

# EP Family

POPPET-TYPE SOLENOID VALVES (EP SERIES)

Engineered for Continuous Duty.  
Built for Enduring Performance.

UP TO 480 LPM



**Winner**  
hydraulics

- High-Pressure
- High-Flow
- Virtually Zero Leakage
- Rugged and Durable
- Versatile Configurations  
(Standard, Fast-Acting, Explosion-Proof, Position Switch)

# POPPET SOLENOID VALVES: VIRTUALLY ZERO LEAKAGE, HIGH RELIABILITY

Poppet-type solenoid valves are robust, electrically actuated directional valves in hydraulic systems. They use a poppet that seals directly against the seat via electromagnetic force, offering simple, reliable control and eliminating complex mechanical linkages.

The key benefit is superior sealing: metal-to-seat contact ensures virtually zero internal leakage. This makes them essential for high-pressure circuits, critical load-holding functions, and safety applications where absolute sealing integrity is required. Available in various configurations, they provide dependable on/off and directional flow control.

## MODULAR DESIGN

Winner Hydraulics is committed to delivering high-performance and reliable hydraulic control solutions. Our core strengths lie in modular design, advanced technical performance, and extensive customization options. These capabilities enable us to provide efficient, flexible, and cost-effective solutions for diverse hydraulic applications. For customers and distributors worldwide, this translates into simplified logistics, reduced inventory requirements, and enhanced operational efficiency.

## TECHNICAL PERFORMANCE AND DURABILITY

Winner Hydraulics products are engineered around precision and durability, ensuring system stability and efficiency even under extreme operating conditions:



### Pressure

Max. operating pressure up to 350 bar (5000 psi); peak pressure up to 420 bar (6000 psi)



### Flow Rate

Up to 480 LPM (126.8 gpm)



### Leakage

Virtually zero leakage designs ensure high-efficiency and long-term system stability.

\* All performance data is subject to the Winner Hydraulics website.



### Temperature

A wide operational range from -40 °C to +120 °C (-40 °F to +248 °F)



### Delivery Time

Leveraging a robust supply chain, Winner ensures fast and reliable product delivery to customers worldwide.



### Environmental Protection

Ingress Protection (IP) ratings of IP67 or IP69K available for robust performance in harsh or washdown environments.

# ADVANCED POPPET TECHNOLOGY FOR MODERN HYDRAULICS



## CUSTOMIZATION

Winner Hydraulics provides extensive customization capabilities to perfectly align with your unique applications

- **Tailored Specifications:**

Special cavity dimensions, outer dimensions, response times, and pressure ratings are available.

- **Custom Components:**

We provide specialized components such as manual overrides, explosion-proof coils, and position switches upon request.

## SPIN-OFF



**PEP Series**

Proportional poppet-type solenoid valve, this valve can control valve actuation (open/close) through increase or decrease current input.



**EPS Series**

EP solenoid valve with position switch to indicate valve actuation (open/close) through electrical signal feedback.

# POPPET-TYPE SOLENOID VALVE ENCODING PRINCIPLE

X    Y    Z  
**EP - 08W - 2A - 01 - N - 05**

Type	
EP	Poppet-type Solenoid Valve
PEP	Proportional Poppet-type Solenoid Valve
EPS	Poppet-type Solenoid Valve with Position Switch

Port Number	
2	
3	

Options	
N	Non-adjustable
M	Screw-out knob style
P	Push style manual override
T	Push twist style manual override
L	Pull style (cable operated)
H	Pull style (hand operated)
R	Manual override knob (clockwise operation, auto return) Color: black (standard)
RD	Manual override knob (clockwise operation, auto return) Color: red (optional)
RA	Manual override knob (counterclockwise operation, auto return) Color: black (standard)
RE	Manual override knob (counterclockwise operation, auto return) Color: red (optional)
RB	Manual override knob (clockwise operation, auto return; counterclockwise operation, auto return) Color: black (standard)
RF	Manual override knob (clockwise operation, auto return; counterclockwise operation, auto return) Color: red (optional)

Action & Flow	
0	Standard
8	Fast-acting
9	High-flow
⋮	⋮

\* Last digit is Winner structure code



Cavity	
E Series	
19E	3/4"-16UNF
76E	7/8"-14UNF
17E	G 3/4"
21E	G 1"
04E	G 1-1/4"
W Series	
06W	9/16"-18UNF
08W	3/4"-16UNF
10W	7/8"-14UNF
12W	1-1/16"-12UN
16W	1-5/16"-12UN
20W	1-5/8"-12UN
12WA	1-1/16"-12UN
A Series	
162A	M16 x 1.5
13A	M20 x 1.5
5A	1"-14UNS
16A	M36 x 2
18A	M48 x 2
11A	M20 x 1.5
M Series (Metric)	
20M	M20 x 1.5
20MB	M20 x 1.5
22M	M22 x 1.5
22ML	M22 x 1.5
27M	M27 x 2
33MC	M33 x 2
35MV	M35 x 1.5
42M	M42 x 2

Coil Diameter	
A	Coil S8, Ø12.7 x 38.5L
B	Coil S13, Ø16 x 36.4L
C	Coil S6, Ø16 x 50.2L
D	Coil S4, Ø19 x 49.3L
E	Explosion-proof coil, Ø20.5 x 86L
G	Coil S3, Ø23 x 50.4L
H	Coil S9, Ø12.7 x 37L, 14.7W
K	Explosion-proof coil Ø22 x 54.6L

\*Coil type refer to page 9 and 10

\*Configuration Y refer to page 4 to 8

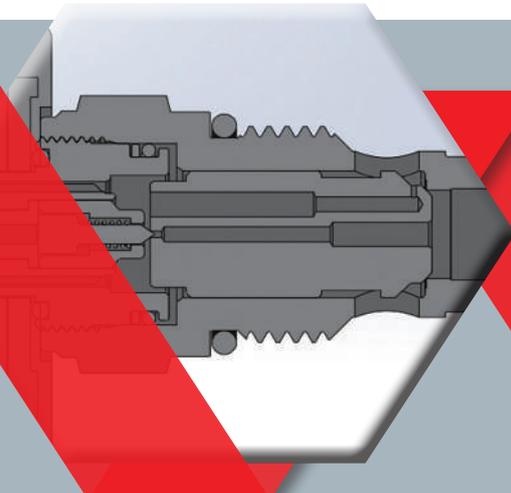
**Explosion-proof Solenoid Valve Encoding Principle**

X    Y    Z  
**EP-16W-2E-31-N-D-95**

Coil Voltage		Structure	
D	24V DC	(Blank)	Standard
E	12V DC	95	High-flow

# Poppet Solenoid Valve Types

## Symbols and Operations



### 1. Normally Closed, Pilot-Operated Poppet Valves

Designed for high-pressure blocking and load-holding applications. When de-energized, the valve behaves like a check valve, allowing free flow in one direction and blocking reverse flow (config. Y=11/31 blocks both). When energized, the poppet lifts to open one or both flow paths.

\* For Configuration X and Z, please refer to page 3.

Configuration Y	Operation	Symbol(s)	Type
01	Port 2 Blocked, Flow Port 2 to Port 1 (Monodirectional Flow) when Energized  (Ordering code e.g., EP-08W-[X]-01-[Z]-05)		Standard
			Standard, Pull Style
			Fast-Acting
			Fast-Acting, Pull Style
			High-Flow (Up to 480 LPM)
03	Port 1 Blocked, Bidirectional Flow when Energized  (Ordering code e.g., EP-08W-[X]-03-[Z]-05)		Standard
			Fast-Acting
			High-Flow (Up to 480 LPM)

Configuration Y	Operation	Symbol(s)	Type
05	Port 2 Blocked, Bidirectional Flow when Energized  (Ordering code e.g., EP-08W-[X]-05-[Z]-05)		Standard
			Fast-Acting
			High-Flow (Up to 480 LPM)
07	With Filter. Port 2 Blocked, Flow Port 2 to Port 1 (Monodirectional Flow) when Energized  (Ordering code e.g., EP-08W-[X]-07-[Z]-05)		Standard
			Standard, Pull Style
			Fast-Acting
			Fast-Acting, Pull Style
09	Port 1 Blocked, Flow Port 1 to Port 2 (Monodirectional Flow) when Energized  (Ordering code e.g., EP-08W-[X]-09-[Z]-05)		Standard
			Fast-Acting
			High-Flow (Up to 480 LPM)
11	Bidirectional Flow Blocked, Flow Port 2 to Port 1 (Monodirectional Flow) when Energized  (Ordering code e.g., EP-19E-[X]-11-[Z]-05)		Standard
			Fast-Acting

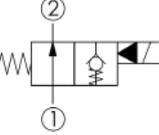
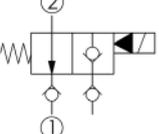
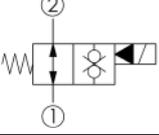
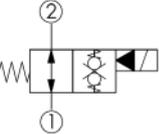
Configuration Y	Operation	Symbol(s)	Type
31	Double-Lock, Bidirectional Flow when Energized  (Ordering code e.g., EP-08W-[X]-31-[Z]-05)		Standard
			Standard, Pull Style
			Fast-Acting
			High-Flow (Up to 480 LPM)

## 2. Normally Open, Pilot-Operated Poppet Valves

Used for high-pressure load holding with a normally open configuration. When energized, it functions like a check valve, allowing free flow in one direction and blocking reverse flow (config. Y=12/32 blocks both). Energization lifts the poppet to open one or both flow directions.

\* For Configuration X and Z, please refer to page 3.

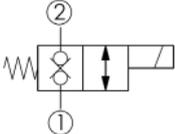
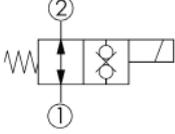
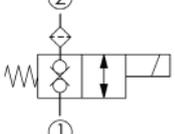
Configuration Y	Operation	Symbol(s)	Type
02	Flow Port 2 to Port 1 (Monodirectional Flow), Port 2 Blocked when Energized  (Ordering code e.g., EP-08W-[X]-02-[Z]-05)		Standard
			High-Flow (Up to 480 LPM)
04	Bidirectional Flow, Port 1 Blocked when Energized  (Ordering code e.g., EP-08W-[X]-04-[Z]-05)		Standard
			High-Flow (Up to 480 LPM)
06	Bidirectional Flow, Port 2 Blocked when Energized  (Ordering code e.g., EP-08W-[X]-06-[Z]-05)		Standard
			High-Flow (Up to 480 LPM)

Configuration Y	Operation	Symbol(s)	Type
08	With Filter. Flow Port 2 to Port 1 (Monodirectional Flow), Port 2 Blocked when Energized (Ordering code e.g., EP-08W-[X]-08-[Z]-05)		Standard
10	Flow Port 1 to Port 2 (Monodirectional Flow), Port 1 Blocked when Energized (Ordering code e.g., EP-08W-[X]-10-[Z]-05)		Standard
			High-Flow (Up to 480 LPM)
12	Flow Port 2 to Port 1 (Monodirectional Flow), Bidirectional Flow when Energized (Ordering code e.g., EP-08W-[X]-12-[Z]-05)		Standard
32	Bidirectional Flow, Double-Lock when Energized (Ordering code e.g., EP-08W-[X]-32-[Z]-05)		Standard
			High-Flow (Up to 480 LPM)

### 3. 2/2 Direct-Acting Poppet Valves

Compact, fast-response 2-way valves available in NC or NO versions. When de-energized, both directions are blocked; when energized, flow is allowed in both directions. Designed for extremely low leakage and precise control, with limited flow capacity compared to standard poppet valves.

\* For Configuration X and Z, please refer to page 3.

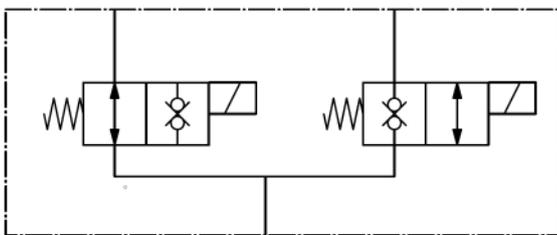
Configuration Y	Operation	Symbol(s)	Type
51	Double-Lock, Bidirectional Flow when Energized, Fast-Acting (Ordering code e.g., EP-08W-[X]-51-[Z]-04)		Standard
52	Bidirectional Flow, Double-Lock when Energized, Fast-Acting (Ordering code e.g., EP-08W-[X]-52-[Z]-04)		Standard
57	With Filter. Double-Lock, Bidirectional Flow when Energized, Fast-Acting (Ordering code e.g., EP-08W-[X]-57-[Z]-04)		Standard

## 4. 3/2 Direct-Acting Poppet Valves

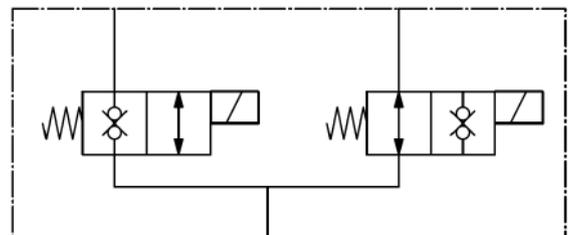
Direct-acting 3-way valves offering rapid switching and very low leakage. They provide reliable bidirectional flow paths and tight sealing, ideal for pilot control, single-acting cylinders, and circuits requiring dependable port switching with minimal leakage.

\* For Configuration X and Z, please refer to page 3.

Configuration Y	Operation	Symbol(s)	Type
53	3-Way, 2-Position, Port 3 Blocked, Flow Ports 3 to 2 when Energized, Fast-Acting  (Ordering code e.g., EP-08W-[X]-53-[Z]-04)		Standard
54	3-Way, 2-Position, Port 1 Blocked, Flow Ports 2 to 1 when Energized, Fast-Acting  (Ordering code e.g., EP-08W-[X]-54-[Z]-04)		Standard



The Y=53 direct-acting, poppet-type, 3-way 2-position solenoid directional valve can replace two direct-acting, poppet-type 2-way 2-position solenoid directional valves (Y=51 and Y=52).



The Y=54 direct-acting, poppet-type, 3-way 2-position solenoid directional valve can replace two direct-acting, poppet-type 2-way 2-position solenoid directional valves (Y=52 and Y=51).

# Accessories

## Coil, Manual Override and Position Switch

### Accessories for Poppet-Type Solenoid Valves

Winner Hydraulics provides a full spectrum of accessories to enhance the control, function, and diagnostic capability of its hydraulic poppet-type solenoid valves. These components are available in a wide range of customizable specifications to meet specific application requirements.

- **Coils:** These are the electrical actuators that switch the valve's state, available in various voltages and power ratings to maintain the valve's continuous-duty and virtually zero-leakage performance.
- **Manual Override:** A crucial component enabling manual, non-electric actuation of the valve for system setup, maintenance, troubleshooting, or emergency operations, overriding the coil when power is absent.
- **Position Switch:** Provides electrical feedback to the control system, confirming the physical state of the valve (open or closed). This is vital for real-time monitoring and advanced machine diagnostics in automated sequences.

**Note:** Except for items like screw knobs and certain covers, these accessories (Coils, Manual Override, and Position Switch) must be ordered separately to ensure correct specification matching.

### ▶▶ COILS

S3

EC23C Ø 23x50.4 mm / O.D.Ø 45 mm



AMP JUNIOR



DEUTSCH DT04-2P



ISO 4400/ EN 175301-803,  
FORM A (DIN 43650)

S4

EC19A Ø 19x49.3 mm / O.D.Ø 37.8 mm



AMP JUNIOR



DEUTSCH DT04-2P



ISO 4400/ EN 175301-803,  
FORM A (DIN 43650)



METRIPACK SERIES 150-2M

**S6****EC16B** Ø 16.1 x 50.2 mm / O.D. Ø 39 mm

AMP JUNIOR



DEUTSCH DT04-2P



AMP SUPERSEAL

ISO 4400/ EN 175301-803,  
FORM A (DIN 43650)**S9****EC04H** Ø 12.7(Ø13)x37 mm / O.D.Ø 33 mm

DOUBLE LEAD



AMP JUNIOR

**S13****EC16P** Ø 16x38.3 mm / O.D.Ø 32 mm

DEUTSCH DT04-2P



AMP JUNIOR

**S8****EC04W** Ø 12.7(Ø13)x38.5 mm

AMP JUNIOR



AMP SUPERSEAL



DEUTSCH DT04-2P

ISO 4400/ EN 175301-803,  
FORM A (DIN 43650)

DOUBLE LEAD



AMP SUPERSEAL



AMP JUNIOR

**S11****EC04F** Ø 12.7(Ø13)x40 mm

AMP JUNIOR



DEUTSCH DT04-2P

ISO 4400/ EN 175301-803,  
FORM A (DIN 43650)**S12****EC16G** Ø 16x50.2 mm

AMP JUNIOR



DEUTSCH DT04-2P

ISO 4400/ EN 175301-803,  
FORM A (DIN 43650)

# WE CONNECT

Winner Hydraulics is committed to driving innovation by developing high-performance solutions tailored to our clients' needs. To guarantee superior quality, 100% of our products undergo rigorous inspection before shipment. We pride ourselves on building lasting partnerships through exceptional product reliability and responsive service across a diverse range of industries.

Furthermore, our products feature **WINNERcoat®**, a premium zinc-nickel plating designed for extreme environments, providing up to 1,000 hours of salt spray resistance.



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