise to the indicated tripping point where it should trip the primary control. The valve may also be tested in a highly agitated, accurately calibrated, temperature bath of water or water and glycol while still connected to the pressure control system. DO NOT use oil for calibrating temperature devices.

Model 2230/4430 is field repairable/adjustable. However, for this work, it is recommended that the unit be returned to the AMOT Service Department. In this way, the customer will be assured of receiving a properly operating valve.

SERVICE PARTS (Refer to CutAwayView)

REF. NO.	QTY. REQ.	DESCRIPTION	PART NO. FOR STANDARD FINISH
4	1	Washer	141
6	1	Valve Seat Assem. - Viton	2924X001
8	1	Valve Stem Seal - Viton	3555L001
13	1	Temperature Element	- std. 1981X (Temp) - plated 1981P (Temp)
14	1	"O" Ring - Viton	207L001
15	1	"O" Ring - For use on extensions only	207L001

This parts list effective with Valve Serial No. C 721.



AMOT USA
 401 First Street
 Richmond, CA 94801
 Tel: +1 510 236-8300
 Fax: +1 510 234-9950

AMOT
 Western Way
 Bury St. Edmunds IP33 3SZ
 Suffolk England
 Tel: +44 1284 762222
 Fax: +44 1284 760256

AMOT SINGAPORE
 10 Eunos Road 8 # 12-06
 Singapore Post Centre
 Singapore 408600
 Tel: +65 6293 4320
 Fax: +65 6293 3307