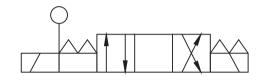


# SOLENOID OPERATED DIRECTIONAL VALVE (MANUAL HANDLE FOR SAFETY CONTROL)

SWHL-G02 SERIES



#### Symbol



#### FEATURES

- Manual handle can be operated in emergency & power shutdown.
- Armature operates in oil system. Impact is cushioned, noise is reduced, solenoid life is increased.
- Wet armature solenoid eliminates push pin seal, therefore no seal wear, drop or leakage for longer valve life.
- Molded coils for maximum insulating properties, which is impervious to moisture and dirt.
- Plug-in solenoid, for ease of maintenance.
- All spools and bodies are interchangeable, simplifying maintenance.
- Indicating signal lights are standard.
- High pressure, high flow rating, provides low pressure drop, with maximum performance.
- Specially designed, balanced spool allows proper shifting force, for maximum reliability and long life.
- Viton seal kits are available for fire-resistance fluids.

#### HOW TO ORDER

| SWHL  | -G             | 02           | -C2        | -D24         | -20                                    |         | -LS               |
|---|----------------|--------------|------------|--------------|--|---------|-------------------|
| Series  | Mounting Style | Nominal Size | Spool Type | Coil Voltage | Wiring                                 |         | esign Code        |
|   |                |              |            |              |  | No Code | Stardard          |
| Solenoid Operated Directional<br>Valves (manual handle for<br>safety control) | Subplate       | 6mm          |            | 2            | Hirschmann Type with Indicating Lights | LS      | Low surge voltage |



1

# **List of Spool Configurations**

| Application          | Spool Type | Symbols                                   | Application                   | Spool Type | Symbols  |
|----------------------|------------|---|-------------------------------|------------|--|
|                      | C2         | а А В В В В В В В В В В В В В В В В В В   | 4-way,                        | C2B        | A B b  |
|                      | C2M        | a A B A B A B A B A B A B A B A B A B A   | 2-position<br>Spring Offset   | СЗВ        | A B b  |
|                      | C22M       | a A B A B A B A B A B A B A B A B A B A   | (Solenoid b)                  | C4B        | A B b  |
|                      | C23        | A B b b T T T T T T T T T T T T T T T T T |                               | C40B       | A B b P T  |
|                      | С3         | a A B P T                                 |                               | С5В        | A B b b P T  |
|                      | C3-I       | a A B T                                   |                               | С6В        | A B b  |
|                      | C3M        | a A B A B A B A B A B A B A B A B A B A   |                               | C60B       | A B b l l l l l l l l l l l l l l l l l l              |
|                      | C4         | <sup>3</sup> A B P T                      | 4-way,<br>2-position          | С7В        | A B b  |
|                      | C4M        | a A B A B A A B A A B A A A A A A A A A   | Spring Offset<br>(Solenoid b) | C8B        | A B b  |
|                      | C40        | a A B A B P T                             |                               | С9В        | AB<br>PT   |
|                      | C40M       | a A B B B B B B B B B B B B B B B B B B   |                               | C5SB       | A B b  |
| 4-way,<br>3-position | C48M       | a A B A B A B A B A B A B A B A B A B A   |                               | C8SB       | A B b  |
| Spring Centered      | C5         | 3 A B 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |                               | C9SB       | AB<br>PT<br>b  |
|                      | C6         | 3 A B 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 4-way,<br>2-position          | N2         | a AB b b lit til T |
|                      | C6M        | a A B I I I I I I I I I I I I I I I I I I | No Spring,<br>No Detent       | N3         | a AB b   |
|                      | C60        | а А В В В В В В В В В В В В В В В В В В   | 4-way,<br>2-position          | D2         | a AB IIIII b   |
|                      | C60M       | a A B A B A B A B A B A B A B A B A B A   | Detent                        | D3         | a AB B B B B B B B B B B B B B B B B B B               |
|                      | C7         | ³→ T A B P T                              |                               | B2         | A B II II I b  |
|                      | C8         | 3 AB<br>PT                                |                               | B20        | P T  |
|                      | C8M        | a A B B B B B B B B B B B B B B B B B B   | 4-way,<br>2-position          | B21        | AB<br>PT b   |
|                      | C88M       | a A B P T P T                             | Spring Offset<br>(Solenoid b) | В3         | A B b  |
|                      | С9         | A B T T T T T T T T T T T T T T T T T T   |                               | B51        | A B b b P T  |
|                      | C92        | A B T T T T T T T T T T T T T T T T T T   |                               |            |  |



# **List of Spool Configurations**

| Application                 | Spool Type | Symbols                  | Application                 | Spool Type | Symbols                                   |
|-----------------------------|------------|--------------------------|-----------------------------|------------|---|
|                             | B2S        | а A В А В Р Т            |                             | C60BS      | a A B A T T T T T T T T T T T T T T T T T |
|                             | B3S        | a AB PT                  |                             | C7BS       | a A B P T                                 |
|                             | B4S        | a AB                     | 4-way,                      | C8BS       | a AB P T                                  |
|                             | B20S       | a A B TIT TIT TI T T P T | 2-position<br>Spring Offset | C9BS       | a AB<br>PT                                |
| 4-way,                      | B51S       | a A B P T                | (Solenoid a)                |            |   |
| 2-position<br>Spring Offset | C2BS       | a A B T T T P T          |                             |            |   |
| (Solenoid a)                | C3BS       | a A B P T                |                             |            |   |
|                             | C4BS       | a A B P T                |                             | C5S        | a A B P T                                 |
|                             | C40BS      | a AB PT                  | 4-way,<br>3-position        | C8S        | a A B A B P T                             |
|                             | C5BS       | a A B P T                | Spring Centered             | C88S       | A B P T                                   |
|                             | C6BS       | a A B P T                |                             | C9S        | a A B A B A B A B A B A B A B A B A B A   |

## ② Coil Voltage

| Coil Type | Voltage                 | Coil Type | Voltage                 |
|-----------|-------------------------|-----------|-------------------------|
| A240      | AC240V,60Hz;AC220V,50Hz | R220      | AC220V,60Hz;AC200V,50Hz |
| A220      | AC220V,60Hz;AC200V,50Hz | R110      | AC110V,60Hz;AC100V,50Hz |
| A120      | AC120V,60Hz;AC110V,50Hz | D12       | DC12V                   |
| A110      | AC110V,60Hz;AC100V,50Hz | D24       | DC24V                   |



#### SPECIFICATIONS

| x Operating | Max Flow | Max Tank Line | Max Frequencies | Recommended | Hydraulic Fluids |
|-------------|----------|---------------|-----------------|-------------|------------------|
| Pressure    | Capacity | Back Pressure | Operation       | Filtration  | Temp Range       |
| (bar)       | (L/min)  | (bar)         | (CPM)           | (µm)        | (°C)             |
| 315         | 63       | 140           | 300             | 25          |                  |

#### SOLENOID RATINGS

| Electric | Coil Type | Voltage           |               |              | Current & Power At Rated Voltage |                    |             |
|----------|-----------|-------------------|---------------|--------------|----------------------------------|--------------------|-------------|
| Source   |           | Frequency<br>(Hz) | Source Rating | Range (±10%) | In-rush Current(A)               | Holding Current(A) | Wattage (W) |
|          | A110      | 50                | 100           | 90-110       | 1.80                             | 0.51               |             |
|          |           | 60                | 100           | 90-110       | 1.60                             | 0.38               |             |
|          |           | 60                | 110           | 99-121       | 1.60                             | 0.45               |             |
|          | A120      | 50                | 110           | 99-121       | 1.60                             | 0.58               |             |
| AC       | AIZU      | 60                | 120           | 108-132      | 1.60                             | 0.49               |             |
| AC       | A220      | 50                | 200           | 180-220      | 1.40                             | 0.40               |             |
|          |           | 60                | 200           | 180-220      | 1.10                             | 0.30               |             |
|          |           |                   | 220           | 198-242      | 1.10                             | 0.30               |             |
|          | A240      | 50                | 220           | 198-242      | 0.80                             | 0.27               |             |
|          |           | 60                | 240           | 216-264      | 0.81                             | 0.23               |             |
|          | R110      | 50                | 100           | 90-110       | 0.46                             | 0.46               |             |
| RF       |           | 60                | 110           | 99-121       | 0.33                             | 0.33               |             |
| KF       | R220      | 50                | 200           | 180-220      | 0.19                             | 0.19               |             |
|          |           | 60                | 220           | 198-242      | 0.15                             | 0.15               |             |
| DC       | D12       |                   | 12            | 10.8-13.2    | 2.6                              | 2.6                | 31          |
| DC       | D24       | 24                |               | 21.6-26.4    | 1.3                              | 1.3                | ا<br>ا      |

#### **■ TECHNICAL DATA**

- ullet Solenoid can be used within  $\pm 10\%$  of the rated voltage of the coil.
- Withstand voltage 1500V/sec.
- Insulation resistance over 100M  $\Omega$ .
- A momentary signal of approximately 0.1 second is requied for shitting action.

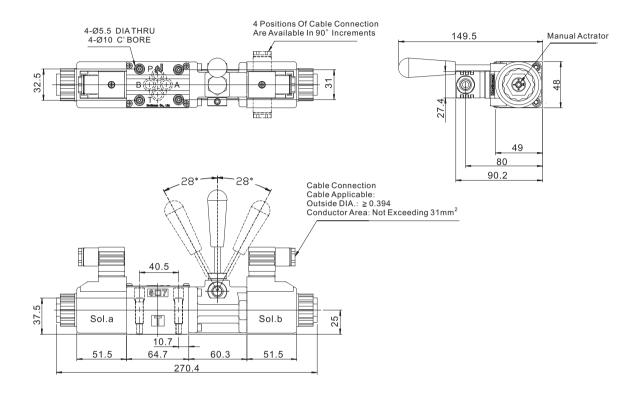
#### ACCESSORIES

| Туре  | Pieces | Japan Standard "JIS"<br>European Standard | US Standard       |
|---|--------|---|-------------------|
| Mounting Bolt Kits (suppeied with valve socket head cap screws) | 4      | M5X45L                                    | #10-24UNCX1-3/4"L |
| O-Rings   | 4      | AS568-012                                 |                   |

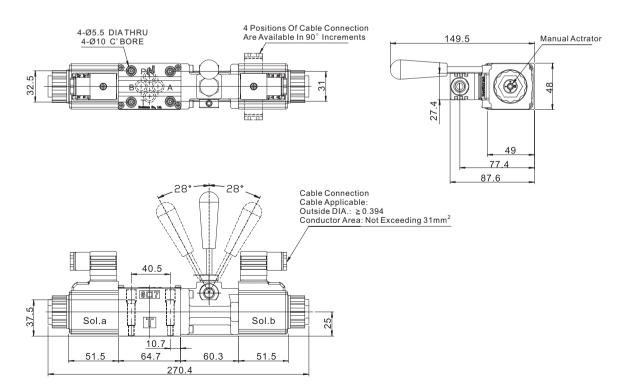


#### INSTALLATION DIMENSIONS

#### **SWHL-G02-C**\*\*-**D**/**R**\*\*-**20-**\*\*



#### **SWHL-G02-C**\*-**A**\*-**20-**\*





### **■ SECTION PLAN VIEWS**

