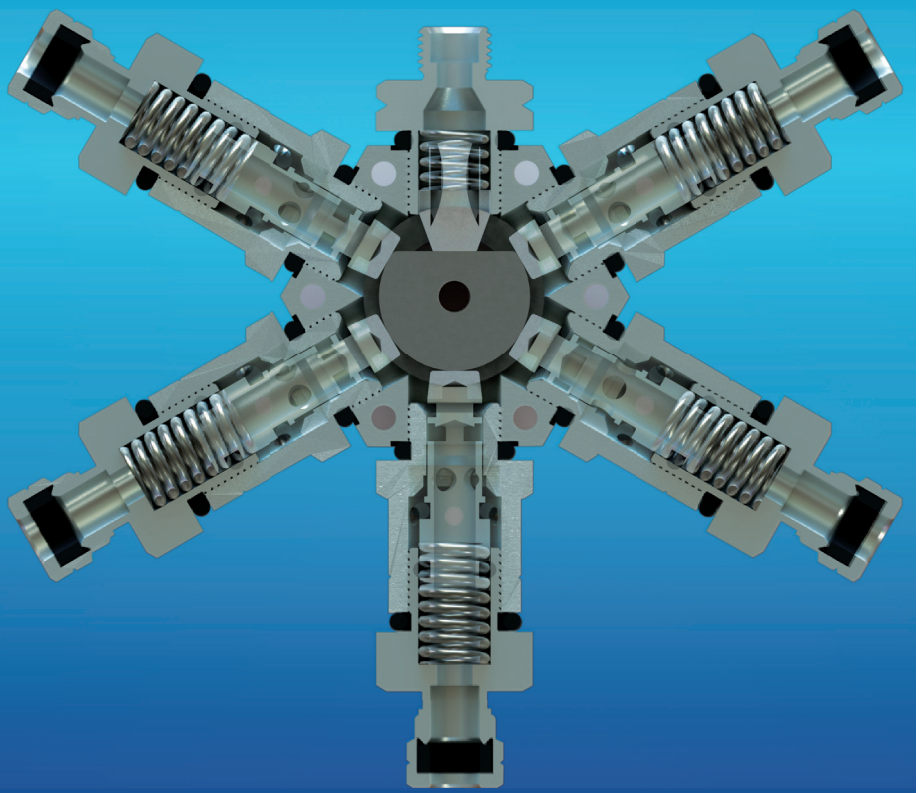
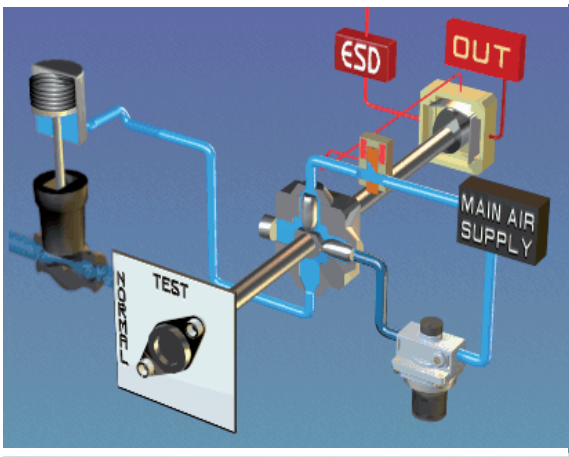
DRALLIM INDUSTRIAL

Leading Innovators in Technology and Quality

# Industrial

## Rotary Selector Valve Brochure






*Industrial*

*Applications*
*Circuit planning*
*Valve Selection*
*Valve Configuration*
*Installation Details*

# Introduction

The late Angus Millard formed Drallim Industries Ltd in 1958: the company name derived by reversing MILLARD to DRALLIM.

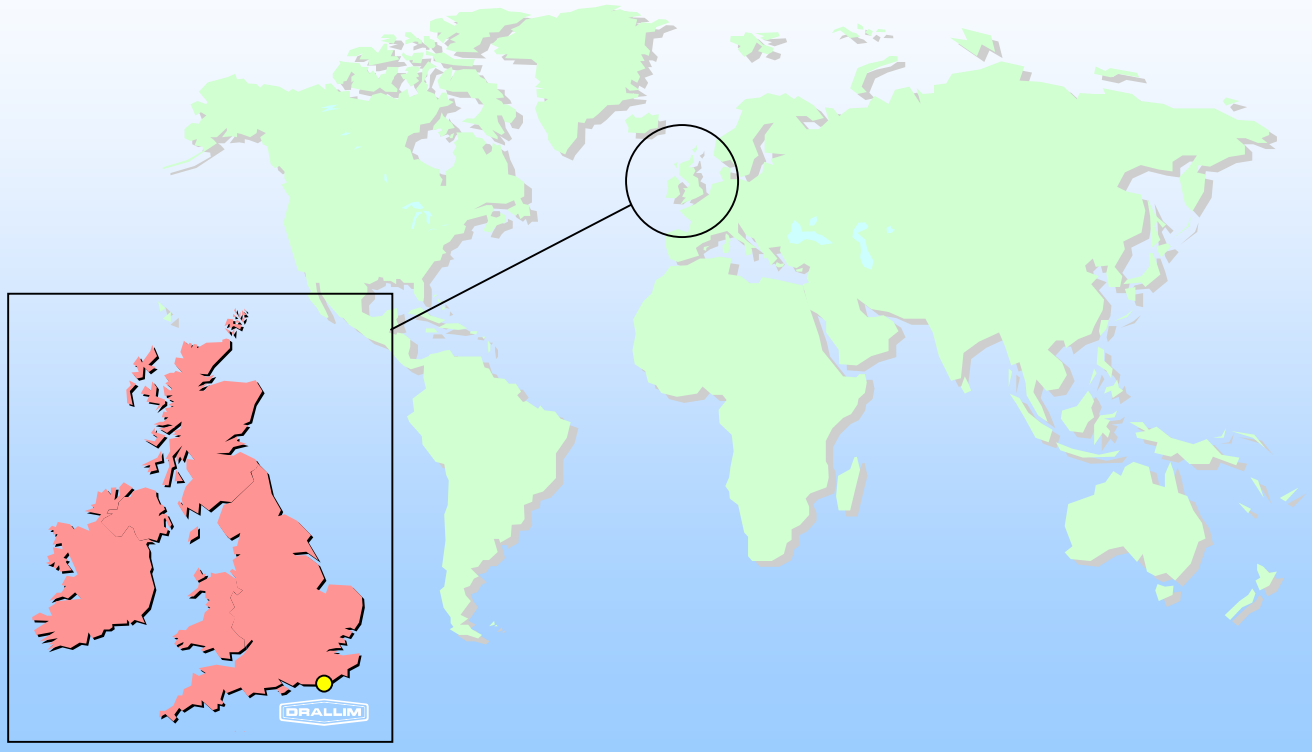
Angus Millard, a brilliant conceptual engineer designed the Rotary Selector Valve to fulfil the needs of complex switching sequences used in aircraft instrument testing in the process, previously known as the PIV (Pneumatic Interlok Valve) it is now been re-established as the RSV.

RSVs were first made in our factory at Whyteleafe just south of London, then, to allow for expansion, the company moved to its Bexhill site in 1968. Once again outgrowing its premises Drallim moved to its current purpose built headquarters in December 2003.

Ideally located in the south of England, close to London and its international airports, Heathrow and Gatwick, the company now has the added advantage of being just 35 miles from the Channel Tunnel linking the U.K. with mainland Europe.

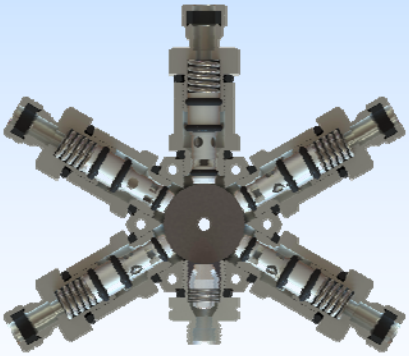
Today Drallim Industries disciplines cover telecommunications, military, electronics and software. The Drallim Controls Division has well established itself as an international supplier of pneumatic based products, amongst which we are proud to include companies such as Shell and BP to name only two of the international giants using our products.

Now better known for critical duty products in emergency shutdown valve testing, wellhead control, fire damping, deluge systems, pump control etc, the name Drallim is synonymous with quality products that will enhance the safety of the chemical/petrochemical industries worldwide.



# The Rotary Selector Valve

## (Formally called the Pneumatic Interlok Valve)

**A Fluid Control Valve Suitable For Air/Gases/Vapours and other Liquids, Pressure range –1 +10 Bar, Fluid Temperature 85°C (185°F) Available in Brass and St/Stl, with Fluoro-Elastomer Seals and PTFE or ACETAL Resin Stems, depending on the nature of the fluid or gas being used.**

## Some Typical Applications of the RSV:

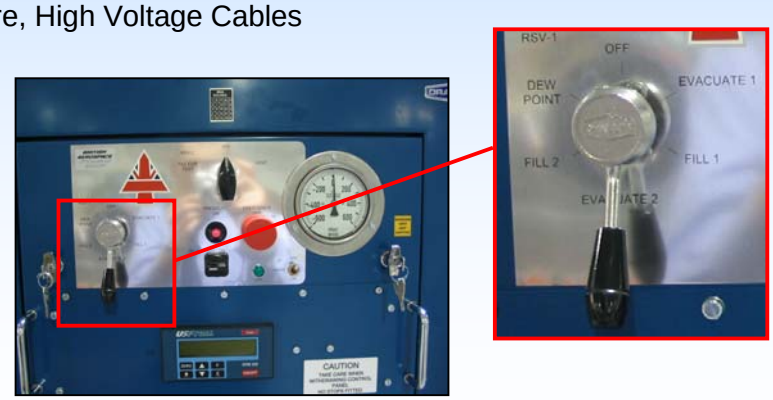
- Propeller pitch controls
- Fuel changeover systems
- Energy conservation control systems
- Tank gauging
- Water fountain display control
- Cylinder control and bypass and test circuits
- Emergency stop systems for trains


## Use within the Process Industry

- Partial Stroke Testing (Drallim LMT or Limited Movement Testing)
- Water treatment/polishing plant for nuclear power generation
- Pneumatic actuator override panels
- Bypass systems for isolation & diversion of flows
- Used for flow diversion within pressurised cable systems

## Fuel systems:

- Military Vehicles. Example: Tank Ventilation Systems
- Aerospace - Ground Test Equipment for Altimeters and Airspeed Indicators
- Hydraulic Isolation - Low Pressure, High Voltage Cables
- Gas Analysis Test Sets
- Purge & Leak Test Set
- Boats/Submarines
- NASA - White Sands Test facility



Purge & Leak Test Set

## Benefits of the RSV over the Multi-Port Ball Valve:

- Eliminates Cross Port Leakage
- Each Port Seals Individually
- Lower Cost Than Multi-Port Ball Valves
- Electrical Switching Options
- Caters for very complex configurations

### The Rotary Selector Valve Range


Typical Multi-Port Ball Valve


Series 60

Series 40


Series 70


Series 95

## Inside The RSV
## Series 40 & 70 Valves (fig 1)

Each face of the body (1) is threaded to receive a removable port (2) incorporating also the tubing connector, available in various types and sizes. Valve action is obtained by movement of a spring-loaded stem (3) grooved near its outer end for an o-ring (4) which docks with a conical seating in the connector body. Movement is caused by rotation of the operating spindle (5) which, being milled with one to three flats, acts as a cam on the stems, opening and closing ports as it turns.

In this example, Port 1 (top), being required inoperative, is fitted with a blanking plug (6), which nevertheless contains a truncated stem and spring to prevent an unbalanced lateral thrust on the spindle. Port 2 (right) has its stem on the full diameter of the spindle and is therefore closed until a flat arrives at that position. Port 3 is required to be permanently open (inlet or outlet) and therefore has a truncated stem (7) similar to that in Port 1. Port 4 is fully open since its stem is on the spindle flat, and will also be open in the next clockwise position owing to the adjacent flats.

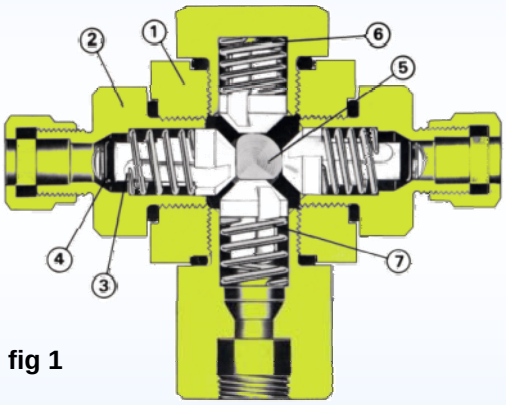
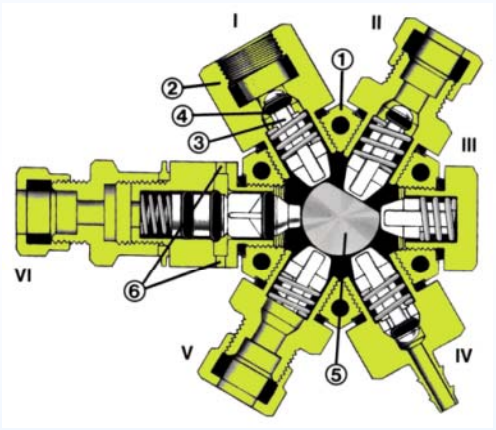



fig 1



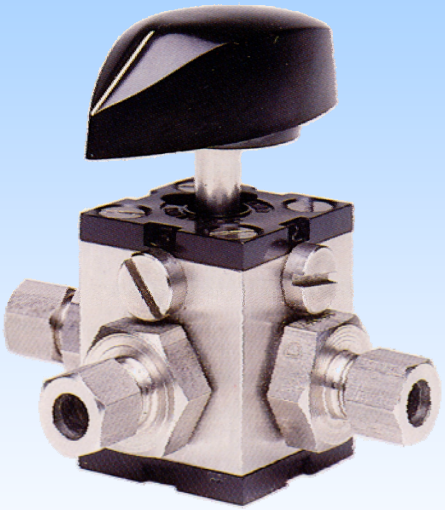

## Series 60 Valves (fig 2)

Each face of the body (1) is threaded to receive a removable port (2) incorporating also the tubing connector, available in various types and sizes. Valve action is obtained by movement of a spring-loaded stem (3) grooved near its outer end for an o-ring (4) which docks with a conical seating in the connector body. Movement is caused by rotation of the operating spindle (5) which, being milled with one to five flats, acts as a cam on the stems, opening and closing ports as it turns.

I Operative (in closed position).
II Operative (in open position).
III Permanently closed.
IV Operative (in closed position).
V Permanently open.
VI Venting connector – allows trapped air in line or cylinder to escape to atmosphere through drillings (6) in the body as soon as the stem closes onto the supply.

As shown, air would be entering Port V (permanently open) and leaving through Port II, the stem of which is on the only flat on this particular spindle. All other ports are closed, temporarily or permanently(III). Note that when the spindle flat reaches Port V the valve is completely ‘off’. For although this port is open, there is no exit.

# Series 40



## Positive Positioning

*Positive Positioning comes from an indexing mechanism allowing the operator to have genuine feel of the valves various positions, eliminating the possibility of the valve being left in mid position.*

## Flexibility

*Flexibility comes from the fact that each valve can have its own unique inner spindle, so with multibank valves each bank can have its own configuration.*

## Security

*Should it be required, security is provided by keylocking the valve. Heavy-duty stainless steel versions are available for harsh environments.*

## Electrical Interface

*Electrical Interface is provided from a rotary electrical switch directly coupled to the spindle and mounted on the base of the valve.*

## Series 40 Ordering Chart

**Weatherproof Enclosure**
(for electric switch only)
Yes W
No **No code required**

**Electric Switch Code**
See Electric Switch Page

**No. of Positions**
2,3,4
(No code required if unrestricted)

**Mounting**
Panel (No code required)
Base Mounting Plate 1

**Connections**
1/4" BSP Female F2
1/4" NPT Female F6

**Operators**
Knob A
Lever D
Key Lock T Type F

**Port Code**

**No. of Banks**
1 **to** 8

**Class** (See Below)

**Class B:**
Brass Body
Stainless Steel Spindle
Acetal Resin Stems
Fluoro Elastomer Seals

**Class C:**
Brass Body
Stainless Steel Spindle
PTFE Stems
Fluoro Elastomer Seals

**Class D:**
Stainless Steel Body
Stainless Steel Spindle
Acetal Resin Stems
Fluoro Elastomer Seals

**Class E:**
Stainless Steel Body
Stainless Steel Spindle
PTFE Stems
Fluoro Elastomer Seals

**EXAMPLE** **B 1 02 A F6 1**

***Please note that venting connectors cannot be fitted to valves in class C and E***

# Series 40 Port Coding

**With a choice of operative, permanently open and permanently closed ports in any of the four positions, plus a spindle with one flat, two adjacent, two opposite, or three flats, the number of permutations in just one bank is clearly enormous.**

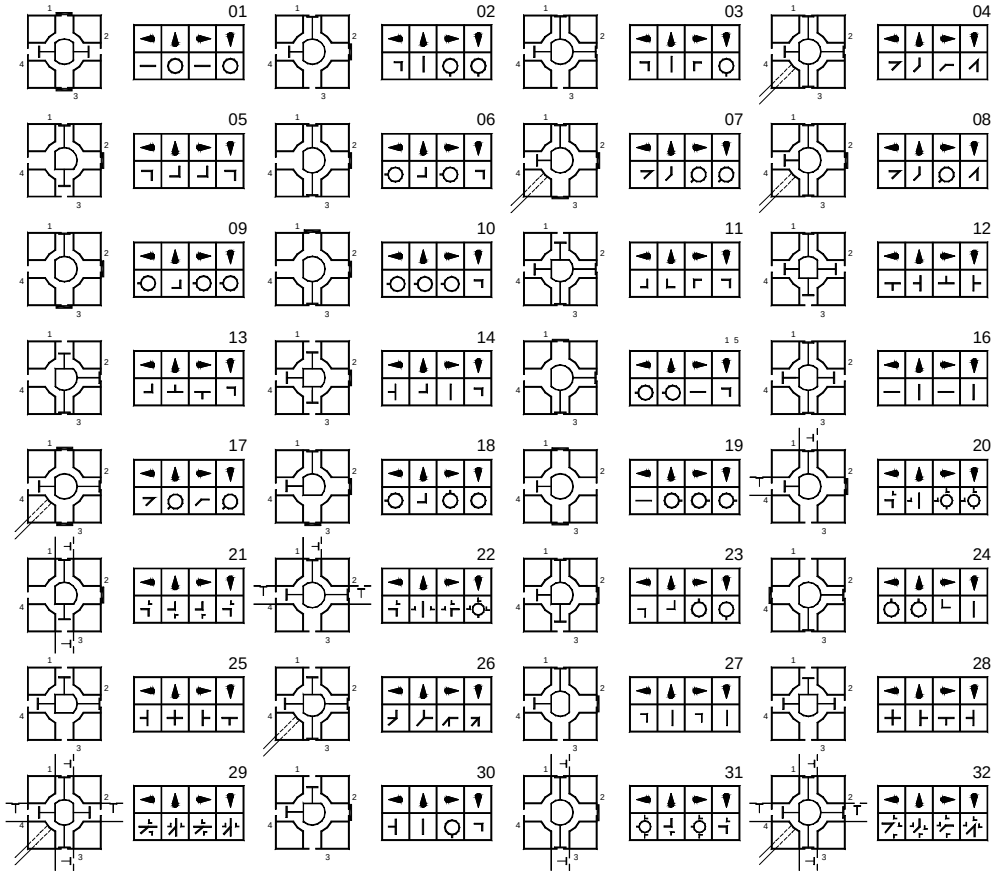
In practice however the great majority of requirements are to be found from amongst the 32 bank configurations shown and coded below.

These show not only a cross-section through the banks in a highly simplified form but, alongside, a representation of how the flow paths change as the knob is turned.

Permanently open and permanently closed ports are quite obvious, the way of showing the permanently-open base connection first appears in Code 04, and the venting connector in Code 20. Although the banks are sealed internally from one another, there is nothing to prevent an external connection between any two banks by tubing.

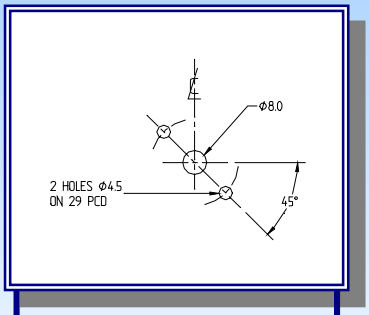
In ordering multibank valves the bank nearest the handle is coded first, and banks calling for a base connection can be used only in the last or lowermost position. A base-mounted electrical rotary switch precludes this option. Banks can be assembled together in any orientation required, but unless requested multibank RSVs will be supplied with all banks orientated as shown below.

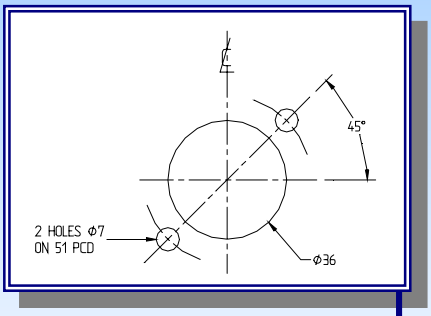
SERIES 40 PORT CODINGS



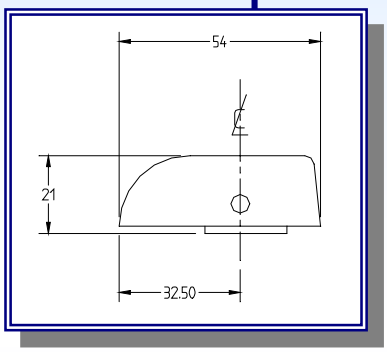
# Series 40 Installation

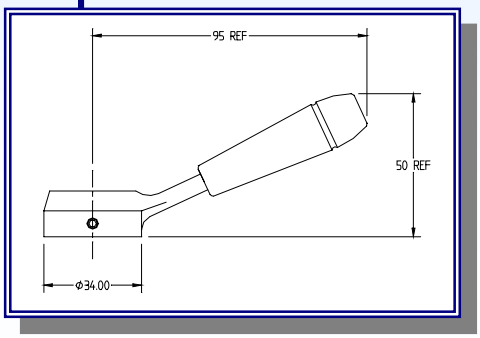
## Panel Mounting Detail

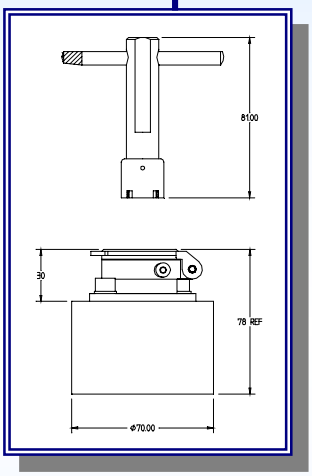


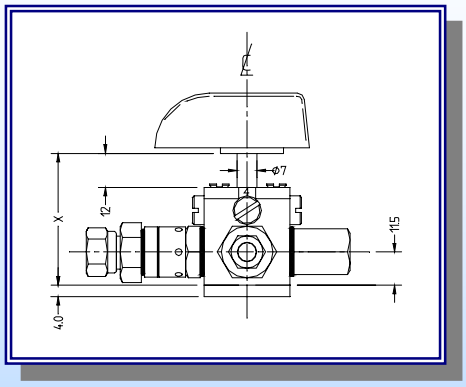

## Handle Options



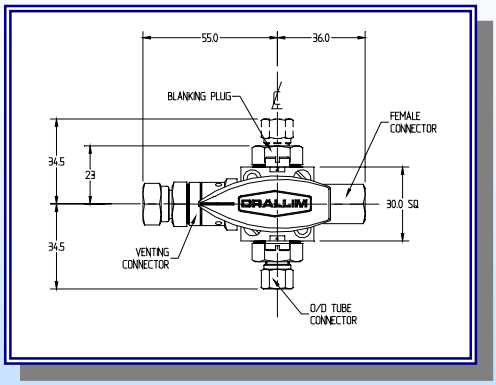




## Body Dimensions

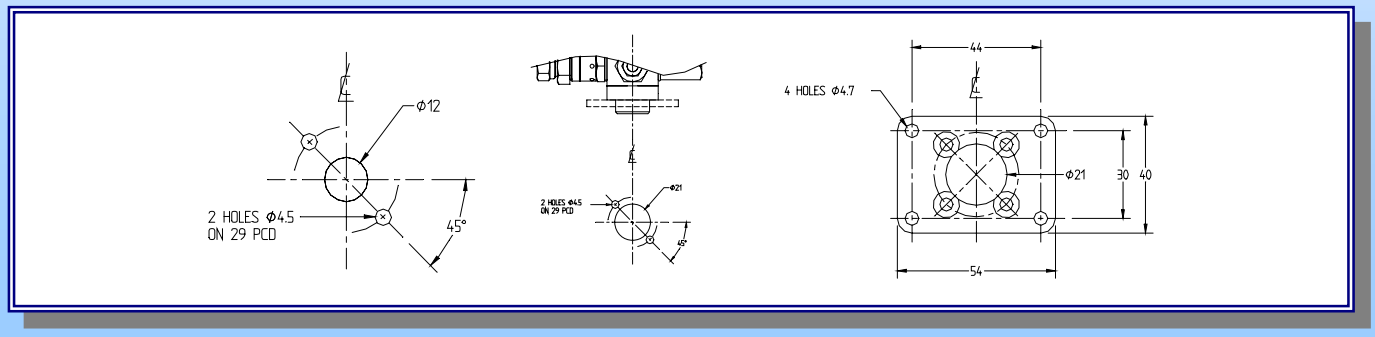



| No Of Banks | Dimension X |
|---|---|
| 1 | 46 |
| 2 | 76 |
| 3 | 106 |
| 4 | 136 |
| 5 | 166 |
| 6 | 196 |

All Dimensions In mm

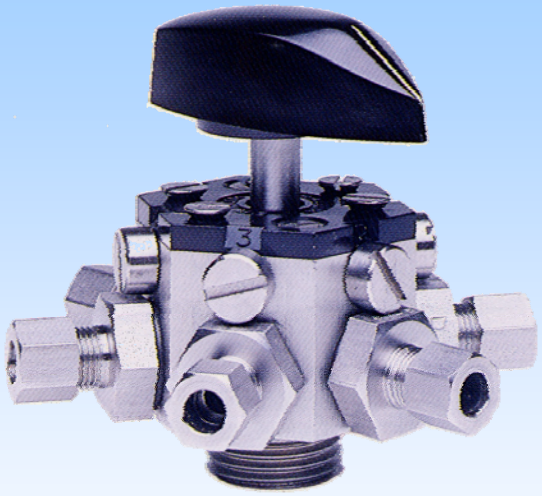



## Base Mounting Detail



# Notes

# Series 60



## Proven Design

*Series 60 Valves encompass the same proven design of the Series 40 Valve but offer far greater permutations.*

## Versatility

*With the choice of operative, permanently open and permanently closed ports in any of the six positions, plus a spindle with 1 to 5 flats the number of permutations in just one bank is clearly enormous.*

## Applications

*Series 60 Valves cover many applications including multi-tank gauging systems, compressor unloader systems and all wheel drive selection on military vehicles.*

## Environmental Details

***Fluids*** *Air and other gases, vapours and liquids compatible with the materials of construction.*

***Pressure Range*** *-1 to +10 bar*

***Fluid Temperature*** *85°C (185°F)*

## Series 60 Ordering Chart

**Weatherproof Enclosure**
(for electric switch only)
Yes W
No **No code required**

Electric Switch Code
See Electric Switch Page

**No. of Positions**
2,3,4,5,6
(No code required if unrestricted)

**Mounting**
Panel mounting only
(No code required)

**Connections**
1/4" BSP Female F2
1/4" NPT Female F6

**Operators**
Knob A
Lever D

**Port Code**

**No. of Banks**
1 **to** 6

**Class** (See Below)

**Class V:**
Brass Body
Stainless Steel Spindle
Acetal Resin Stems
Fluoro Elastomer Seals

**Class W:**
Brass Body
Stainless Steel Spindle
PTFE Stems
Fluoro Elastomer Seals

**Class X:**
Stainless Steel Body
Stainless Steel Spindle
Acetal Resin Stems
Fluoro Elastomer Seals

**Class Y:**
Stainless Steel Body
Stainless Steel Spindle
PTFE Stems
Fluoro Elastomer Seals

**EXAMPLE** **V 1 50 C F2**

*Please note that venting connectors cannot be fitted to valves in class W and Y*

# Series 60 Port Coding

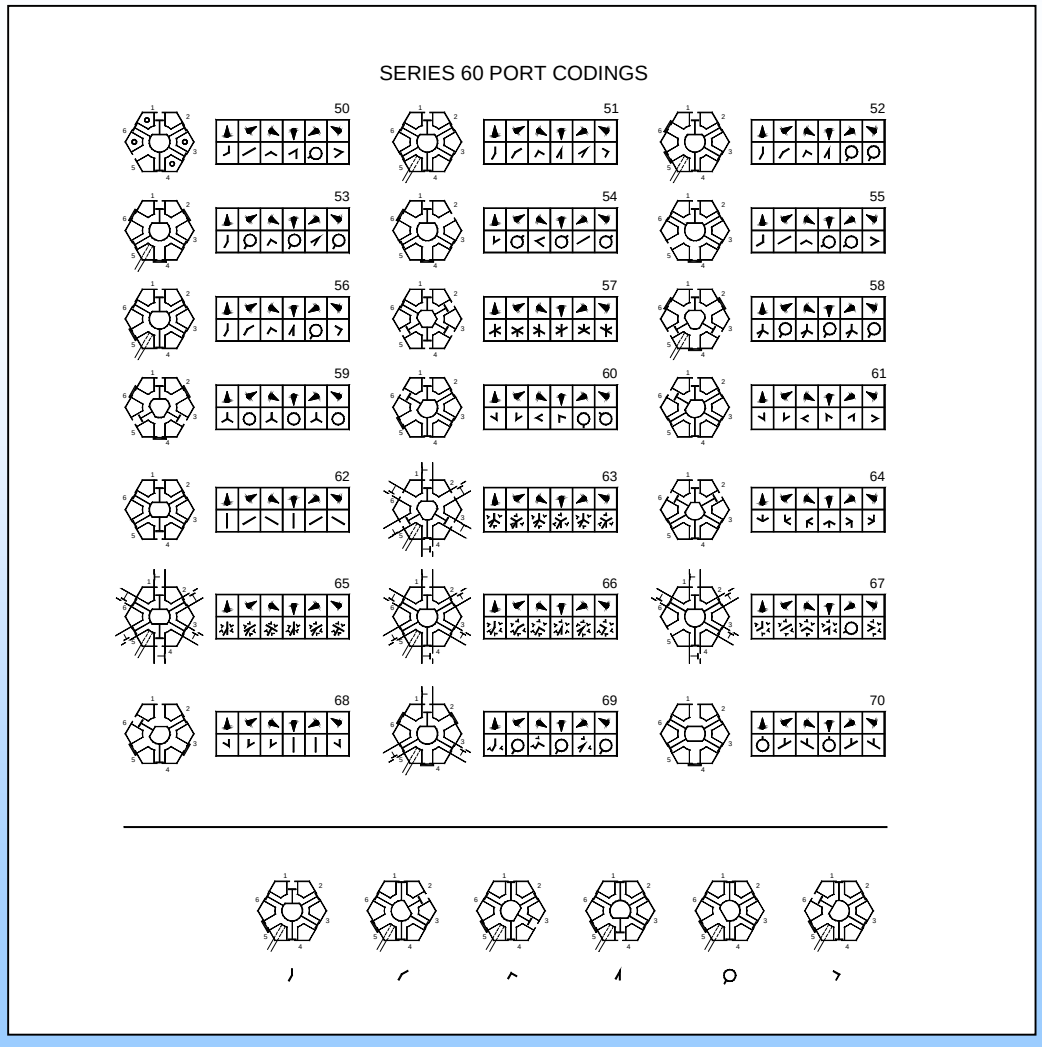
***With a choice of operative, permanently open and permanently closed ports in any of the six positions, plus a spindle with from 1 to 5 flats the number of permutations in just one bank is clearly enormous.***

*In practice however the great majority of requirements are to be found from amongst the 21 bank configurations shown and coded below.*

*These show not only a cross-section through the banks in a highly simplified form but, alongside, a representation of how the flow paths change as the knob is turned.*

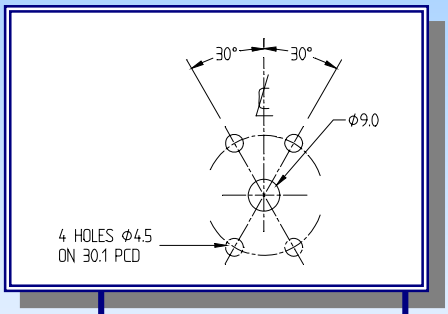
*Permanently open and permanently closed ports are quite obvious, the way of showing the permanently-open base connection first appears in Code 51, and the venting connector in Code 63. Although the banks are sealed internally from one another, there is nothing to prevent an external connection between any two banks by tubing.*

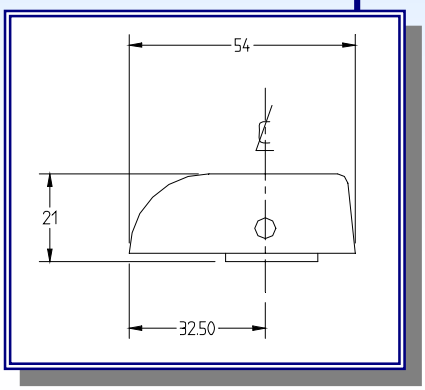
*In ordering multibank valves the bank nearest the handle is coded first, and banks calling for a base connection can be used only in the last or lowermost position. A base-mounted electrical rotary switch precludes this option. Banks can be assembled together in any orientation required, but unless requested multibank PIVs will be supplied with all banks orientated as shown below.*



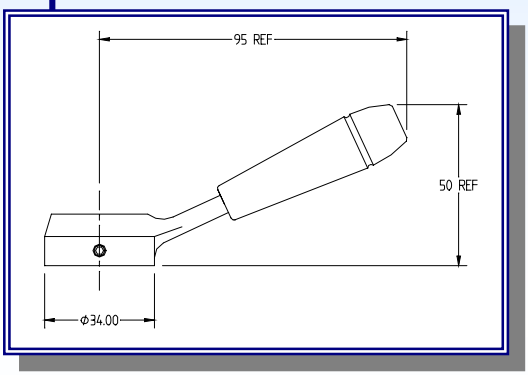
# Series 60 Installation

## Panel Mounting Detail

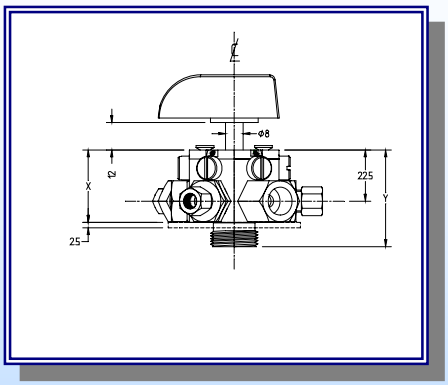



## Handle Options



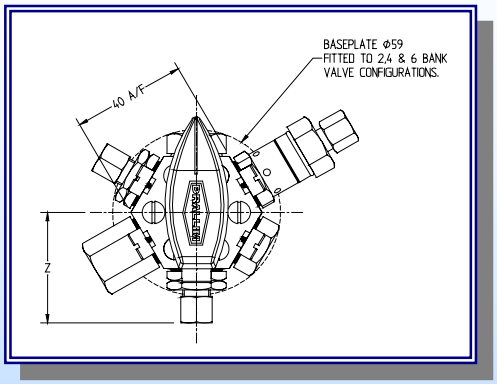

## Body Dimensions



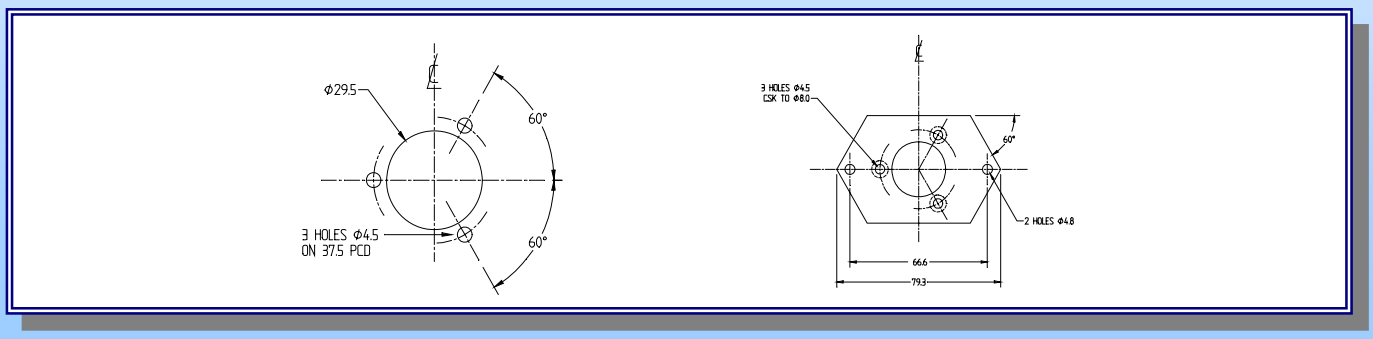

| No Of Banks | Dim X | Dim Y |
|---|---|---|
| 1 | 32 | 42.5 |
| 2 | 60 | 75 |
| 3 | 85.5 | 96 |
| 4 | 113.5 | 128.5 |
| 5 | 139 | 150 |
| 6 | 167 | 182 |

| Connector Type | Dim Z |
|---|---|
| Blanking Plug | 28 |
| Venting | 60 |
| O/D Tube | 39.5 |
| Female Threaded | 41 |

All Dimensions In mm




## Base Mounting Detail



# *Notes*

# Series 70

## High Flow Capacity

*Series 70 Valves offer a higher flow capacity than their sister products, 40 & 60 Series.*

## Flexibility

*Flexibility is once more a major feature of our product design. Many spindle combinations and valve arrangements can be accommodated including base entry types.*

## Versatility

*Used in a wide variety of applications this robust product is particularly useful in emergency shut down applications where the valve is used as a kill switch on isolated offshore platforms.*

## Permutations

*With the choice of operative, permanently open and permanently closed ports in any of the four positions, plus a spindle with one flat, two adjacent, two opposite, or three flats, the number of permutations in just one bank is clearly enormous.*

## Series 70 Ordering Chart

**Weatherproof Enclosure**
(for electric switch only)
Yes W
No **No code required**

**Electric Switch Code**
See Electric Switch Page

**No. of Positions**
2,3,4
(No code required if unrestricted)

**Mounting**
Panel (No code required)
Base Mounting Plate 1

**Connections**
3/8" NPT Female F7
1/2" NPT Female F8 SS only

**Operators**
Lever D
Key Lock T Type F

**Port Code**

**No. of Banks**
(2 Banks Maximum) 1 **or** 2

Class **(See Below)**

**Class P:**
Brass Body
Stainless Steel Spindle
Acetal Resin Stems
Fluoro Elastomer Seals

**Class R:**
Brass Body
Stainless Steel Spindle
PTFE Stems
Fluoro Elastomer Seals

**Class S:**
Stainless Steel Body
Stainless Steel Spindle
Acetal Resin Stems
Fluoro Elastomer Seals

**Class T:**
Stainless Steel Body
Stainless Steel Spindle
PTFE Stems
Fluoro Elastomer Seals

| EXAMPLE | T | 1 | 02 | D | F8 | 1 |
|---|---|---|---|---|---|---|

# Series 70 Port Coding

***With a choice of operative, permanently open and permanently closed ports in any of the four positions, plus a spindle with one flat, two adjacent, two opposite, or three flats, the number of permutations in just one bank is clearly enormous.***

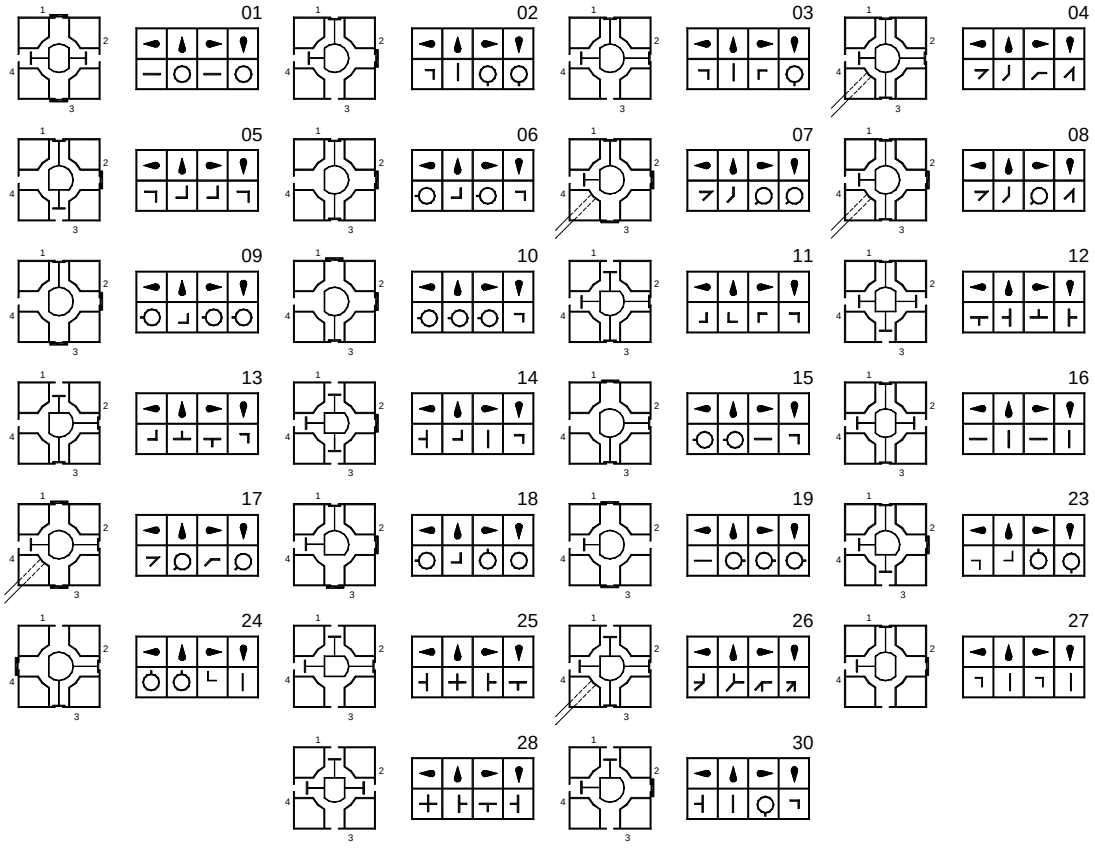
*In practice however the great majority of requirements are to be found from amongst the 26 bank configurations shown and coded below.*

*These show not only a cross-section through the banks in a highly simplified form but, alongside, a representation of how the flow paths change as the knob is turned.*

*Permanently open and permanently closed ports are quite obvious, the way of showing the permanently-open base connection first appears in Code 04. Although the banks are sealed internally from one another, there is nothing to prevent an external connection between any two banks by tubing.*

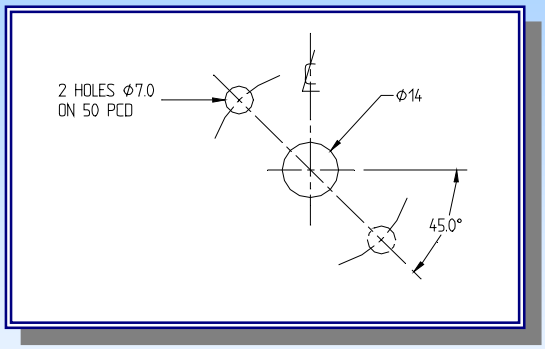
*In ordering multibank valves the bank nearest the handle is coded first, and banks calling for a base connection can be used only in the last or lowermost position. A base-mounted electrical rotary switch precludes this option. Banks can be assembled together in any orientation required, but unless requested multibank RSVs will be supplied with all banks orientated as shown below.*

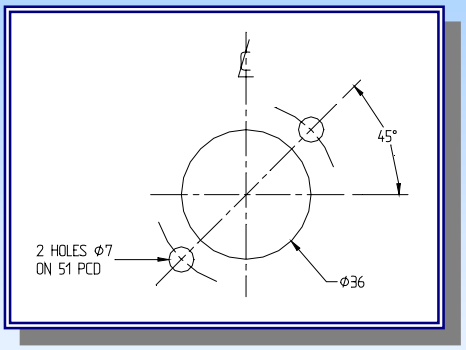
SERIES 70 PORT CODINGS



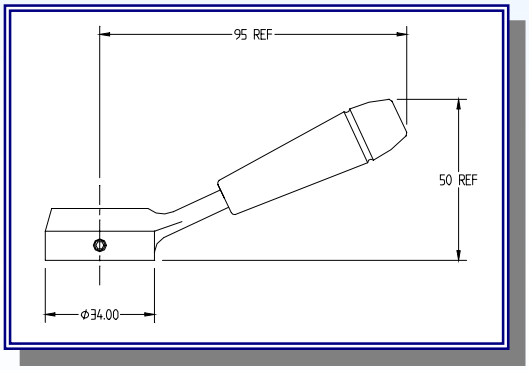
# Series 70 Installation

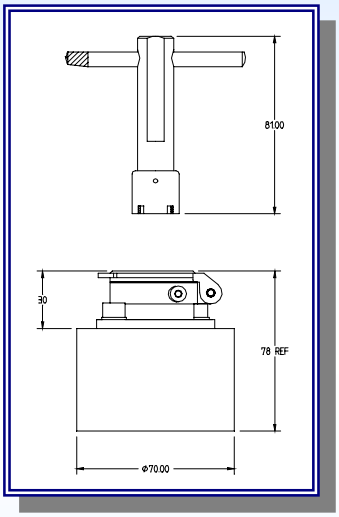
## Panel Mounting Detail



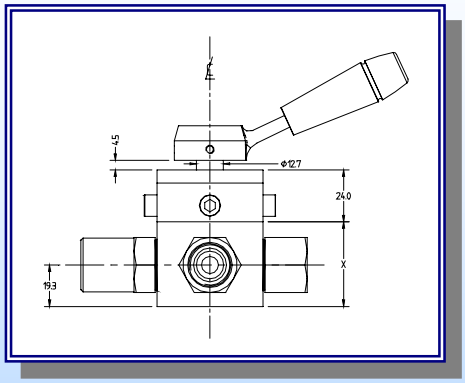




## Handle Options



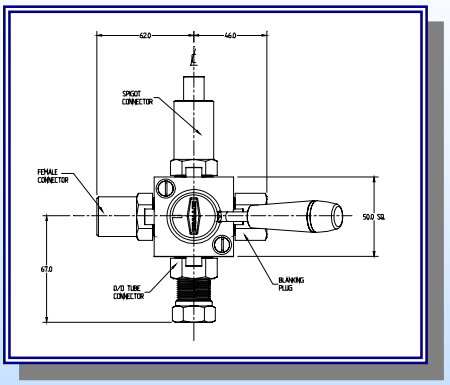




## Body Dimensions

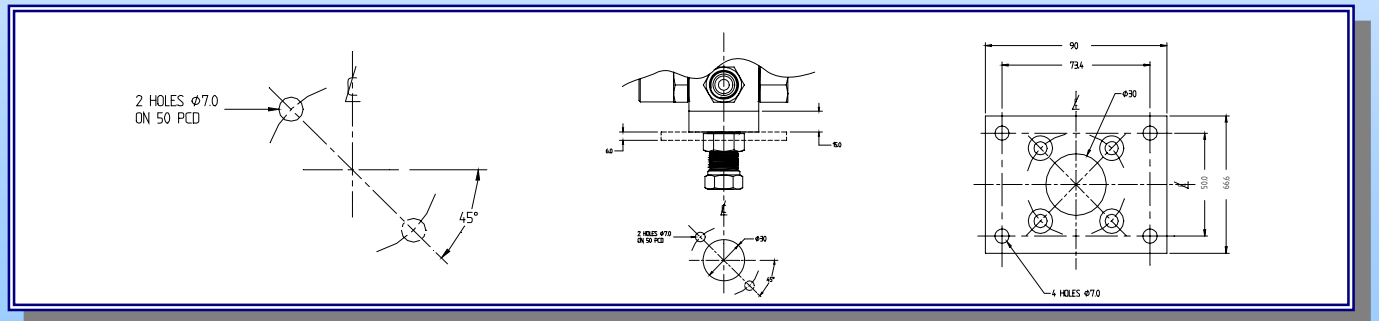



| No Of Banks | Dimension X |
|---|---|
| 1 | 39.5 |
| 2 | 79 |

All Dimensions In mm

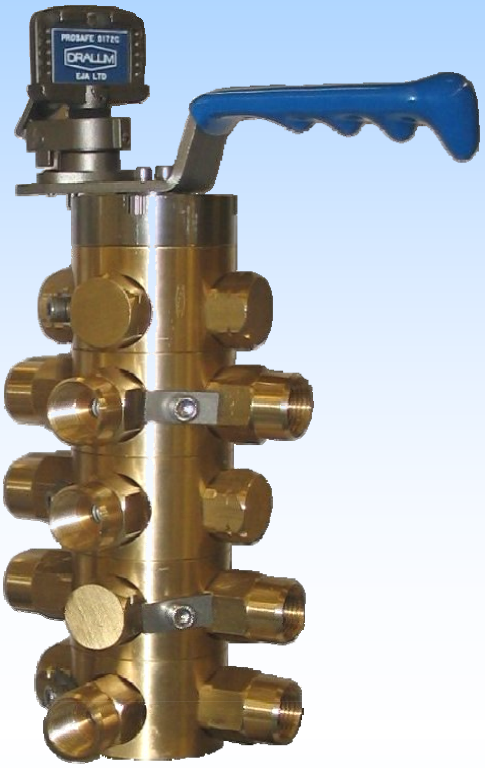



## Base Mounting Detail



## Notes

# Series 95



## High Flow Capacity

*Series 95 Valves offer a higher flow capacity than their sister products, 40 & 60 Series.*

## Versatility

*Used in a wide variety of applications this robust product is particularly useful in emergency shut down applications.*

## Permutations

*With the choice of operative, permanently open and permanently closed ports in any of the four positions, plus a spindle with one flat, two adjacent, two opposite, or three flats, the number of permutations in just one bank is clearly enormous.*

## Series 95 Ordering Chart

**Weatherproof Enclosure**
(for electric switch only)
Yes W
No **No code required**

**Electric Switch Code**
See Electric Switch Page

**No. of Positions**
2,3,4
(No code required if unrestricted)

**Mounting**
Panel (No code required)
Base Mounting Plate 1

**Connections**
1/2" NPT Female F8
1/2" Spigot S8
3/8" Spigot S7

**Operators**
Lever
Key Lever Type

**Port Code**

**No. of Banks**
1 to 4

**Class** (See Below)

**Class P:**
Brass Body
Stainless Steel Spindle
Acetal Resin Stems
Fluoro Elastomer Seals

**Class R:**
Brass Body
Stainless Steel Spindle
PTFE Stems
Fluoro Elastomer Seals

**Class S:**
Stainless Steel Body
Stainless Steel Spindle
Acetal Resin Stems
Fluoro Elastomer Seals

**Class T:**
Stainless Steel Body
Stainless Steel Spindle
PTFE Stems
Fluoro Elastomer Seals

| EXAMPLE | 95 | P | 1 | 02 | L | F8 | 1 |
|---|---|---|---|---|---|---|---|

# Electric Switches

*The combination of a multipole electric switch with the Drallim valves heralds a new era in process safety systems.*

*The introduction of an explosion category electric switch further enhances the applications to which these devices are applied.*

*Typical applications are feedback to DCS systems, remote and local actuation of fire prevention and damping systems, graduated loading and unloading of compressors, starting and stopping pumping systems.*

*The electric switches below can be fitted to the valves detailed within this catalogue with exception of those with a base entry connection.*

## 4 & 6 Way EEx d IIB T4-T6 IP67 Single Pole

| SPECIFICATIONS | |
|---|---|
| Explosion Protection Code | EEx d IIB T4-T6 |
| Electrical Ratings | 15A/250 VAC<br>10A/28 VDC<br>0.2A/125 VDC |
| Switch | V3 SPDT |
| Gland Entry (2 off) | M20 X 1.5 |
| Ingress Protection | IP67 |
| Enclosure Material | Aluminium |

| Order Code | WL |
|---|---|

## 4 & 6 Way Non EEx d Multi Pole

| SPECIFICATIONS | |
|---|---|
| Voltage (nominal) | 690v |
| Current (rated) | 20A |
| Weatherproof Enclosure (optional) | IP65 |

| 4 Way | | | | | | |
|---|---|---|---|---|---|---|
| No. of Poles | 1 | 2 | 3 | 4 | 5 | 6 |
| No. of Stages | 1 | 2 | 3 | 4 | 5 | 6 |
| **Order Code** | **2843** | **2844** | **2845** | **2846** | **2847** | **2848** |

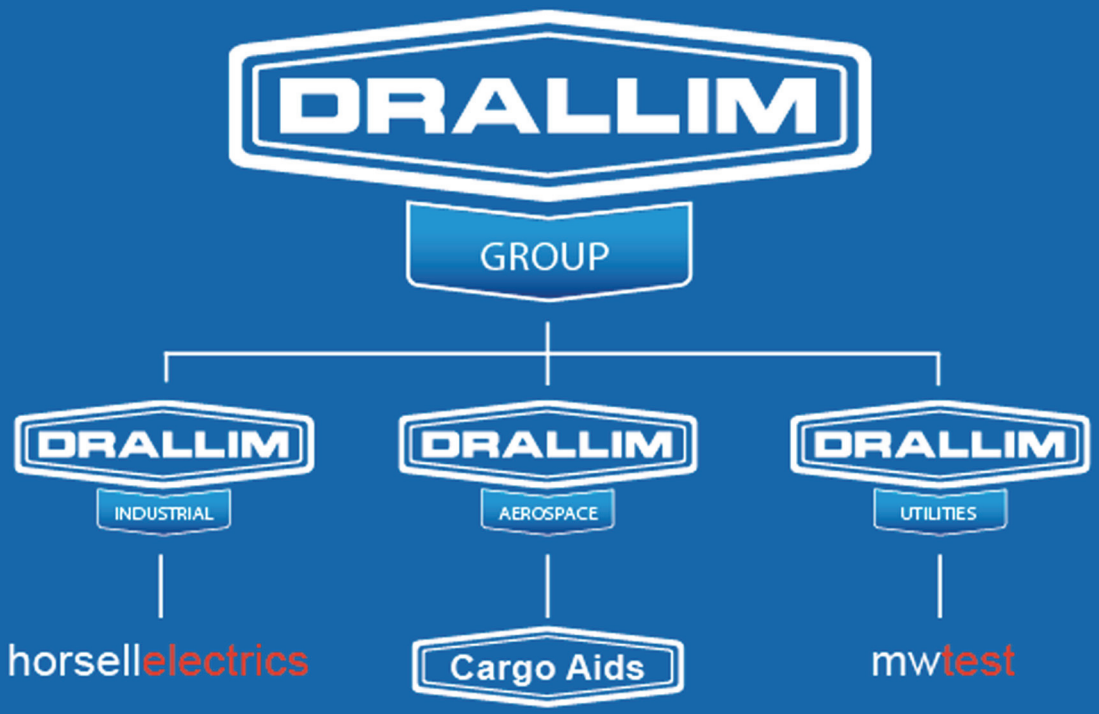
| 6 Way | | | | |
|---|---|---|---|---|
| No. of Poles | 1 | 2 | 3 | 4 |
| No. of Stages | 2 | 3 | 5 | 6 |
| **Order Code** | **2853** | **2854** | **2855** | **2856** |

*BS EN ISO 9001 : 2008*

*AS9100 Approved company*

*EASA Pt. 21 Subpart G (Production organisation)*

*EASA Pt. 145 (Maintenance organisation)*

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