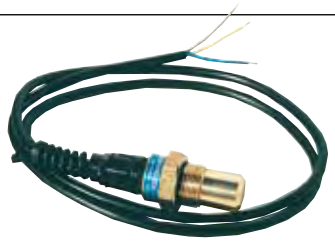
Heat Exchanger Accessories
TEMPERATURE CONTROL - SERIES 123W

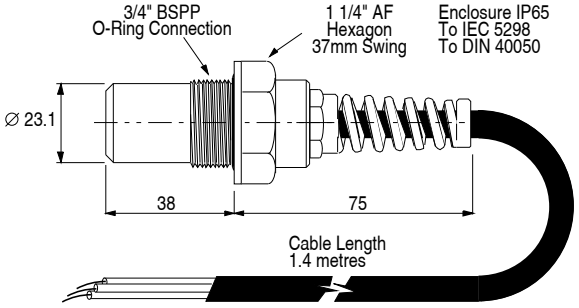
May be used directly to control small electric motors etc using SINGLE phase power supply to maximum of 6 amps. Also for low volt (12 or 24) DC power supplies to maximum of 6 amps, thereafter a relay is required. For THREE phase power supplies a kit including a junction box with suitable relay is available.

The thermoswitches use an Australian made reliable “snap” action bimetallic disk type switch which is sealed for life inside a brass bulb well. Switch contacts are normally open and gold plated to provide long service life when operated in range specified. Lead is 32-1 cable with earth wire grounded to red brass bulb. Bulb has male 3/4” BSPP thread with O ring and retaining ring. Made to order thermoswitches with normally closed and / or longer cable and / or other temperatures available on request.

Switches are fixed temperature (not adjustable).
Closing temperature is +/-2°C from close temp.
Switch reopens at 8 to 10°C below close temp.
Thermoswitch has enclosure rating IP66.
Pressure rated 17 Bar.

BASIC 123W SWITCH Order Code	Closing Temperature
17/12463WNO	**46°C**
17/12553WNO	**55°C**
17/12653WNO	**65°C**





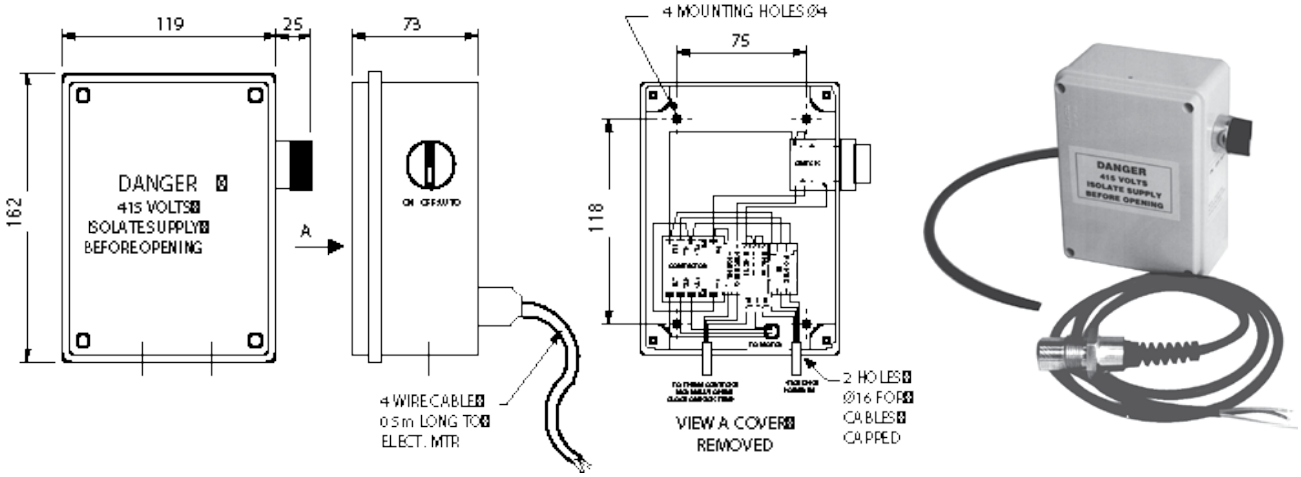
DYNACOOL AIR COOLED HEAT EXCHANGER
Auxiliary Port Details for thermostat mounting

Heat Exchanger Model	Auxiliary Port Size	Reducer Bush (RYCO)
VC4,5,6,7 & 8	3/4” BSPP	None Req
DC31 & DC32	1 1/4” BSPP	S102-2012
DC32S	3/4” BSPP	None Req
DC33 & DC35	3/4” BSPP	None Req

Heat Exchanger Accessories
3 PHASE THERMOSTATIC CONTROL

For three phase power supplies, the thermoswitches must be used in conjunction with a relay. The thermoswitches may be purchased with a junction box as a kit as listed below. The junction box has a relay and three position switch all preassembled for fast easy site installation by a certified electrician. A wiring diagram is provided on inside of junction box lid. Junction box enclosure rating is IP55. Use is limited to motors that take a maximum current of 6 Amps, from 3 phase 400/415 VAC 50/60Hz power supply. Contactor relay control coil is 240VAC, and current draw 125mA.

KIT with 123W SWITCH and JUNCTION BOX Order Code	Closing Temperature
17/JB/123W/46	**46°C**
17/JB/123W/55	**55°C**
17/JB/123W/65	**65°C**



ACCESSORIES

All dimensions in mm unless noted otherwise 0-50 are ± 1. 50-1500 are ± 3.

GENERAL DESCRIPTION

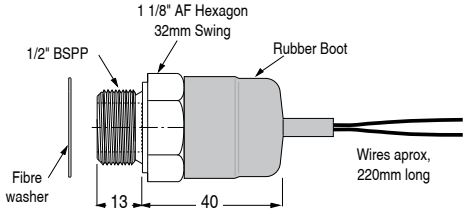
Used on 12 and 24 volt DC coolers. A self contained thermostatically controlled electric switch mounted in a steel bulb well for immersion in the hot process fluid. The bulb has a 1/2" BSPP external thread. The miniature differential switch is of the snap action type actuated at preset temperature by a bimetallic disk placed in close proximity to the end of the bulb well. The switch contacts are gold plated to ensure maximum capacity and long life. The switch is usually supplied with normally open contacts but is available to special order in normally closed configuration. A relay is required to prevent damage to switch contacts if current is more than 6 amps.

SPECIFICATIONS

DC Current. 12 & 24 Volts 6 Amps.
Temperature Range (Standard). Contacts close at 55°C
+/-2°C temperature and have a differential of 8 to 10°C.
Port Entry Nozzle Requirements. Thread 1/2" BSPP to ISO 228/1-1982 or equivalent. Flat machined sealing face required.
Pressure rating. 17 Bar (250 PSI).
Bulb Material. Zinc plated steel.
Rubber boot supplied

DYNACOOL HEAT EXCHANGER

Auxiliary Port Details for thermostat		
Model	Auxiliary Port Size	Reducer Bush (RYCO)
TM20, TM40	1/2" BSPP	None Req
VC2	1/2" BSPP	None Req
VC4,5,6,7 & 8	3/4" BSPP	S102-1208
DFM11, 12 & 22	3/4" BSPP	S102-1208
DC31Y, DC32Y	1 1/4" BSPP	S102-2012
DC32S	3/4" BSPP	S102-1208



Thermoswitch Only

Part Number	Description
17/DC55/WNO	1/2"BSPP Wet thermoswitch contacts close at 55°C
17/DC65/WNO	1/2"BSPP Wet thermoswitch contacts close at 65°C

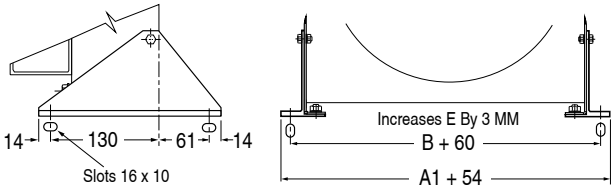
Relay Harness Kits

Part Number	Cooler Model	Description
039.8.06142	**VC2,4,5,6 & 7**	17/DC55/WNO switch, 24V relay and harness kit
039.8.06143	**VC2,4,5,6 & 7**	17/DC65/WNO switch, 24V relay and harness kit
039.8.06172	**VC2,4,5,6 & 7**	17/DC55/WNO switch, 12V relay and harness kit
039.8.06173	**VC2,4,5,6 & 7**	17/DC65/WNO switch, 12V relay and harness kit
039.8.06369	**VC8**	17/DC55/WNO switch, 24V relay and harness kit
039.8.06370	**VC8**	17/DC65/WNO switch, 24V relay and harness kit
039.8.06371	**VC8**	17/DC55/WNO switch, 12V relay and harness kit
039.8.06372	**VC8**	17/DC65/WNO switch, 12V relay and harness kit

Kits include a fuse, fuse holder, port adaptor, relay, wiring and fitting instructions.

MOBILE BASE KIT

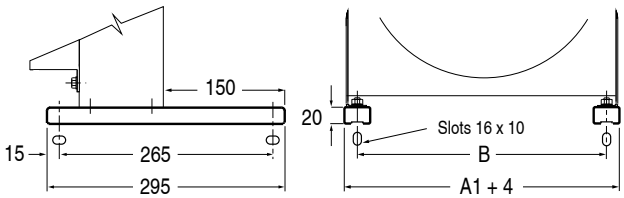
Weight 1.1kg



Ordering details
Model VC2 **Part No. 039.8.04590**
Models VC4 thru VC8 **Part No. 039.8.04563**

UNIVERSAL BASE KIT

Weight 0.76kg

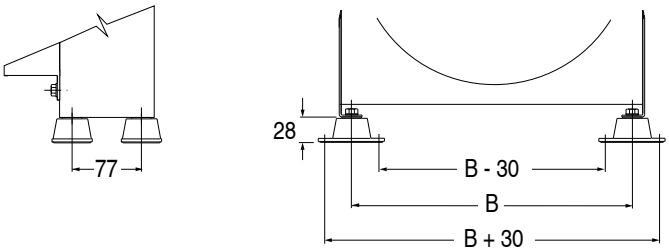


Ordering details
Models VC2 thru VC8 **Part No. 039.8.04465**

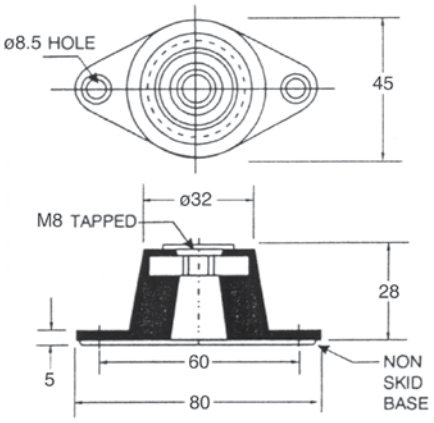
ANTIVIBRATION MOUNTINGS

Recommended for mounting of Versacool units in areas where they may be subjected to harmful vibration

These antivibration mounting feet are used to protect the cooler from harmful vibration and to reduce noise associated with vibration. The antivibration mounts can be used in conjunction with the universal base kit or mobile base kits.



Typical installation to basic cooler



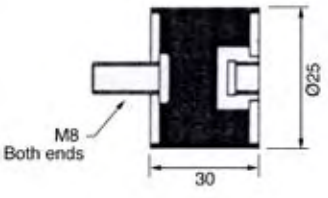
Ordering details
Set of 4 antivibration feet + mounting screws **Part No. 039.8.05528**

RETROFIT TYPE

These antivibration mounts can be retrofitted to existing cooler installations due to the mounts ‘inline’ construction. Recommended for mounting of Versacool units in areas where they may be subjected to harmful vibration

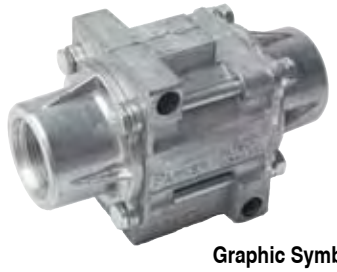
These antivibration mounting feet are used to protect the cooler from harmful vibration and to reduce noise associated with vibration.

Ordering details
Set of 4 retrofit feet + mounting screws **Part No. 039.8.05537**

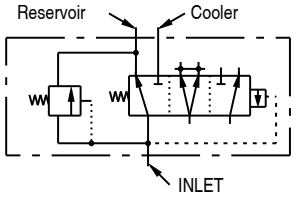


DYNACOOL HEAT EXCHANGER

Heat Exchanger Accessories
THERMAL BYPASS ASSEMBLY



Graphic Symbol



This thermal bypass valve is ideally suited for hydrostatic drive circuits which require fast warm-up, controlled fluid temperature, and low return line back pressure. When installed in the return line of a hydraulic circuit that employs an oil cooler, this device will modulate fluid temperature by either shifting return line flow through the cooler, or bypassing directly to the reservoir. In addition, a built-in pressure relief function automatically relieves excess pressure to the reservoir should the cooler become restricted and resultant pressure drop become too high for the cooler circuit.

FEATURES:

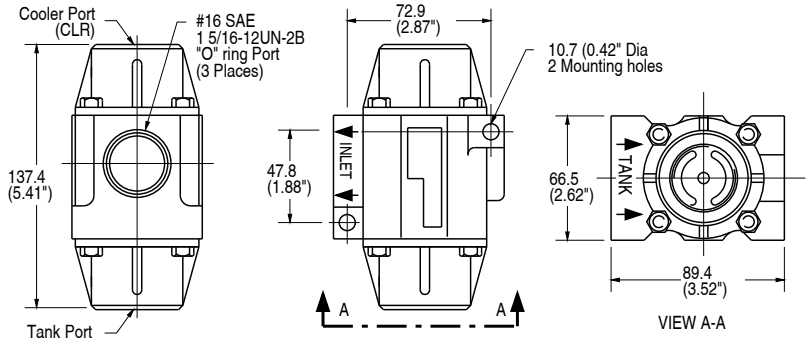
1. Operating Characteristics:
- A. Mode #1: At temperatures below the shift temperature oil flows from inlet to tank port.
- B. Mode #2: At temperatures between the start of shift & full shift the flow from the inlet port is divided between the cooler & tank ports.
- C. Mode #3: At temperatures above the full shift temperature inlet flow is through cooler port.
- D. Mode #4: At temperatures above the full shift temperature the excess pressure is relieved through the tank port.

2. Standard Shift Temperatures: 100°F(38°C). 120°F (49°C) 140°F (60°C) and 160°F (71 °C)
3. Full Shift (Cooler Port Open) Temperature: Shift temp plus 25°F (14°C)
4. Relief valve setting: 65 psi (4.5 bar). Consult factory for other settings.
5. Maximum Operating Pressure: 250 psi (17 bar)
6. Proof Pressure: 300 psi (21 bar)
7. Minimum Burst Pressure:
- A. Up to the full shift temperature: 325 psi (22 bar)
- B. Above the full shift temperature: 600 psi (41 bar)

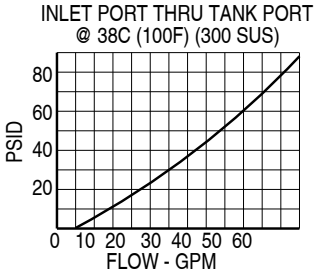
8. Minimum Operating Temperature: -30°F (-34°C)
9. Maximum Operating Temperature: Shift temperature plus 75°F (42°C)
10. Maximum Flow Rating: 60 gpm (227 l/m)
11. Leakage @ 250 psi (17 Bar) and 60 gpm (227 l/min) Inlet Flow:
- A. Cooler Port:
  1. 0.5 gpm (2 l/m) maximum up to 5°F (3°C) before shift temp.
  2. 1.0 gpm (4 l/m) maximum from 5°F (3°C) before shift to shift.
- B. Tank Port: 0.10 gpm (0.4 l/m) maximum

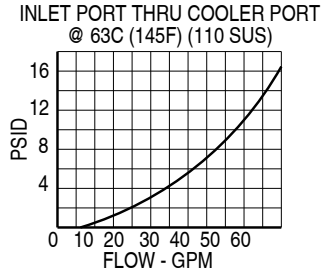
12. Operating Fluid: Mineral base hydraulic fluids
13. Construction: Aluminium die-cast housing.

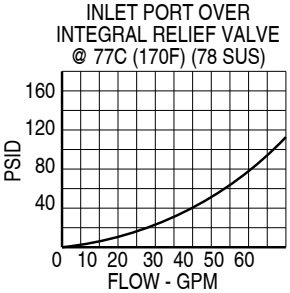
DIMENSIONS - Thermal Bypass



PRESSURE DROP

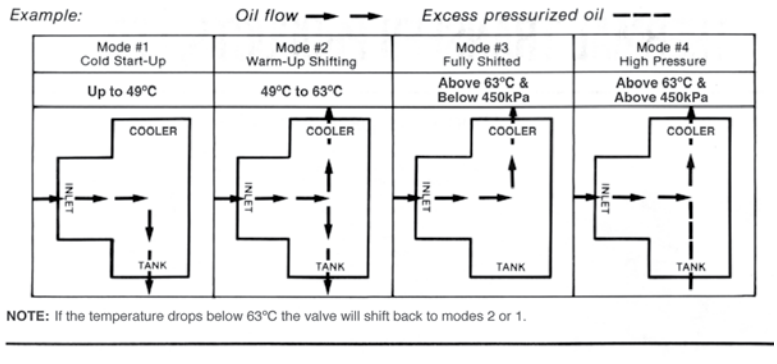






Based on Mobile DTE 26 oil
Note: Pressure drop shown is added to relief valve crack pressure for total pressure drop.

MODE EXAMPLES



NOTE: If the temperature drops below 63°C the valve will shift back to modes 2 or 1.

Pressure Drop (Mobile DTE 26 Oil)

ORDERING INFORMATION

Part No	Shift temperature	Part No	Shift temperature
65/65654	38°C (100°F)	**65/65656**	60°C (140°F)
65/65655	49°C (120°F)	**65/65657**	71°C (160°F)

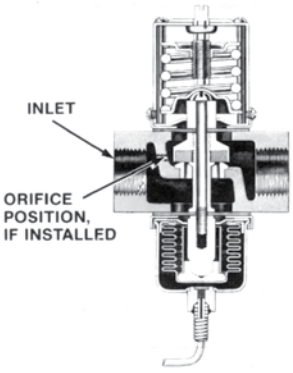
All dimensions in mm unless noted otherwise 0-50 are ± 1. 50-1500 are ± 3.

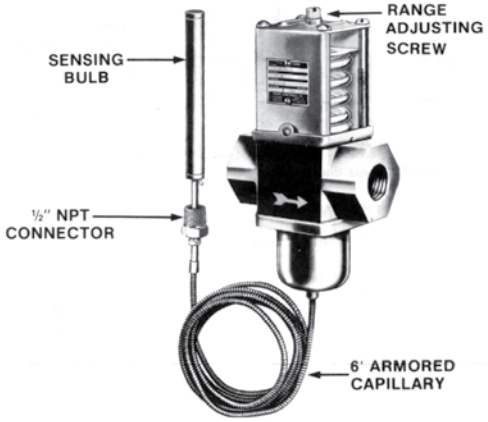
ACCESSORIES

- No external power source required.
- Opening point setting is simply adjusted by rotating screw on top of valve housing.
- Turning the valve clockwise will decrease the opening temperature.
- Turning the shaft counter clockwise will increase the opening temperature.
- Valves must be adjusted correctly after installation and whilst equipment is operating under normal conditions. Factory does not preset these valves.
- Opening point is adjustable within standard range shown, other ranges also available.
- Closing point is 2-3 degrees below opening point. Differential temp is not adjustable.
- Maximum recommended working pressure is 150 PSI (10 BAR).
- Not suitable for use in saltwater service.
- Bulb well recommended & available upon request as optional extra.

APPLICATION: These water modulating valves regulate the flow of water to the heat exchanger.
The valve opens when the temperature increases at the sensing bulb.
Cooling rate is automatically varied to allow optimum oil temperature to be maintained.
Water is conserved by reducing / stopping flow when minimal or no cooling is required

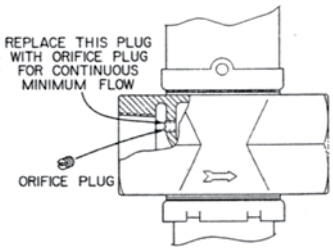
SPECIFICATIONS





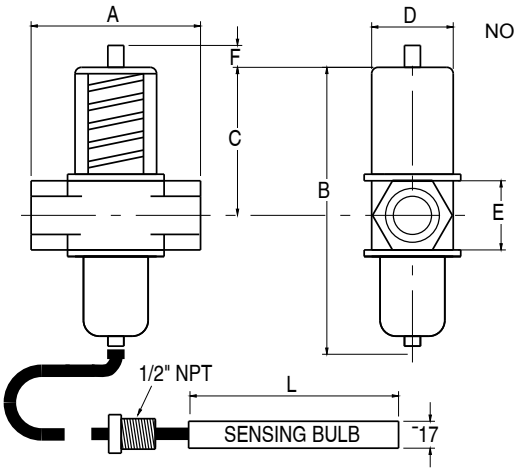
Part Number includes Valve & Sensor	Pipe size# (NPT)	Opening point temp. range* Min-Max (°C)	Max. temp. limit (°C)	Flow Max. (L/m)	Bulb size L x dia (mm)	Weight approx. (Kg)	Sensing Bulb Number
65/65293	1/2"	46 - 71	93	95	83x17.5	2.0	65/65293S
65/65127	3/4"	46 - 71	93	150	83x17.5	2.7	65/65293S
65/65128	1"	46 - 71	93	200	153x17.5	4.6	65/65128S
65/65146	1 1/4"	46 - 71	93	280	153x17.5	5.5	65/65128S

Recommended bulb well part number is 65/65141 for all above valves.
A slightly shorter length pocket is available for the 83mm long bulbs, part number is 65/65140.
Factory recommends the longer bulb well to provide additional protection.
See form DC 107 for larger size valves.
* Lower opening point range available if necessary (24 - 57 deg C). Valve is fully open 20°C above opening point.



ORIFICE PLUG.
All valves are supplied with a drilled & tapped female by-pass hole inside the regulator body. A solid plug is installed in this hole for 100% shut off. Each valve is also supplied with a drilled orifice plug, packed in a envelope for field installation, if continuous minimum flow is required. The 1/2" & 3/4" valves use a plug with a 1.6mm orifice diameter, the 1' & 1 1/4" valves have a plug with a 2.4mm diameter.

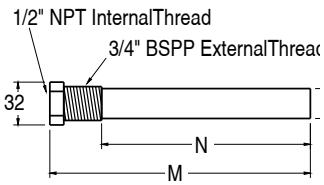
Heat Exchanger Accessories
MODULATING WATER VALVES AND BULB WELLS



NOT TO SCALE

Armoured capillary tube is 1.83 meters long with outside diameter of 6mm

BULB WELL



MATERIALS of CONSTRUCTION.

VALVE - Body .....3/8", 1/2" and 3/4" - Cast Brass
1" through 2 1/2" - Cast Iron
Valve disk.....Buna N
Disk holder.....Brass
Valve seat .....Aluminium Bronze
Diaphragms .....Nylon Reinforced Buna N
CAPILLARY TUBE .....Copper in Brass sheath
SENSING BULB.....Copper
BULB WELL .....Brass or brass & copper

VALVE Part No.	PORTS NPT	A	B	C	D	E	F	L	**BULB WELL** Part No	**M**	N
65/65293	1/2"	83	178	86	47	38	10	83	**65/65141**	185	160
65/65127	3/4"	90	189	96	52	44	10	83	**65/65140**	115	88-90
65/65128	1"	123	259	139	67	51	13	15	Approx. weight 0.5kgs		
65/65146	1 1/4"	124	269	119	67	60	13	152			

All dimensions in millimetres. Tolerance +/- 0.5 mm

Heat Exchanger Accessories
THREE - WAY THERMOSTATIC VALVE

- Flows up to 490 L/min
- Standard Ports 2" NPT (Opt. 1/2", 3/4", 1" & 1 1/2")
- Flanged Ports Optional 3", 4" & 6"
- Opening Temp range from 21° to 102° C.
- Max. Operating Pressure of 8 Bar (115 PSI).

General Description Three way thermostatic valves use the principle of expanding wax. A self contained power element activates a stainless steel sliding valve which provides a positive three way action. All temperature settings are factory set. Elements are field replaceable, hence valves can be altered to operate at a different temperature range or refitted with new elements of the same setting.
During cold start up, total flow is through the by-pass port. Once the fluid temperature reaches the opening point, the valve begins to open and flow to the heat exchanger supply port begins. As the temperature rises the valve shifts further allowing more flow through the heat exchanger supply port and less to the by-pass port. When the fully shifted temperature is reached the valve is fully stroked and all flow is directed to the heat exchanger port.
Valves can be used for oil or fresh water service
Housing - Cast Iron (optional steel or bronze)
O-Rings - Viton (optional, Buna N)
Valve - Alloy steel.
Applications Three way thermostatic valves may be installed for either "mixing" or "diverting" modes of operation and can be mounted in any plane and with port orientated in any direction.
When installing in mixing mode, the valve must be located on the cold side of the application. Hot liquid will be mixed with cooled fluid to discharge liquid at proper temperature. Select a valve with opening point at, or just above, the minimum desired oil operating temperature.
For diverting mode, the valve must be installed on the hot side of the application. Cold liquid will be bypassed until the system warms up, then flow is directed to the heat exchanger. Select a valve with full shift point at, or just below, the maximum desired oil operating temperature.

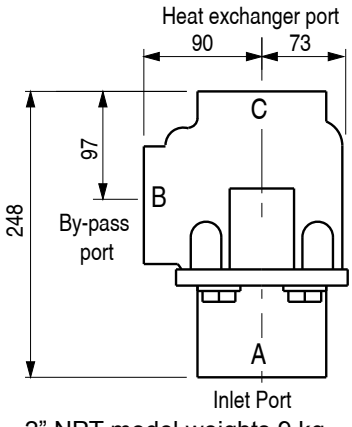
THREE - WAY ORDERING CODES
65/ 66041 / 43/54

Code	Part Type
66041	Complete valve
67818	Element only

Code	Opening Point °C	Fully Shifted °C
21/24	21	24
29/41	29	41
38/47	38	47
43/54*	43	54
51/60	51	60
57/66*	57	66
63/71	63	71
66/74	66	74
68/78	68	78
71/79	71	79
74/82	74	82
79/88*	79	88
87/98	87	98
93/102	93	102

*** Common stocked settings**

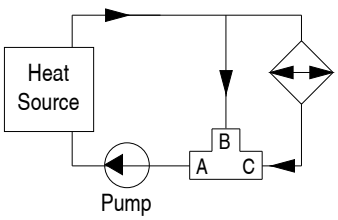
2" NPT All ports female thread.
Warning: 0.5 Bar (7 PSI) ΔP across valve Ports



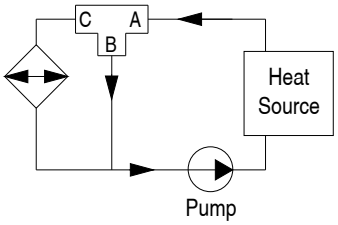
2" NPT model weights 9 kg

PRESSURE DROP TABLE (Bar)

Flow	Oil Viscosity (cSt)				
L/min	255	180	115	85	water
190	0.12	0.12	0.10	0.08	0.07
285	0.24	0.21	0.17	0.15	0.13
380	0.42	0.38	0.33	0.30	0.26
475	-	-	-	-	0.44
max. flow (l/min)	405	425	445	465	490



MIXING Applications



DIVERTING Applications