The Watts Industries range of automatic control valves consist of a hydraulically operated valve, which is controlled by a pilot circuit. The main valve (EU 100) is the basis for all control valves and consists of three main parts: body, cover and valve assembly, which includes a diaphragm.

The valve can control a range of applications simply by changing the pilot circuit, these include pressure reduction & sustaining, level control, pressure relief and many more. In most cases functions can be added at a later stage without removing the valve from the line, opening a wide range of possibilities.
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<table>
<thead>
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<tbody>
<tr>
<td>INTRODUCTION</td>
<td>4</td>
</tr>
<tr>
<td>PRESSURE REDUCING VALVE</td>
<td>6</td>
</tr>
<tr>
<td>PRESSURE SUSTAINING/RELIEF VALVE</td>
<td>7</td>
</tr>
<tr>
<td>RATE OF FLOW CONTROL VALVE</td>
<td>8</td>
</tr>
<tr>
<td>SOLENOID ON/OFF AND PUMP CONTROL VALVE</td>
<td>9</td>
</tr>
<tr>
<td>LEVEL CONTROL VALVE</td>
<td>11</td>
</tr>
<tr>
<td>TECHNICAL SPECIFICATIONS</td>
<td>12</td>
</tr>
<tr>
<td>VALVE SELECTION AND SIZING</td>
<td>12</td>
</tr>
<tr>
<td>MATERIAL SPECIFICATIONS</td>
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The Watts Industries range of automatic control valves consist of a hydraulically operated valve, which is controlled by a pilot circuit. The main valve (EU 100) is the basis for all control valves and consists of three main parts: body, cover and valve assembly, which includes a diaphragm.

The valve can control a range of applications simply by changing the pilot circuit, these include pressure reduction & sustaining, level control, pressure relief and many more. In most cases functions can be added at a later stage without removing the valve from the line, opening a wide range of possibilities.

The only moving parts in the valve are the diaphragm and the valve assembly, which are guided by an exchangeable bearing in the cover and the valve seat. The nylon diaphragm is covered with rubber on both sides, creating a separate chamber in the upper part of the valve, and thus separating the control pressure from the pipe pressure.

The diaphragm is held in a special clamping construction between the body of the valve and the cover, thus minimizing strain to the diaphragm and ensuring longer service.

Extensive research and development looking at the ratio between the surface areas of the diaphragm and the seal ensures that the valve assembly will close if the pressure in the cover chamber and the inlet chamber are the same.

The seal on the valve assembly closing on to the valve seat guarantees a perfect and long lasting seal, allowing the control valve to act as a leak tight on/off valve at the same time.

The pilot circuit is equipped with a strainer, which ensures that the pilot valve will not become blocked, plus the valve needs no lubrication, has a simple construction and therefore requires little maintenance. Also a long service life is assured. Any work that is required can be done with the valve in position and therefore maintenance can be undertaken on site, reducing down times.

The sectional drawings below show a basic valve equipped with a simple on/off control pilot, mounted in the control tubing connected to the outlet side, and a restriction or needle valve on the inlet side of the valve.

The control valve can perform three tasks:
- open
- close
- regulate

Note
In all situations the main valve follows the movements of the control pilot

Basic valve closed
The control pilot does not drain liquid. The medium is being transported in through the inlet side: the main valve closes progressively.

Basic valve open
The control pilot drains more medium than is being added through the restriction: the main valve opens progressively.

Basic valve regulates
When a balance between supply and drain of medium is reached then the main valve is hydraulically placed in the correct position.
Characteristics of the basic valve:

- Minimal friction
  The diaphragm-operated stem assembly allows frictionless movement, causing a negligible hysteresis.
- Low maintenance
  The valve has only one moving part, which guarantees dependable operation with a minimum of maintenance.
- Epoxy coating
  All cast-iron parts are protected inside and out by an epoxy coating.
- Model
  Watts EU 100 globe pattern.
- Combinations of functions can be made with a single basic valve.

For material specifications see page 13

Characteristics of the control unit:

The EU 900 is a centralized control unit which incorporates three main hydraulic functions in one compact and lockable unit.

- progressive regulating orifice for operating speed setting (positions 0 to 6)
- opening speed setting totally independent of closing speed setting
- control of closing speed
- manufactured from stainless steel
- lock-up plate provides tamper-proof settings

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<td>10</td>
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**EU115**

Pressure Reducing Valve reduces a higher upstream pressure to a constant lower downstream pressure.

The standard pressure range is: 1.4 - 12 bar
On request: 0.1 - 2 bar
On request: 7 - 21 bar

---

**EU115-02**

Pressure Reducing/Sustaining Valve reduces a higher upstream pressure to a constant lower downstream pressure but will close to maintain the upstream pressure should the supply pressure fall below a set point.

The standard pressure range is: 1.4 - 12 bar
On request: 0.1 - 2 bar
On request: 7 - 21 bar

---

**EU115-03**

Pressure Reducing Valve with Check valve function reduces a higher upstream pressure to a constant lower downstream pressure. When the downstream pressure exceeds the upstream pressure the main valve closes.

The standard pressure range is: 1.4 - 12 bar
On request: 0.1 - 2 bar
On request: 7 - 21 bar
EU115-04

Pressure reducing valve with a solenoid operated On/Off function that can be controlled remotely via an electrical signal.

The standard pressure range is: 1.4 - 12 bar
On request: 0.1 - 2 bar
7 - 21 bar

Also available:
EU115-07 Pilot operated Pressure Reducing Valve/Surge Valve for rapidly decreasing flow rate systems
EU115-11 Pilot operated Pressure Reducing and Sustaining Valve with solenoid On/Off function
EU115-51 Pilot operated Pressure Reducing Valve with Low Pressure Shut-Off function
EU115HL-AS Dual Set point Pressure Reducing Valve Auto Shift for low and high flow demands
Other combinations on request.

PRESSURE SUSTAINING/RELIEF VALVE

EU116

Pressure Sustaining/Relief Valve maintains a constant upstream pressure by relieving excess upstream pressure to the downstream of the valve.

The standard pressure range is: 1.4 - 12 bar
Other pressure ranges on request.

EU116-31

Pressure Sustaining/Relief Valve maintains a constant upstream pressure by relieving excess upstream pressure to the downstream of the valve. The solenoid operated On/Off function can be operated via an electrical signal to override the sustaining/relief function.

The standard pressure range is: 1.4 - 14 bar
The standard Solenoid: 230 V AC, NC, 0.2-16 bar.
Other pressure ranges and solenoids on request.
**EU116-34**

Low Pressure Shut-off Valve with Manual Reset closes when the downstream pressure drops below a (adjustable) set point. The Manual Reset permits the valve opening to restore downstream pressure.

The standard pressure range is: 1.4 - 14 bar
Other pressure ranges on request.

Also available:
- **EU116-05** Pressure Sustaining/Relief Valve with Check Valve function
- **EU116-23** Pressure Differential Relief Valve
- **EU116-52** Surge Anticipation Control Valve

**EU114**

Flow Control Valve maintains an adjustable maximum constant flow rate independent of the inlet pressure.

**EU114-01**

Flow Control Valve maintains an adjustable maximum constant flow rate independent of the inlet pressure.

The solenoid operated On/Off function can be operated via an electrical signal to override the rate of flow control function.

The standard Solenoid: 230 V AC, NC, 0.2-16 bar.
Other pressure ranges and solenoids on request.
EU114-02
Flow Control/Pressure Reducing Valve maintain an adjustable constant flow rate and reduces a higher upstream pressure to a constant lower downstream pressure.

The standard pressure range is: 1.4 - 12 bar
Other pressure ranges on request.

EU114-08
Flow Control/Pressure Sustaining Valve maintain an adjustable constant flow rate and prevents that the upstream pressure drops below a set point.

The standard pressure range is: 1.4 - 14 bar
On request: 
0.1 - 2 bar
7 - 21 bar

Also available:
EU114-03 Pilot operated flow control with check valve function
EU117 Pilot operated excess flow shut-off

Solenoid Control On/Off Valve

EU113
Supplied with a 230V AC, normally closed, 0.1 - 16 bar solenoid as standard.
Other options available on request.
**EU113-08**

Solenoid operated Level Control Valve to maintain a constant level in a reservoir. If water is drawn from the reservoir then the level sensor will switch the solenoid allowing the main valve to open thus refilling the reservoir. Also suitable as overfill protection; pump protection; High level alarm. Opening and Closing speed adjustable.

**EU113-19**

Booster Pump Control Valve with Pressure Sustaining and Check Valve function.
- Maintains a constant back pressure to pump
- Valve close when discharge pressure exceeds inlet pressure (power failure or pump failure)
- Opens at a controlled rate on pump start-up (adjustable)
- Closes at a controlled rate on pump shut-off (adjustable)

**EU113B**


Also available:
**EU113-40** Solenoid Controlled/Electronically Positioned Valve
EU110-10
Modulating Float Valve to maintain a constant level. The pilot can mounted away from the main valve.
Opening and Closing speed adjustable. (10 mm piping from the main valve to the pilot is not included)

EU110-14
On/Off Float Valve with adjustable Hi/Lo level, to maintain a constant level. The main valve opens when the (adjustable) minimum level is reached and closes when the (adjustable) maximum level is reached. The difference between the minimum and maximum level is between 0.5 and 2 metres.
Opening and Closing speed adjustable. (10 mm piping from the main valve to the pilot is not included)

EU127-01
Pilot operated Altitude Valve to maintain a constant (adjustable) level. If the water is drawn from the reservoir, head pressure is lowered and the main valve opens.
Standard range: 3 - 20 MWC
On request: 1 - 6 MWC 15 - 65 MWC
Opening and Closing speed adjustable. (piping from the main valve to the basin)
ACV WATTS EU 100 SERIES

Also available:
EU110-22 Pilot operated Float Valve with Flow Control function
EU127-08 Pilot operated Altitude Valve with Pressure Sustaining function

TECHNICAL SPECIFICATIONS

Build-in lengths: ISO 5752 series 1, DIN 3202 series F1
Also available: NFE 29305 series 1
Flanges: ISO 7005-2: PN10, PN16

Test standards: ISO 5208, NFE 29311
Body/cover test: 40 bar
Sealing: 28 bar

VALVE SELECTION AND SIZING

Practical method
Not applicable to rate of flow control valve EU 114 (based on velocity V (m/s), measured at main valve inlet).

<table>
<thead>
<tr>
<th>DN mm</th>
<th>CAPACITY m³/h</th>
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<tr>
<td>DN50</td>
<td>5–11</td>
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<tr>
<td>DN65</td>
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<td>60–200</td>
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<td>DN200</td>
<td>70–230</td>
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Other ranges on request.

Recommended quantity/interval (l/s) / (m³/h)

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<th>DN mm</th>
<th>minimum</th>
<th>maximum</th>
<th>continuous</th>
<th>peak</th>
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<td>m³/h</td>
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distribution systems fire protection applications
ACV WATTS EU 100 SERIES

Minimum required pressure difference for opening valve

Basic valve EU 100 (chamber connected to device outlet):
- with standard spring 0.10 bar
- with reinforced spring 0.25 bar (*)

Regulating valve:
- with standard spring 0.25 bar
- with reinforced spring 0.50 bar (*)

(*) If the main valve (DN150 and up) is mounted in vertical position, it is recommended to replace the standard spring by a reinforced one. Attention: above data depends on individual installation specifications.

Maximum rate of flow (measured at valve inlet):
- Maximum continuous: 3.4 m/s
- Maximum peak: 4.3 m/s (if higher rates occur, contact your supplier)

MATERIAL SPECIFICATIONS

Main valve
- Body/cover: Ductile iron GGG 40, inside and outside epoxy
- Diaphragm plates: Coating min. thickness 150 m
- Cover bearing: Stainless steel
- Seat/valve: Stainless steel
- Valve stem/stem nut: Stainless steel
- Spring: Stainless steel
- Studs/nuts: Stainless steel
- Seal disc: NBR nitrile rubber
- Diaphragm: NBR nitrile rubber with nylon inlay according to FDA and European approvals

- DN 50 - DN 150: single layer - thickness 1.3 mm
- DN 200 - DN 600: double layer - thickness 3.2 mm

Pilot circuit
- Control pilot:
  - Body/cover: Bronze/SS/nickel-plated
  - Seat: Stainless steel
  - Rubber parts: NBR
- Fittings, tubing etc.: Nickel-plated brass/SS/brass
- Strainer: Nickel-plated brass
- Control unit: Stainless steel
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Product range Watts Industries

- System Disconnectors
- Backflow Protection Devices
- Check Valves
- Safety Units
- Safety Relief Valves
- Pressure Reducing Valves
- Automatic Control Valves
- Butterfly Valves
- Shut-Off Valves
- Measuring Gauges

- Temperature Control
- Expansion Vessels
- Process Switches
- Fuel Products
- Gas Products
- Electronic Controls
- Installation Protection Products
- Radiator Valves
- System Products
- Manifolds and Fittings