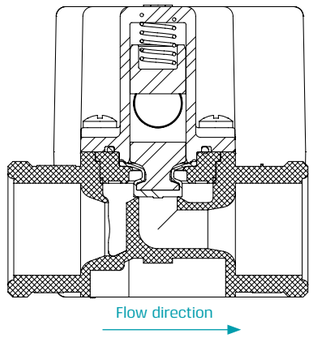
# SOLENOID VALVES | Special Purpose

## Proportional

CE

## GEM-CPR | Isolated Proportional 2 Way NC




### Technical Data

| | |
|---|---|
| Function | 2 Way NC (with back-up battery) |
| Ports size | 1/2" BSP & NPT |
| Orifice size | 8mm (Up to 600 l/hour) |
| Pressure range | • **Vacuum applications :** (-1) - 0 Bar<br>• **Pressure applications :** 0 - (+1) Bar<br>*For other pressures, please consult our technical sales department |
| Temperature range | **Fluid :** -10º to 45ºC (no freezing)<br>**Ambient :** -10ºC to 45ºC |
| Materials | **In contact with media :**<br>**Valve body :** PVC (UV protection)<br>**Diaphragm & seals :** FPM (Viton®), EPDM<br>**Not in contact with media :**<br>**Operator housing :** PP (UV protection)<br>**Manual override :** Acetal (**Manual override is standard**) |
| Media | • **Liquids & Gases**<br>*Please consult our technical sales department for a specific media<br>• **Application examples :**<br>· Irrigation fertilizing systems<br>· Medical devices |
| Control signal | 0-5V or 4-20mA |
| Valve stroke resolution | < 0.01mm |
| Valve stroke accuracy | < ± 0.01 mm |
| Full stroke duration | 0.6 sec, each direction |
| Current consumption | • **Standby Mode (Holding position):** 25 [mA]<br>• **Active Control Mode:** Up to 120 [mA]<br>• **Full Open/Close Mode (starting current):** Up to 600 [mA] |
| Supply voltage | **12-24 [V] ±5% AC (50 or 60Hz) Or 14-24[V] ±10% DC**<br>*For other supply voltages, please consult our technical sales department<br>*Current and voltage spikes protections might be required. Please consult our technical sales department |
| Connection | 5 wires cable (3m length) :<br>• **Black & red :** Supply voltage (polarity is not restricted)<br>• **Green :** 0-5 V analog control signal<br>• **Blue :** 4-20 mA analog control signal<br>• **Yellow :** Analog control signal common |
| Recommended control signal resolution | Voltage : 20 mV \| Current : 0.064 mA |
| Standard / Certification | **CE**<br>• EMC : EN55011 Group 1 - Class A \| EN61000-6-1<br>CFR 47 FCC Class A<br>• SAFETY : IEC/EN61010-1 |
| Standard protection class | IP67 |

### Typical performance graph



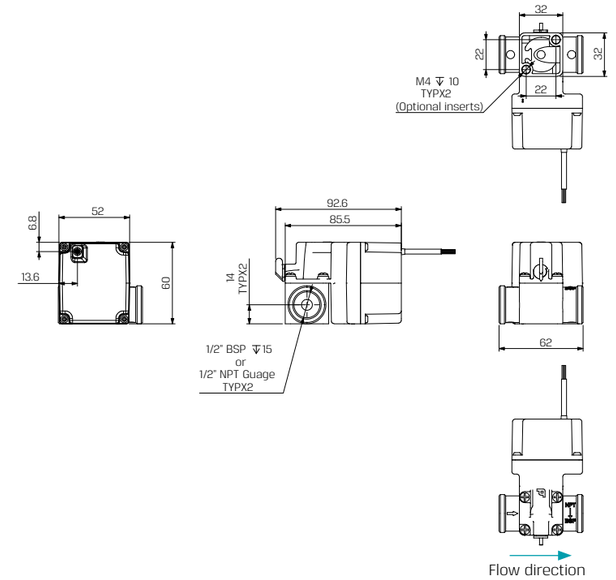

**Media** : Water
**△p** : 0.9 [bar]
**Temp** : 20ºC





## Proportional | GEM-SOL | Isolated Proportional 2 Way NC

### Dimensions




### How to Order

| GEM-CPR | - | PORT | | FUNCTION | | PRESSURE | | SEALS | | MANUAL OVERRIDE | - | CONTROL SIGNAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1/2" BSP | 40 | 2W NC | 1 | Vacuum | 1 | FPM (Viton®) | V | Plastic | 1 | 0-5 V | 1 |
| | | 1/2" NPT | 41 | | | Pressure (1) | 2 | EPDM | E | | | 4-20 mA | 2 |

Example : GEM-CPR-4011E1-1
Isolated proportional valve, 1/2" BSP, 2W NC, Vacuum,
EPDM seals, plastic manual override, with 0-5V control signal.

| GEM-CPR | - | 40 | 1 | 1 | E | 1 | - | 1 |
|---|---|---|---|---|---|---|---|---|

(1) Maximum inlet pressure : 1 bar

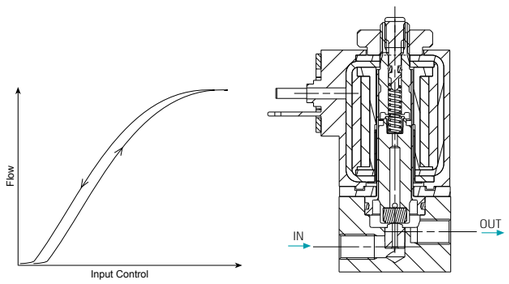
*Please specify the working pressure range when placing an order

* To order valves manufactured according to your specific requirements, please contact our technical sales department.

# SOLENOID VALVES | Special Purpose

## Proportional

## G65-PR | Proportional 2 Way NC


## Technical Data

| | |
|---|---|
| Function | 2 Way NC |
| Ports size | M5, #10UNF, 1/8" BSP & NPT |
| Orifice size | See table |
| Pressure range | Vacuum - see table |
| Kv (l/min) | See table |
| Temperature range | **Fluid :** -10ºC to 80ºC (no freezing)<br>**Ambient :** -10ºC to 55ºC |
| Materials in contact with media | **Main Valve:**<br>Aluminium, Brass, Stainless Steel AISI 316<br>**Solenoid Operator:**<br>Stainless Steel AISI 300 & 400 series, Brass<br>**Seals:**<br>NBR, FPM (Viton®), EPDM<br>(other, on request)<br>**Guide rings:**<br>PTFE |
| Media | Air, water, oil |
| The control parameter is the current in the coil!<br>Operating current | Max. 1500[mA]<br>standard voltage 24V DC(=) |
| Electrical connection | Per DIN 43650-b, or<br>2 flying leads 18AWG (0.75mm²)<br>300 mm length |
| Standard protection class | IP65 with connector |

• Media : Max. viscosity 21mm²/s

## Guidelines for selection :

1. The pressure drop (△P) on the valve should be 30-50% or higher, of the total pressure drop in the system.
2. Special consideration should be taken in choosing the right Kv of the valve as this factor determines the flow and pressure drop of the valve.
3. To achieve better regulation performance when working without a control unit, the maximum pressure should be 1.2 times the working pressure. The maximum pressure can be adjusted using the upper screw.
4. Inlet pressure should be kept constant during operation.

## Standard calibration pressure (bar)

| | Orifice size (mm) | | | |
|---|---|---|---|---|
| | 0.8 | 1.0 | 1.2 | 1.6 |
| Pressure rating [bar] (1) | 10 | 8 | 6 | 4 |
| Flow factor Kv(l/min) | 0.4 | 0.5 | 0.65 | 1.2 |

(1) From technical vacuum to max. rating
(2) Other calibration pressures on request

**Flow regulation :**
With control unit PWM 500[Hz] measured at constant △P (delta P)

| | |
|---|---|
| Hysteresis | <5% of F.S |
| Repeatability | <3% of F.S |
| Sensitivity | <2% of F.S |

## Voltage & Power Consumption

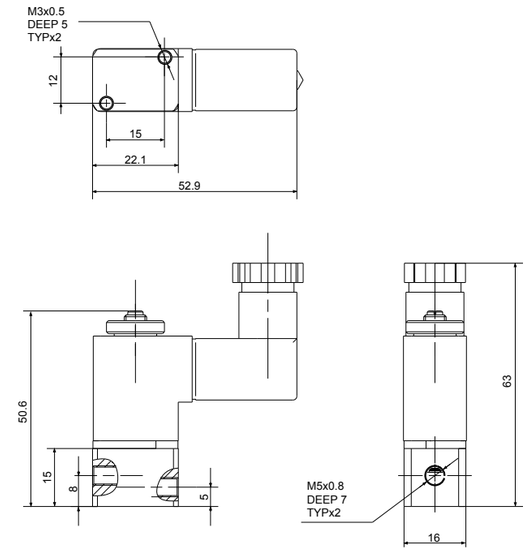
| | AC 50Hz | | DC (W) |
|---|---|---|---|
| V | 3.2VA | 3.6VA | 3 |
| 12 | | | • |
| 24 | | | • |
| 110 | | | |
| 230 | | | |

• Available options





## Dimensions




## How to Order

| G65-PR | - | BODY (1) | PORT | FUNCTION | ORIFICE | SEALS | MANUAL OVERRIDE | - | CONNECTOR |
|---|---|---|---|---|---|---|---|---|---|
| | | Aluminium 1 | M5 00 | 2W NC 1 | 0.8 1 | NBR N | None 0 | | without 0 |
| | | Brass 2 | #10UNF 01 | | 1.0 2 | FPM (Viton®) V | | | with 1 |
| | | Stainless Steel 3 | 1/8" BSP 10 | | 1.2 3 | EPDM E | | | |
| | | | 1/8" NPT 11 | | 1.6 4 | | | | |

Example : G65-PR-21014N0-1
G65 proportional direct operated, brass, 1/8" BSP, 2W NC, 1.6 orifice, NBR, without manual override, with connector.

| G65-PR | - | 2 | 10 | 1 | 4 | N | 0 | - | 1 |
|---|---|---|---|---|---|---|---|---|---|

(1) For Stainless Steel tube, add "s" : e.g | G65-PR | - | Xs | X | X | X | X | X | - | X |

* To order valves manufactured according to your specific requirements, please contact our technical sales department.

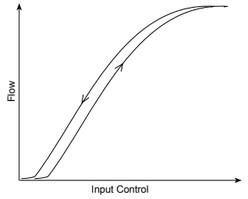
# SOLENOID VALVES | Special Purpose

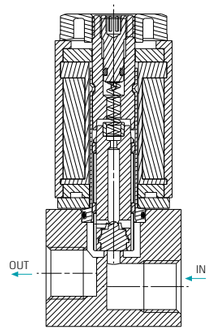
## Proportional



### G80-PR | Proportional 2 Way NC


Stainless Steel | 1/8"




## Technical Data

| | |
|---|---|
| Function | 2 Way NC |
| Ports size | M5, #10UNF, 1/8" BSP & NPT |
| Orifice size | See table |
| Pressure range | **Vacuum** - see table |
| Kv (l/min) | See table |
| Temperature range | **Fluid :** -10°C to 80°C (no freezing)<br>**Ambient :** -10°C to 55°C |
| Materials in contact with media | **Main Valve:**<br>Aluminium, Brass, Stainless Steel AISI 316<br>**Solenoid Operator:**<br>Stainless Steel AISI 300 & 400 series, Brass<br>**Seals:**<br>NBR, FPM (Viton®), EPDM (other, on request)<br>**Guide rings:**<br>PTFE |
| Media | Neutral gases, water, oil<br>Max. viscosity 21mm²/s |
| The control parameter is the current in the coil!<br><br>Operating current | <br><br>100-500[mA]<br>standard voltage 24V DC(=) |
| Electrical connection | Per DIN 43650-b, or<br>2 flying leads 18AWG (0.75mm²)<br>300 mm length |
| Standard protection class | IP65 with connector |

## Guidelines for selection

1. The pressure drop (△P) on the valve should be 30-50% or higher, of the total pressure drop in the system.
2. Special consideration should be taken in choosing the right Kv of the valve as this factor determines the flow and pressure drop of the valve.
3. To achieve better regulation performance when working without a control unit, the maximum pressure should be 1.2 times the working pressure. The maximum pressure can be adjusted using the upper screw.
4. Inlet pressure should be kept constant during operation.

## Standard calibration pressure (bar)

| | Orifice size (mm) | | | | | |
|---|---|---|---|---|---|---|
| | 1.0 | 1.2 | 1.6 | 2.0 | 2.4 | 3.0 |
| Pressure rating (bar)(1) | 10 | 8 | 6 | 5 | 4 | 2.5 |
| Flow factor Kv(l/min) | 0.5 | 0.65 | 1.0 | 1.6 | 2.0 | 2.8 |

(1) From technical vacuum to max. rating
(2) Other calibration pressures on request

**Flow regulation :**

With control unit PWM 500[Hz] measured at constant △P (delta P)

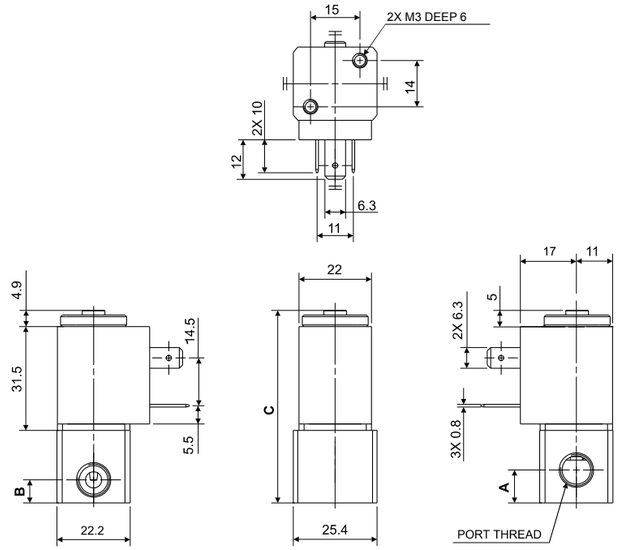
| | |
|---|---|
| Hysteresis | <5% of F.S |
| Repeatability | <3% of F.S |
| Sensitivity | <2% of F.S |

## Voltage & Power Consumption

| | DC (W) | |
|---|---|---|
| V | 6.5 | 3 |
| 6 | • | • |
| 12 | • | • |
| 24 | • | • |
| 110 | | |
| 230 | | |

• Available options

## Dimensions




| Port thread | A | B | C |
|---|---|---|---|
| M5, #10UNF | 5.5 | 4 | 51.5 |
| 1/8" | 10 | 7 | 58.5 |

## How to Order

| G80-PR | - | BODY (1) | | PORT | | FUNCTION | | ORIFICE | | SEALS | | MANUAL OVERRIDE | | - | CONNECTOR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Aluminium | 1 | M5 | 00 | 2W NC | 1 | 1.0 | 1 | NBR | N | None | 0 | | without | 0 |
| | | Brass | 2 | #10 UNF | 01 | | | 1.2 | 2 | FPM (Viton®) | V | | | | with | 1 |
| | | Stainless Steel | 3 | 1/8" BSP | 10 | | | 1.6 | 3 | EPDM | E | | | | | |
| | | | | 1/8" NPT | 11 | | | 2.0 | 4 | | | | | | | |
| | | | | | | | | 2.4 | 5 | | | | | | | |
| | | | | | | | | 3.0 | 6 | | | | | | | |
| | | | | | | | | other | 9 | | | | | | | |

Example : G80-PR-21015N0-1
G80 proportional direct operated, brass, 1/8"BSP,
2W NC, 2.4 orifice, NBR, without manual override, with connector.

| G80-PR | - | 2 | 10 | 1 | 5 | N | 0 | - | 1 |
|---|---|---|---|---|---|---|---|---|---|

(1) For Stainless Steel tube, add "s" : e.g

| G80-PR | - | Xs | X | X | X | X | X | X | - | X |
|---|---|---|---|---|---|---|---|---|---|---|

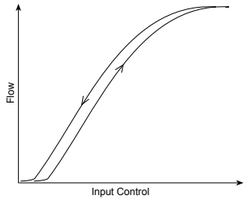
* To order valves manufactured according to your specific requirements, please contact our technical sales department.

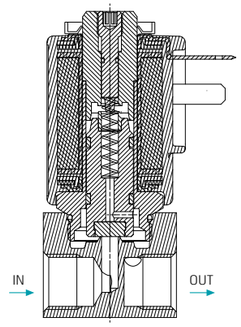
# SOLENOID VALVES | Special Purpose

## Proportional

### GEM-PR | Proportional 2 Way NC


Stainless Steel




## Technical Data

| | |
|---|---|
| Function | 2 Way NC |
| Ports size | 1/8", 1/4" BSP & NPT |
| Orifice size | See table |
| Pressure range | See table |
| Kv (l/min) | See table |
| Temperature range | **Fluid :** -10°C to 80°C (no freezing)<br>**Ambient :** -10°C to 55°C |
| Materials in contact with media | **Main Valve:**<br>Aluminium, Brass, Stainless Steel AISI 316<br>**Solenoid Operator:**<br>Stainless Steel AISI 300 & 400 series<br>**Seals:**<br>NBR, FPM (Viton®), EPDM, polyurethane, PTFE<br>**Guide rings:**<br>PTFE |
| Media | Neutral gases, water, oil<br>Max. viscosity 21mm²/s |
| The control parameter is the current in the coil.<br><br>Operating current | <br><br>100-500[mA]<br>standard voltage 24V DC(=) |
| Electrical connection | Per DIN 43650-a, or<br>2 flying leads 18AWG (0.75mm²)<br>300 mm length |
| Standard protection class | IP65 with connector<br>* Option : IP68 (please refer to GEM-BP Coil) |

## Guidelines for selection

1. The pressure drop (△P) on the valve should be 30-50% or higher, of the total pressure drop in the system.
2. Special consideration should be taken in choosing the right Kv of the valve as this factor determines the flow and pressure drop of the valve.
3. To achieve better regulation performance when working without a control unit, the maximum pressure should be 1.1 times the working pressure. The maximum pressure can be adjusted using the upper screw.
4. Inlet pressure should be kept constant during operation.

## Standard calibration pressure (bar)

| | Orifice size (mm) | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0.8 | 1.2 | 1.6 | 2.0 | 2.4 | 3.0 | 4.0 |
| Pressure rating(bar) (1) | 16 | 12 | 10 | 8 | 6 | 3.5 | 2 |
| Flow factor Kv(l/min) | 0.6 | 1.1 | 1.7 | 2.5 | 3.5 | 4.5 | 5 |

(1) From technical vacuum to max. rating
(2) Other calibration pressures on request

**Flow regulation :**
With control unit PWM 500[Hz] measured at constant △P (delta P).

| | |
|---|---|
| Hysteresis | <5% of F.S |
| Repeatability | <3% of F.S |
| Sensitivity | <2% of F.S |

## Voltage & Power Consumption

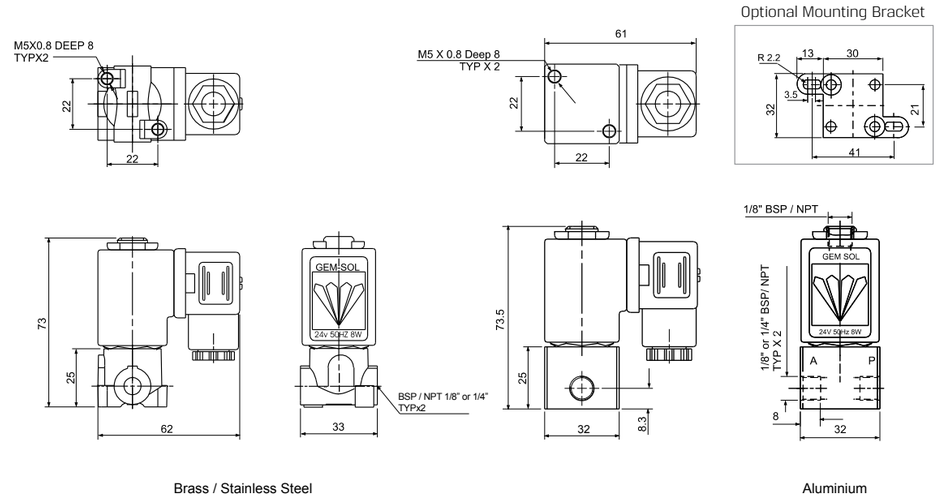
| | DC (W) | | |
|---|---|---|---|
| V | 10 | 5.5 | 3.5 |
| 6 | | | |
| 12 | | | |
| 24 | • | | |
| 48 | | | |
| 110 | | | |
| 120 | | | |
| 220 | | | |
| 230 | | | |
| 240 | | | |

• Available options





## Dimensions




Brass / Stainless Steel

Aluminium

## How to Order

| GEM-PR | - | BODY | PORT | FUNCTION | ORIFICE | SEALS | MANUAL OVERRIDE | - | CONNECTOR |
|---|---|---|---|---|---|---|---|---|---|
| | | Brass 2 | 1/8" BSP 10 | 2W NC 1 | 0.8 1 | NBR N | None 0 | | without 0 |
| | | Stainless Steel 3 | 1/8" NPT 11 | | 1.2 2 | FPM (Viton®) V | | | with 1 |
| | | Aluminium 5 | 1/4" BSP 20 | | 1.6 3 | EPDM E | | | |
| | | | 1/4" NPT 21 | | 2.0 4 | Polyurethane P | | | |
| | | | | | 2.4 5 | PTFE T | | | |
| | | | | | 3.0 6 | | | | |
| | | | | | 4.0 7 | | | | |

Example : GEM-PR-21015N0-1
GEM-SOL proportional direct operated, brass, 1/8"BSP,
2W NC, 2.4 orifice, NBR, without manual override, with connector.

| GEM-PR | - | 2 | 10 | 1 | 5 | N | 0 | - | 1 |
|---|---|---|---|---|---|---|---|---|---|

* Please specify the working pressure range when placing an order

* To order valves manufactured according to your specific requirements, please contact our technical sales department.