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

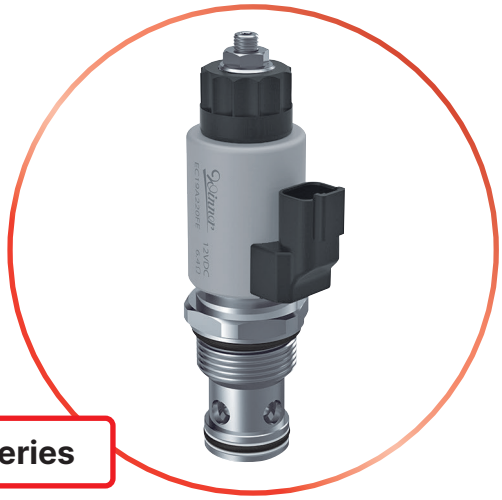
- **Tailored Specifications:**

  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

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 × 38.5L
B	Coil S13, Ø16 x 36.4L
C	Coil S6, Ø 16 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

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

Explosion-proof Solenoid Valve Encoding Principle

X Y Z

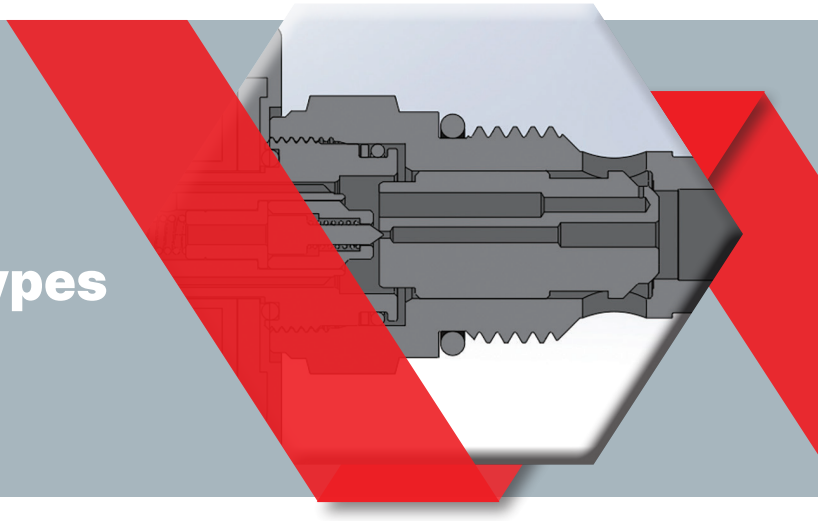
EP-16W-2E-31-N-D-95

Coil Voltage	
D	24V DC
E	12V DC

Structure	
(Blank)	Standard
95	High-flow

Poppet Solenoid Valve Types

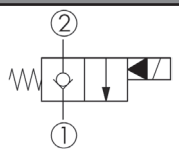
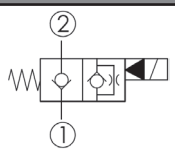
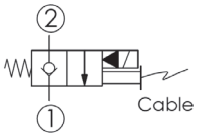
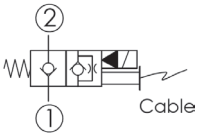
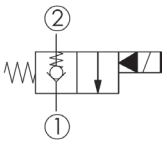
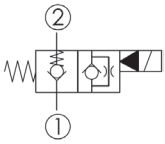
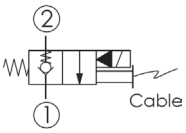
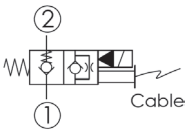
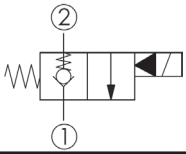
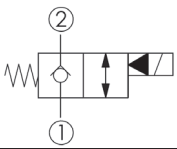
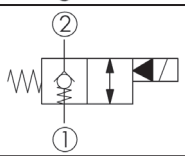
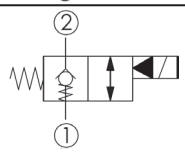
Symbols and Operations

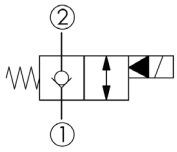
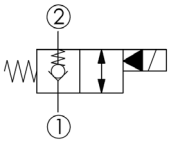
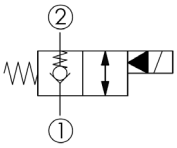
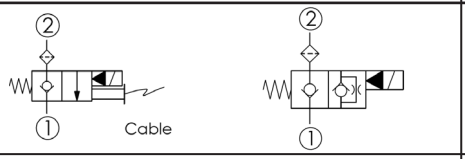
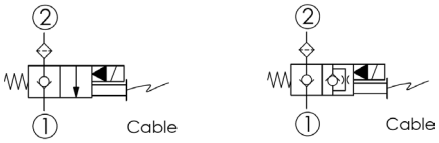
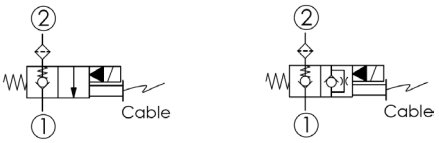
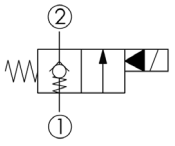
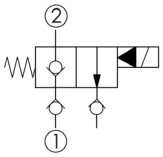
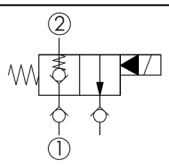


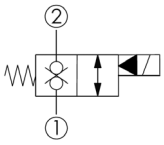
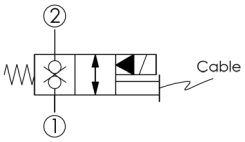
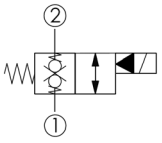
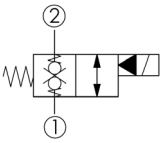
1. Normally Closed, Pilot-Operated Poppet Valves

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)

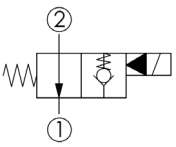
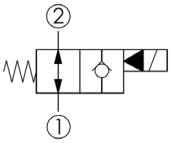
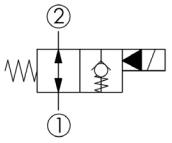
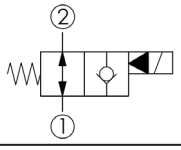
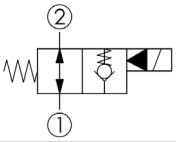
Configuration Y	Operation	Symbol(s)	Type
05	Port 2 Blocked, Bidirectional Flow when Energized (Ordering code e.g., EP-08W-X-05-Z-05)		Standard
			Fast-Acting
			High-Flow (Up to 480 LPM)
07	With Filter. Port 2 Blocked, Flow Port 2 to Port 1 (Monodirectional Flow) when Energized (Ordering code e.g., EP-08W-X-07-Z-05)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

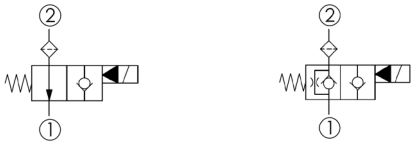
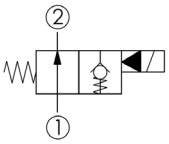
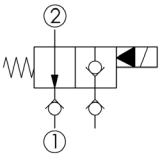
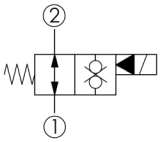
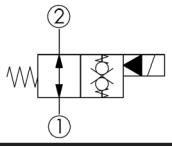
Configuration Y	Operation	Symbol(s)	Type
31	Double-Lock, Bidirectional Flow when Energized (Ordering code e.g., EP-08W-X-31-Z-05)		Standard
			Standard, Pull Style
			Fast-Acting
			High-Flow (Up to 480 LPM)

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.

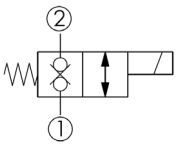
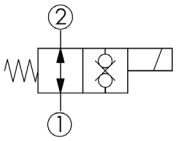
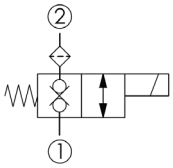
Configuration Y	Operation	Symbol(s)	Type
02	Flow Port 2 to Port 1 (Monodirectional Flow), Port 2 Blocked when Energized (Ordering code e.g., EP-08W-X-02-Z-05)		Standard
			High-Flow (Up to 480 LPM)
04	Bidirectional Flow, Port 1 Blocked when Energized (Ordering code e.g., EP-08W-X-04-Z-05)		Standard
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

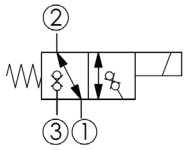
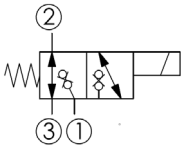
※ For Configuration X and Z, please refer to page 3.

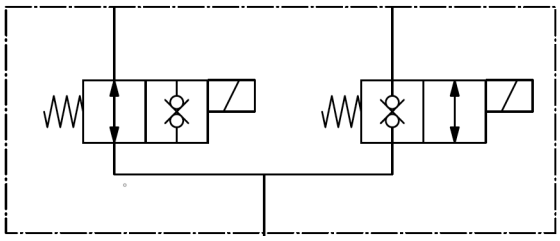
Configuration Y	Operation	Symbol(s)	Type
51	Double-Lock, Bidirectional Flow when Energized, Fast-Acting (Ordering code e.g., EP-08W-X-51-Z-04)		Standard
52	Bidirectional Flow, Double-Lock when Energized, Fast-Acting (Ordering code e.g., EP-08W-X-52-Z-04)		Standard
57	With Filter. Double-Lock, Bidirectional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

4. 3/2 Direct-Acting Poppet Valves

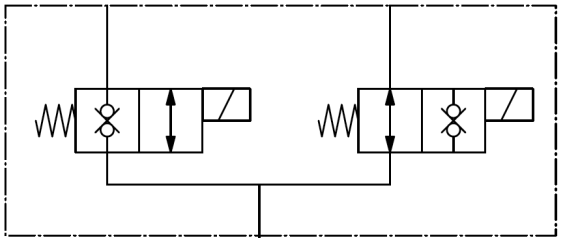
Direct-acting 3-way valves offering rapid switching and very low leakage. They provide reliable bidirectional flow paths and tight sealing, ideal for pilot control, single-acting cylinders, and circuits requiring dependable port switching with minimal leakage.

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

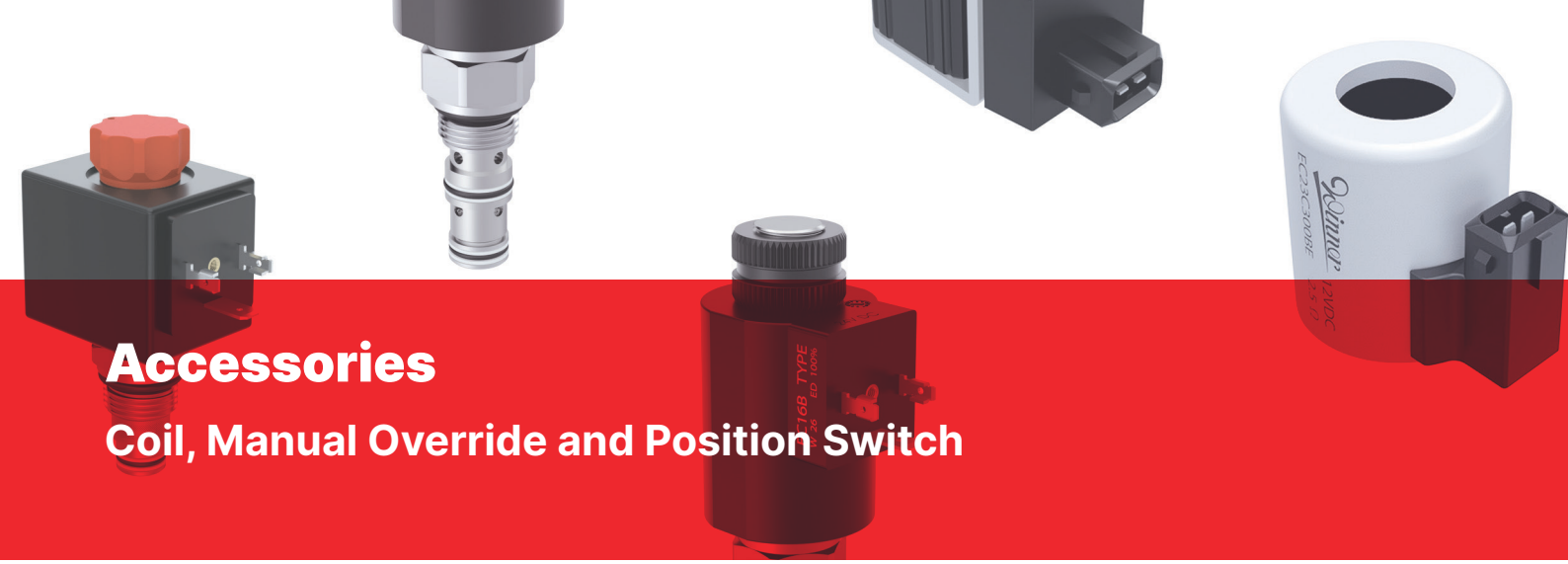
Configuration Y	Operation	Symbol(s)	Type
53	3-Way, 2-Position, Port 3 Blocked, Flow Ports 3 to 2 when Energized, Fast-Acting (Ordering code e.g., EP-08W-X-53-Z-04)		Standard
54	3-Way, 2-Position, Port 1 Blocked, Flow Ports 2 to 1 when Energized, Fast-Acting (Ordering code e.g., EP-08W-X-54-Z-04)		Standard



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



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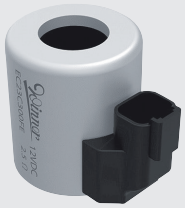

DEUTSCH DT04-2P



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

S4 **EC19A** Ø 19x49.3 mm / O.D.Ø 37.8 mm



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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


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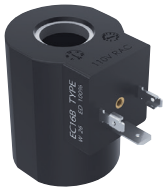
DEUTSCH DT04-2P


AMP SUPERSEAL

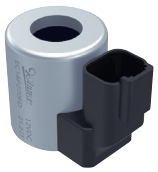

ISO 4400/ EN 175301-803,
FORM A (DIN 43650)

S9 EC04H Ø 12.7(Ø13)x37 mm / O.D.Ø 33 mm


DOUBLE LEAD

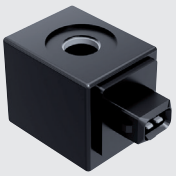

AMP JUNIOR

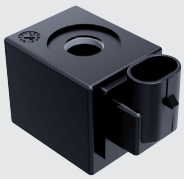
S13 EC16P Ø 16x38.3 mm / O.D.Ø 32 mm


DEUTSCH DT04-2P


AMP JUNIOR

S8 EC04W Ø 12.7(Ø13)x38.5 mm


AMP JUNIOR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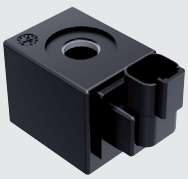
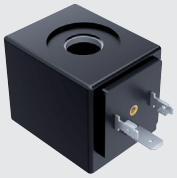
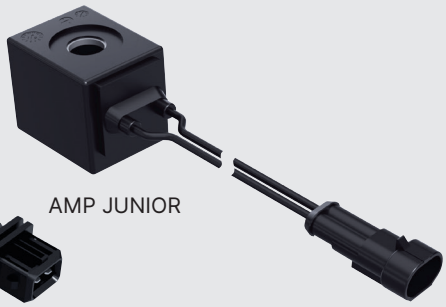

DEUTSCH DT04-2P

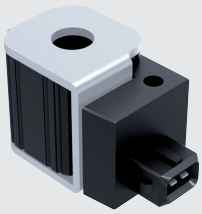

ISO 4400/ EN 175301-803,
FORM A (DIN 43650)


DOUBLE LEAD

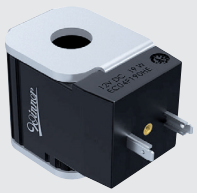

AMP SUPERSEAL


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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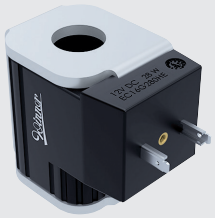
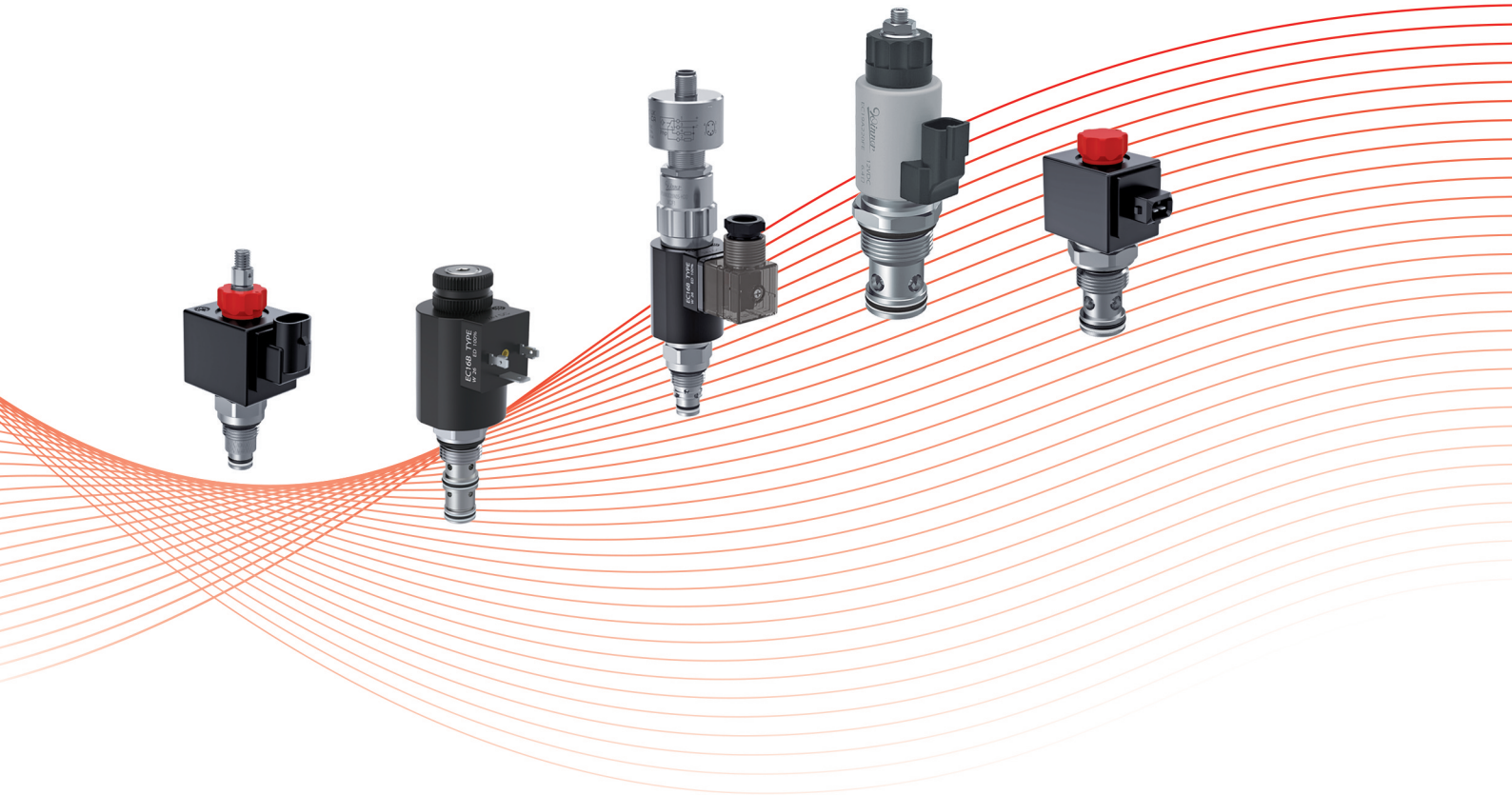
DEUTSCH DT04-2P


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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