

ANNEX 4

THERMOSTATIC MIXING VALVES

1 General Requirements

This section outlines the conditions associated with the approval and use of Thermostatic Mixing Valves on board UK registered ships in accordance with Regulation 36 (1)(d) and 26(15)(c)(i), and these Instructions.

2 Information Required

2.1 Submissions requesting approval should be forwarded to a Nominated Body for type approval (see Merchant Shipping Notice No. M.1645). The submission should include:-

- 2.1.1 details of construction, including drawings;
 - 2.1.2 the materials used, including any relevant certification;
 - 2.1.3 the anticipated areas of use, including any constraints with regard to the type of water system in which the valve can be operated; and
 - 2.1.4 installation, operation and maintenance instructions.
- 2.2 A sample of the valve should be provided by the manufacturer.
- 2.2.1 the valve should be permanently marked with the name and model number;
 - 2.2.2 the off, hot and cold control positions should be marked;
 - 2.2.3 the inlets should be marked hot and cold, and
 - 2.2.4 all control knobs should be suitably marked to indicate their purpose.

3 Tests

3.1 All tests are to be undertaken at the manufacturer's works, to the satisfaction of the surveyor and in accordance with the following:

- 3.1.1 Three valves for tests are to be selected at random from the end of the production line store.
- 3.1.2 A suitable rig will be required to allow testing as indicated below.
- 3.1.3 Relevant records should be kept during tests for reference.

3.1.4 The temperature of the hot water should be between 71°C and 77°C and should be recorded during each test.

3.2 TEST 1

3.2.1 The water pressures should be:

HOT water - 2.76 bar (40 psi)
COLD water - 2.76 bar (40 psi)

3.2.2 With the valve in the fully open (i.e. "hot") position, the thermostat should be adjusted to give a shower water temperature of 40.5°C.

NO ADJUSTMENT SHOULD BE MADE TO THE THERMOSTAT FOR SUBSEQUENT TESTS ONCE THE THERMOSTAT HAS BEEN SET.

3.2.3 The flow of water in litres per minute should be recorded.

3.2.4 The valve should be turned to the "cold" position and the temperature of the water recorded. The valve should then be turned slowly from the "cold" position to the "hot" position, and the temperature should be recorded at each division of the scale. With the valve now fully open the cold water supply should be turned off and the shower water should cease to flow immediately.

3.2.5 With the valve in the "cold" position the control knob should be turned from "cold" to "hot" as quickly as possible. The temperature to which the shower water surges should be recorded together with the time in seconds that the temperature is in excess of 40.5°C. The final temperature of the shower water should be recorded before embarking on the next test.

NOTE: The maximum surge temperature should not exceed 50°C, and should last for not more than one second; the mixed water temperature should return to not more than 43°C within 4 seconds.

3.3 TEST 2

3.3.1 The water pressure should be:

HOT water - 1.38 bar (20 psi)
COLD water - 1.38 bar (20 psi)

3.3.2 Repeat the procedure described for test 1.

3.4 TEST 3

3.4.1 The water pressures should be:

HOT water - 2.76 bar (40 psi)
COLD water - 2.07 bar (30 psi)

3.4.2 Repeat the procedure described for test 1.

3.5 TEST 4

3.5.1 The water pressures should be:

HOT water - 2.76 bar (40 psi)
COLD water - 1.38 bar (20 psi)

3.5.2 Repeat the procedure described for test 1.

3.6 TEST 5

3.6.1 The water pressures should be:

HOT water - 2.07 bar (30 psi)
COLD water - 0.69 bar (10 psi)

3.6.2 Repeat the procedure described for test 1.

3.7 The reproducibility of results should be confirmed using different valves.