


# E-Type

## Eco Power-Saving

Under the wave of Industry 4.0, various industries are investing in automation to improve production speed, flexibility, and cost-effectiveness, but another major problem has arisen! In the automation process, regardless of the compressed air driven by pneumatic or the power consumption of electric drive, **it will cause a lot of energy consumption.**

 launched the **E-Type** series products, which not only reduce the power consumption of the solenoid valve by more than **75%** but also **reduce the temperature of the** solenoid valve coil to extend the service life of the solenoid valve.

## E-TYPE Eco Power-Saving Solenoid Valve

### Features

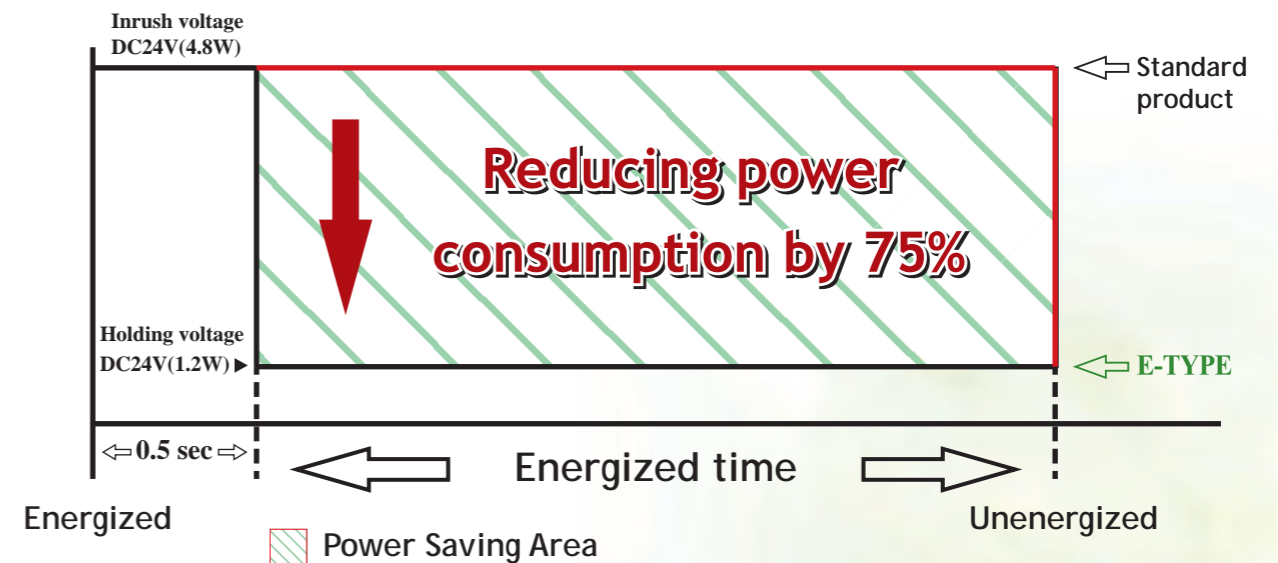
- (1) Power savings by reducing current consumption.
- (2) Also can reduce the temperature of the solenoid's coil to improve the performance and extend the service life While saving power.

### Operating Principle

When the solenoid valve is actuated, the starting voltage (Inrush voltage) is first applied to switch the valve. After the valve switching is completed, the solenoid valve at this time only needs a small current (and voltage) to maintain the current state of the valve, which is called As the holding voltage, **SHAKO** uses this feature to make "**energy-saving**" solenoid valves.

Generally, the pulse width modulation method (PWM) is commonly used as an energy-saving control method. The energy-saving efficiency of this method is limited. Therefore, **SHAKO** adopts the "**smart IC chip + special process**" to directly reduce the current to achieve energy-saving control.

### The example for calculation method of energy saving



### Test condition:

Coil: 24VDC (4.8W), Operating time: 12 hrs /day, 22 days/month

(1) Coil with Standard connector/pcs :4.8W \*12 hrs \* 22 days =1267.2W/month

(2) Coil with E-type connector/pcs:1.2W \* 12 hrs \* 22 days =316.8W/month

**You can save energy of 950.4 W per month by 1pcs.**





### Features

1. Maximum reduction of power consumption is up to 75%.
2. Effectively reduce temperature rise of coil and extend service life of solenoid valve.
3. Quick response.
2. Stainless steel stem provides exceptional durability.
3. Flange type is available for JIS 10K, ANSI 150LB and PN16.
4. Timer for setting on/off time as optional accessory.
5. CE conformity.
6. Coil nut is available, please refer to page 5-3.
7. For power save connector, please refer to page 5-6.



### How to order

E-PU220A	N	V	F	—	03	N	—	S7
Brass	Acting style	Diaphragm	Flange type		Port size	Thread		Voltage
Assisted Lift	Blank : Normally closed N : Normally open	Blank : NBR V : VITON E : EPDM H : HNBR	Blank : W/O Flange F : 10K F3 : 150LB F4 : PN16 only for A series		03 : 3/8" 04 : 1/2" 06 : 3/4" 08 : 1"	Blank : G N : NPT R : Rc		S7 : 12VDC S9 : 24VDC

### How to order Repair kit

ZGPU220A	—	03	N	Description	Qty.
Repair kit		Port size	Diaphragm		
ZGPU220A (Normally closed)		03 : 3/8", 1/2"	N : NBR	Diaphragm set	1
ZGPU220AN (Normally open)		06 : 3/4" 08 : 1"	V : VITON E : EPDM H : HNBR	Spring	1
				Packing	1

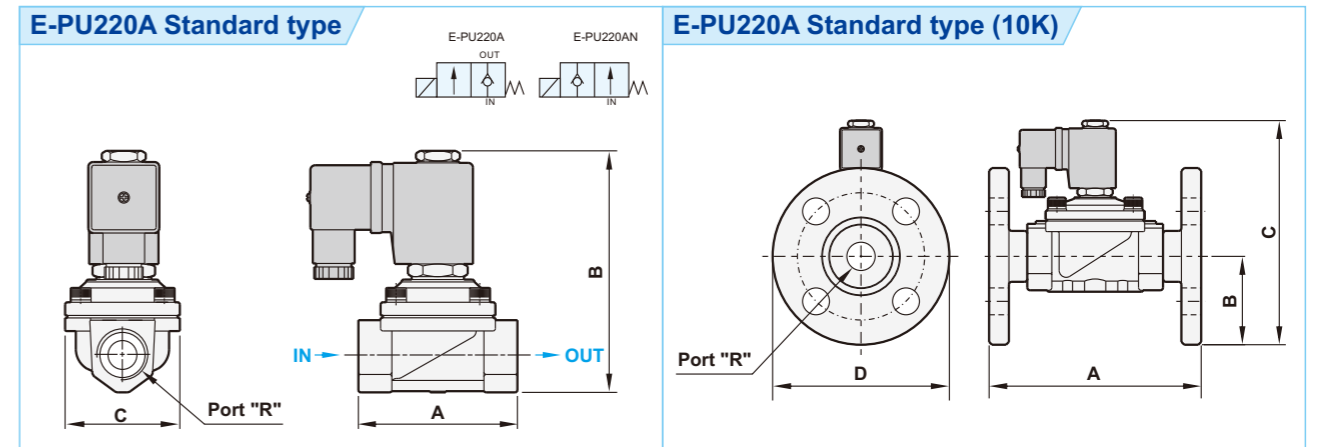
### Specifications

Model	E-PU220A-03	E-PU220A-04	E-PU220A-06	E-PU220A-08
Port size	3/8"	1/2"	3/4"	1"
Fluid	Compressed air (light oil, water)			
Orifice	Ø13mm	Ø13mm	Ø20mm	Ø25mm
Effective area	76mm <sup>2</sup>	76mm <sup>2</sup>	162mm <sup>2</sup>	220mm <sup>2</sup>
Acting	Assisted Lift			
Construction	Diaphragm			
Operating pressure range DC	0 ~ 6 kgf/cm <sup>2</sup>		0 ~ 5 kgf/cm <sup>2</sup>	
Proof pressure	10 kgf/cm <sup>2</sup>			
Body material / Flange material	Forged Brass / Steel SS41			
Fluid temperature	-10°C ~ 90°C			
Ambient temperature	-10°C ~ 60°C			
Installation	Horizontal			
Duty cycle	100% ED			
Coil type	DIN			
Protection class	IP65 (DIN 40 050)			
Insulation class	F			
Voltage tolerance	±10%			
Standard voltage	12VDC, 24VDC			
Power consumption	Power save 75% = 3.7W(4.6W option)			
Net weight	740g	740g	945g	1485g

### Seal material selection guide

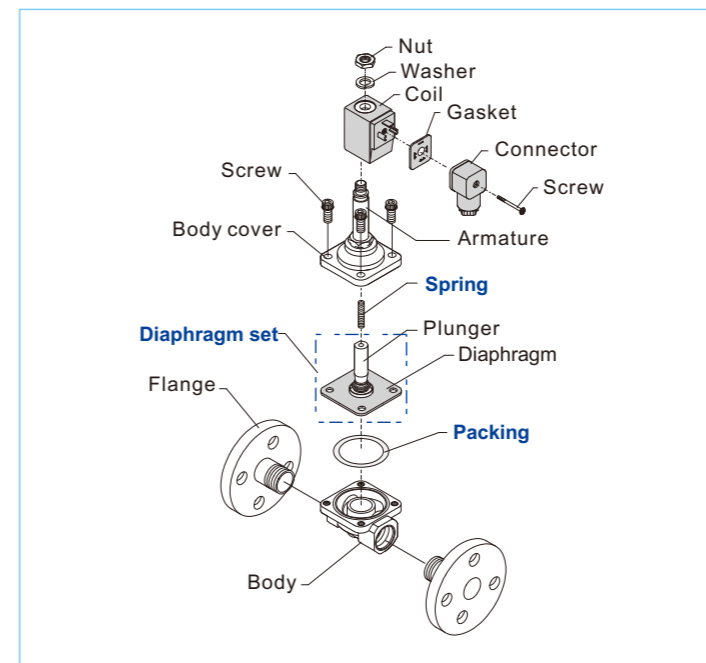
Seal	Temperature range	Suitable fluid	Unsuitable fluid
NBR	-15°C ~ 80°C	Air, Water, Neutral gases, Mineral oil	Fuel oil, Gasoline and Hi-test gasoline, Diesel fuel
HNBR	-40°C ~ 150°C	Air, Water, Gear oil, Engine oil	Pharmaceutical liquid, Gasoline and Hi-test gasoline, Light oil
VITON	-10°C ~ 180°C	Fuel oil, Gasoline and Hi-test gasoline, Diesel fuel	Hot water, Steam, Brake oil (ATE Blue)
EPDM	-5°C ~ 130°C	Hot water, Detergent liquid	Mineral oil, Gasoline

### Dimensions

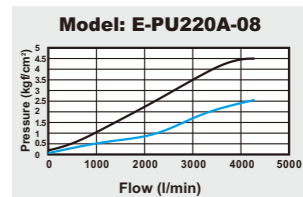
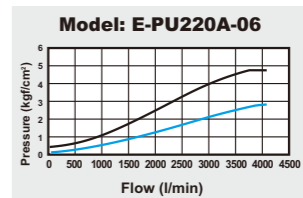
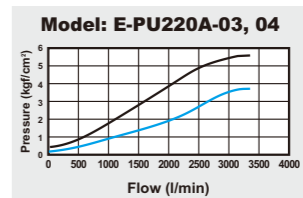


Model	E-PU220A-03	E-PU220A-04	E-PU220A-06	E-PU220A-08	Model	E-PU220AF-03	E-PU220AF-04	E-PU220AF-06	E-PU220AF-08
R	3/8"	1/2"	3/4"	1"	R	3/8"	1/2"	3/4"	1"
A	66.5	66.5	71	96	A	110	110	120	150
B	101	101	107	120.5	B	45	47.5	50	62.5
C	48	48	58	70.7	C	130.5	133	138.5	158.5
					D	90	95	100	125

### Explosion



### Flow chart



### Features

1. Maximum reduction of power consumption is up to 75%.
2. Effectively reduce temperature rise of coil and extend service life of solenoid valve.
3. Quick response.
4. Stainless steel stem provides exceptional durability.
5. Flange type is available for JIS 10K, ANSI 150LB and PN16.
6. Timer for setting on/off time as optional accessory.
7. CE conformity.
8. Coil nut is available, please refer to page 5-3.
9. For power save connector, please refer to page 5-6.



### How to order

E-SPU220A	N	E	F	-	03	N	-	S7
<b>Stainless steel Assisted Lift</b>	<b>Acting style</b> Blank :Normally closed N :Normally open	<b>Diaphragm</b> Blank :VITON E :EPDM B :NBR H :HNBR	<b>Flange type</b> Blank :W/O Flange F :10K F3 :150LB F4 :PN16 only far A series		<b>Port size</b> 03 :3/8" 04 :1/2" 06 :3/4"	<b>Thread</b> Blank :G N :NPT R :Rc		<b>Voltage</b> S7 :12VDC S9 :24VDC

### How to order Repair kit

ZGPU220A	-	03	N	Description	Qty.
<b>Repair kit</b>				Diaphragm set	1
ZGPU220A (Normally closed)		03 :3/8", 1/2"	N :NBR V :VITON E :EPDM H :HNBR	Spring	1
ZGPU220AN (Normally open)		06 :3/4"		Packing	1

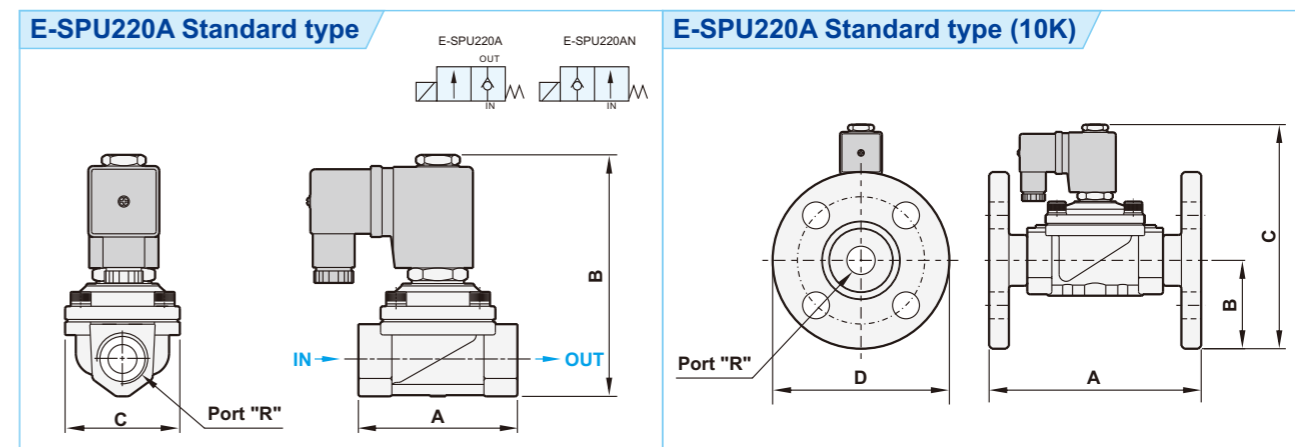
### Specifications

Model	E-SPU220A-03	E-SPU220A-04	E-SPU220A-06
Port size	3/8"	1/2"	3/4"
Fluid	Compressed air (light oil, water)		
Orifice	Ø13mm		Ø20mm
Effective area	76mm <sup>2</sup>		162mm <sup>2</sup>
Acting	Assisted Lift		
Construction	Diaphragm		
Operating pressure range DC	0 ~ 6 kgf/cm <sup>2</sup>		0 ~ 5 kgf/cm <sup>2</sup>
Proof pressure	10 kgf/cm <sup>2</sup>		
Body material / Flange material	Stainless steel SUS316 / SUS316, SUS304		
Fluid temperature	-10°C ~ 90°C		
Ambient temperature	-10°C ~ 60°C		
Installation	Horizontal		
Duty cycle	100% ED		
Coil type	DIN		
Protection class	IP65 (DIN 40 050)		
Insulation class	F		
Voltage tolerance	±10%		
Standard voltage	12VDC, 24VDC		
Power consumption	Power save 75% = 3.7W(4.6W option)		
Net weight	715g		920g

### Seal material selection guide

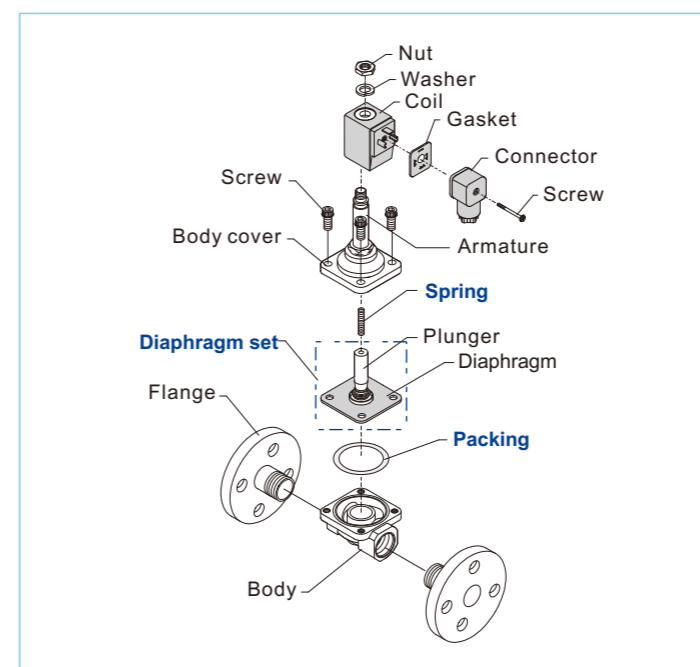
Seal	Temperature range	Suitable fluid	Unsuitable fluid
NBR	-15°C ~ 80°C	Air, Water, Neutral gases, Mineral oil	Fuel oil, Gasoline and Hi-test gasoline, Diesel fuel
HNBR	-40°C ~ 150°C	Air, Water, Gear oil, Engine oil	Pharmaceutical liquid, Gasoline and Hi-test gasoline, Light oil
VITON	-10°C ~ 180°C	Fuel oil, Gasoline and Hi-test gasoline, Diesel fuel	Hot water, Steam, Brake oil (ATE Blue)
EPDM	-5°C ~ 130°C	Hot water, Detergent liquid	Mineral oil, Gasoline

### Dimensions

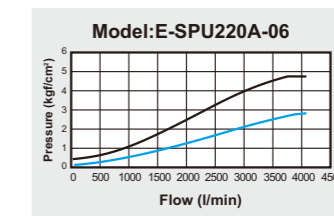
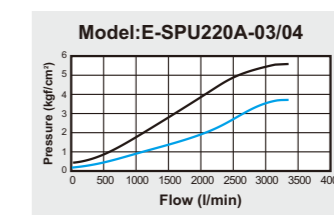


Model	E-SPU220A-03, 04		E-SPU220A-06	Model	E-SPU220AF-03, 04		E-SPU220AF-06
	(mm)		(mm)		(mm)		(mm)
R	3/8"	1/2"	3/4"	R	3/8"	1/2"	3/4"
A	66.5		71	A	110		120
B	101		107	B	47.5		50
C	48		58	C	133		138.5
				D	95		100

### Explosion



### Flow chart





### Features

1. Maximum reduction of power consumption is up to 75%.
2. Effectively reduce temperature rise of coil and extend service life of solenoid valve.
3. Direct acting and quick response.
4. Suitable for acid and alkaline chemical fluid.
5. Fluid should be liquid. Solid media is forbidden.
6. Horizontal installation is required.
7. Coil nut is available, please refer to page 5-3, 5-4.
8. For power save connector, please refer to page 5-6.



### How to order

<b>E-PE220</b>	<b>N</b>	<b>-</b>	<b>03</b>	<b>N</b>	<b>-</b>	<b>S7</b>
<b>Teflon Direct acting Solenoid control</b>	<b>Acting style</b>		<b>Port size</b>	<b>Thread</b>		<b>Voltage</b>
	Blank:Normally closed N:Normally open		03:3/8" 04:1/2" 06:3/4"	Blank:G N:NPT R:Rc		S7:12VDC S9:24VDC

### How to order Repair kit

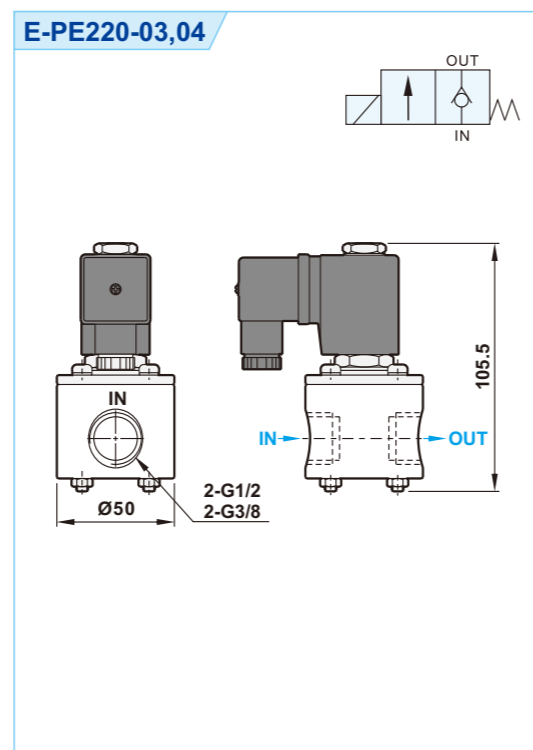
<b>ZGPE220 - 03</b>	
<b>Repair kit</b>	<b>Port size</b>
ZGPE220 ZGPE220H	03:3/8", 1/2"

Description	Qty.
Plunger	1
Spring	1
Gasket	1
Diaphragm	1

### Specifications

Model	E-PE220-03	E-PE220-04
Port size	3/8"	1/2"
Fluid	Pure water, Chemical acid & alkali liquid	
Orifice	Ø5mm	
Acting	Direct acting	
Diaphragm	NBR PTFE	
Operating pressure range	0.1 ~ 1 kgf/cm <sup>2</sup>	
Proof pressure	1.5 kgf/cm <sup>2</sup>	
Body material	Teflon	
Fluid temperature	-10°C ~ 90°C	
Ambient temperature	-10°C ~ 60°C	
Installation	Horizontal	
Duty cycle	100% ED	
Coil type	DIN	
Protection class	IP65 (DIN 40 050)	
Insulation class	F	
Voltage tolerance	±10%	
Standard voltage	12VDC, 24VDC	
Power consumption	Power save 75% = 3.7W	
Net weight	440g	

### Dimensions



### Features

1. Maximum reduction of power consumption is up to 75%.
2. Effectively reduce temperature rise of coil and extend service life of solenoid valve.
3. Direct acting.
4. Quick response.
5. Timer for setting on/off time as optional accessory.
6. Good performance on resistance of counter flow.
7. Coil nut is available, please refer to page 5-3, 5-4.
8. For power save connector, please refer to page 5-6.



### How to order

<b>E-SPUY220</b>	<b>E</b>	<b>-</b>	<b>04</b>	<b>N</b>	<b>-</b>	<b>S7</b>
<b>Angle type Direct Acting</b>	<b>Diaphragm</b>		<b>Port size</b>	<b>Thread</b>		<b>Voltage</b>
	Blank:VITON E:EPDM H:HNBR		04:1/2"	Blank:G N:NPT R:Rc		S7:12VDC S9:24VDC

\*Please contact our sales for normally open type.

### How to order Repair kit

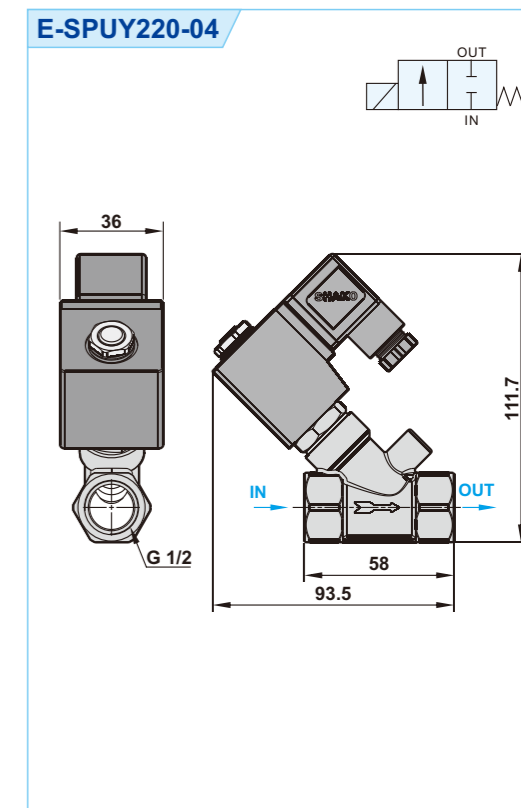
<b>ZGSPUY - 04</b>		<b>V</b>
<b>Repair kit</b>	<b>Port size</b>	<b>Diaphragm</b>
	04:1/2"	V:VITON E:EPDM H:HNBR

Description	Qty.
T type plunger	1
O-ring	1

### Specifications

Model	E-SPUY220-04
Port size	1/2"
Fluid	Standard:Compressed air Option:Hot water,Ammonia,Vacuum
Orifice	Ø9.5mm
Effective area	27.6mm <sup>2</sup>
Acting	Direct acting
Seal	Standard:VITON, Option:EPDM
Operating pressure range	0 ~ 8 kgf/cm <sup>2</sup>
Proof pressure	15 kgf/cm <sup>2</sup>
Body material	SUS316
Fluid temperature	-10°C ~ 90°C
Ambient temperature	-10°C ~ 60°C
Installation	Any direction
Duty cycle	100% ED
Coil type	DIN
Protection class	IP65 (DIN 40 050)
Insulation class	F
Voltage tolerance	±10%
Standard voltage	12VDC, 24VDC
Power consumption	Power save 75% = 4.6W
Net weight	425g

### Dimensions



### Features

1. Maximum reduction of power consumption is up to 75%.
2. Effectively reduce temperature rise of coil and extend service life of solenoid valve.
3. Pilot acting for low starting pressure.
4. Large flow rate and high working pressure.
5. Quick response.
6. Stainless steel stem provides exceptional durability.
7. Flange type is available for JIS 10K, ANSI 150LB and PN16.
8. Timer for setting on/off time as optional accessory.
9. CE conformity.
10. Coil nut is available, please refer to page 5-3.
11. For power save connector, please refer to page 5-6.



### How to order

<b>E-PU225A</b>	<b>N</b>	<b>V</b>	<b>F</b>	<b>—</b>	<b>O3</b>	<b>N</b>	<b>—</b>	<b>S7</b>
<b>Pilot Acting</b>	<b>Acting style</b>	<b>Diaphragm</b>	<b>Flange type</b>		<b>Port size</b>	<b>Thread</b>		<b>Voltage</b>
	Blank : Normally closed N : Normally open	Blank : NBR V : VITON E : EPDM H : HNBR	Blank : W/O Flange F : 10K F3 : 150LB F4 : PN16		O3 : 3/8" 12 : 1 1/4" O4 : 1/2" 14 : 1 1/2" O6 : 3/4" 20 : 2" O8 : 1"	Blank : G N : NPT R : Rc		S7 : 12VDC S9 : 24VDC

### How to order Repair kit

<b>ZGPU225A</b>	<b>—</b>	<b>O3</b>	<b>N</b>		
<b>Repair kit</b>	<b>Port size</b>	<b>Diaphragm</b>		<b>Description</b>	<b>Qty.</b>
ZGPU225A (Normally closed)	O3 : 3/8", 1/2"	N : NBR		Plunger	1
ZGPU225AN (Normally open)	O6 : 3/4", 1" 12 : 1-1/4", 1-1/2" 20 : 2"	V : VITON E : EPDM H : HNBR		Spring	2
				Diaphragm	1

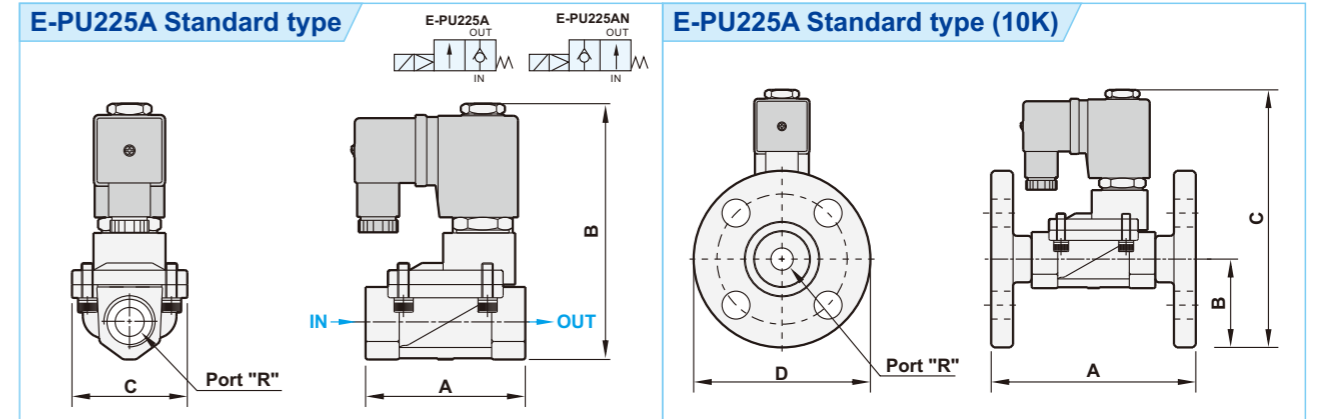
### Specifications

Model	E-PU225A-03	E-PU225A-04	E-PU225A-06	E-PU225A-08	E-PU225A-12	E-PU225A-14	E-PU225A-20
Port size	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Fluid	Compressed air (light oil, water)						
Orifice	13mm		25mm		38mm		50mm
Effective area	88mm <sup>2</sup>		230mm <sup>2</sup>		404mm <sup>2</sup>	552mm <sup>2</sup>	883mm <sup>2</sup>
Acting	Pilot acting						
Construction	Diaphragm						
Operating pressure range	0.5 ~ 10kgf/cm <sup>2</sup> (0.5 ~ 10.0Bar)						
Proof pressure	15 kgf/cm <sup>2</sup> (15.0Bar)						
Body / Flange material	Forged Brass / Steel SS41						
Fluid temperature	-10°C ~ 90°C						
Ambient temperature	-10°C ~ 60°C						
Installation	Horizontal						
Duty cycle	100% ED						
Coil type	DIN						
Protection class	IP65 (DIN 40 050)						
Insulation	F						
Voltage tolerance	± 10%						
Standard voltage	12VDC, 24VDC						
Power consumption	Power save 75% = 3.7W						
Net weight	775g		1550g		2820g		4665g

### Seal material selection guide

Seal	Temperature range	Suitable fluid	Unsuitable fluid
NBR	-15°C ~ 80°C	Air, Water, Neutral gases, Mineral oil	Fuel oil, Gasoline and Hi-test gasoline, Diesel fuel
HNBR	-40°C ~ 150°C	Air, Water, Gear oil, Engine oil	Pharmaceutical liquid, Gasoline and Hi-test gasoline, Light oil
VITON	-10°C ~ 180°C	Fuel oil, Gasoline and Hi-test gasoline, Diesel fuel	Hot water, Steam, Brake oil (ATE Blue)
EPDM	-5°C ~ 130°C	Hot water, Detergent liquid	Mineral oil, Gasoline

### Dimensions

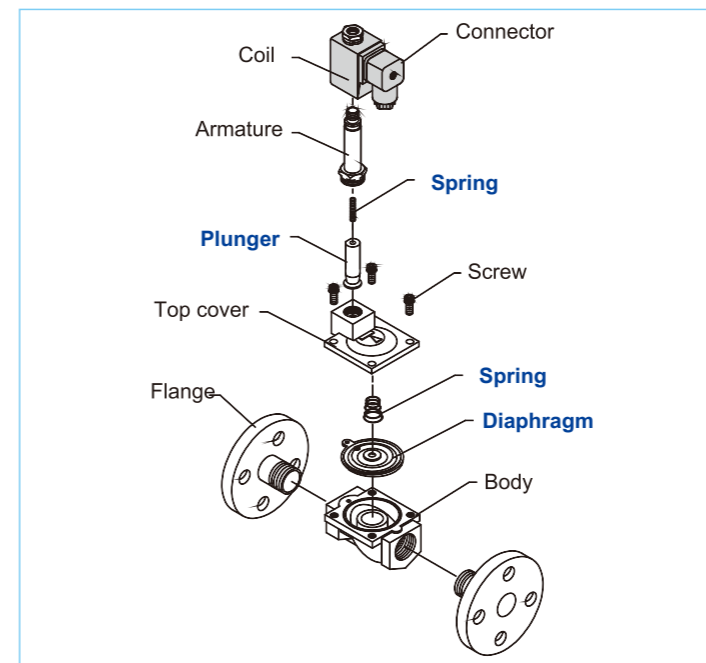


Model	R	A	B	C	(mm)
E-PU225A-03	3/8"	66.5	106.5	48.5	
E-PU225A-04	1/2"	66.5	106.5	48	
E-PU225A-06	3/4"	96	126	70.7	
E-PU225A-08	1"	96	126	70.7	
E-PU225A-12	1 1/4"	131.5	145.5	96	
E-PU225A-14	1 1/2"	131.5	145.5	96	
E-PU225A-20	2"	160	160	112	

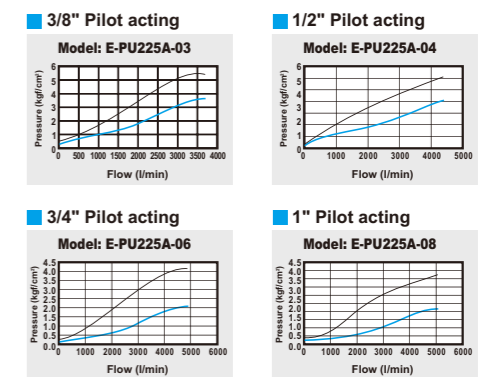
  

Model	R	A	B	C	D	(mm)
E-PU225AF-03	3/8"	110	45	136	90	
E-PU225AF-04	1/2"	110	47.5	138.5	95	
E-PU225AF-06	3/4"	145	50	153	100	
E-PU225AF-08	1"	150	62.5	165.5	125	
E-PU225AF-12	1 1/4"	180	67.5	173	135	
E-PU225AF-14	1 1/2"	180	70	182.5	140	
E-PU225AF-20	2"	210	77.5	210	155	

### Explosion



### Flow chart



### Features

1. Maximum reduction of power consumption is up to 75%.
2. Effectively reduce temperature rise of coil and extend service life of solenoid valve.
3. Pilot acting for low starting pressure.
4. Large flow rate and high working pressure.
5. Quick response.
6. Stainless steel body and stem provide exceptional durability.
7. Flange type is available for JIS 10K, ANSI 150LB and PN16.
8. Timer for setting on/off time as optional accessory.
9. CE conformity.
10. Coil nut is available, please refer to page 5-3.
11. For power save connector, please refer to page 5-6.



### How to order

<b>E-SPU225A</b>	<b>N</b>	<b>E</b>	<b>F</b>	<b>—</b>	<b>O3</b>	<b>N</b>	<b>—</b>	<b>S7</b>
<b>Stainless steel</b>	<b>Acting style</b>	<b>Diaphragm</b>	<b>Flange type</b>		<b>Port size</b>	<b>Thread</b>		<b>Voltage</b>
<b>Pilot acting</b>	<b>Blank</b> :Normally closed <b>N</b> :Normally open	<b>Blank</b> :VITON <b>B</b> :NBR <b>E</b> :EPDM <b>H</b> :HNBR	<b>Blank</b> :W/O Flange <b>F</b> :10K <b>F3</b> :150LB <b>F4</b> :PN16		<b>O3</b> :3/8" <b>12</b> :1 1/4" <b>O4</b> :1/2" <b>14</b> :1 1/2" <b>O6</b> :3/4" <b>20</b> :2" <b>O8</b> :1"	<b>Blank</b> :G <b>N</b> :NPT <b>R</b> :Rc		<b>S7</b> :12VDC <b>S9</b> :24VDC

### How to order Repair kit

<b>ZGPU225A</b>	<b>—</b>	<b>O3</b>	<b>N</b>		
<b>Repair kit</b>	<b>Port size</b>	<b>Diaphragm</b>		<b>Description</b>	<b>Qty.</b>
<b>ZGPU225A (Normally closed)</b>	<b>O3</b> :3/8", 1/2"	<b>N</b> :NBR		Plunger	1
<b>ZGPU225AN (Normally open)</b>	<b>O6</b> :3/4", 1" <b>12</b> :1-1/4", 1-1/2" <b>20</b> :2"	<b>V</b> :VITON <b>E</b> :EPDM <b>H</b> :HNBR		Spring	2
				Diaphragm	1

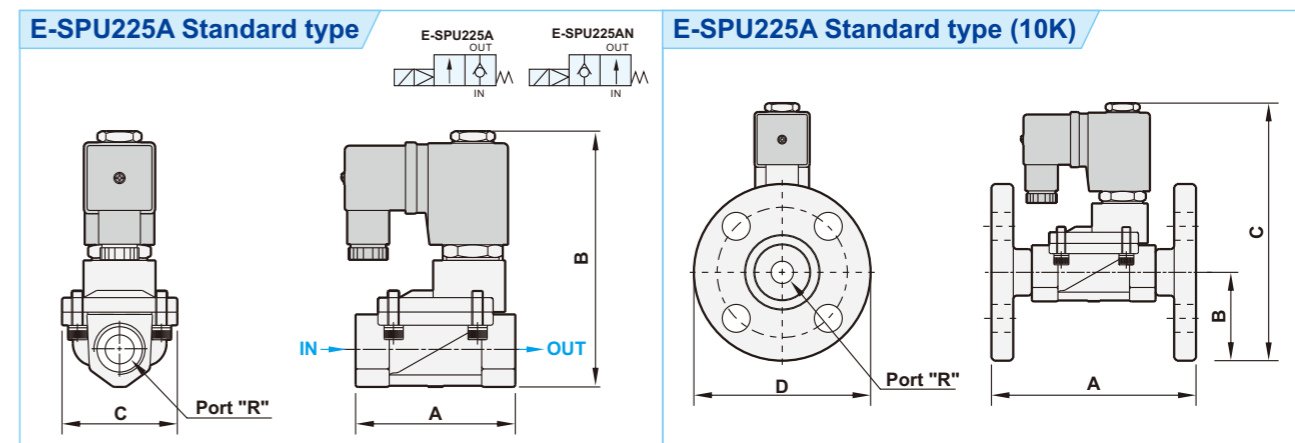
### Specifications

Model	E-SPU225A-03	E-SPU225A-04	E-SPU225A-06	E-SPU225A-08	E-SPU225A-12	E-SPU225A-14	E-SPU225A-20
Port size	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Fluid	Compressed air (light oil, water)						
Orifice	Ø13mm		Ø25mm		Ø38mm		Ø50mm
Effective area	88mm <sup>2</sup>		230mm <sup>2</sup>		404mm <sup>2</sup>	552mm <sup>2</sup>	883mm <sup>2</sup>
Acting	Pilot acting						
Diaphragm	VITON ( Standard ), NBR, EPDM ( Option )						
Operating pressure range	0.5 ~ 10 kgf/cm <sup>2</sup>						
Proof pressure	15 kgf/cm <sup>2</sup>						
Body /Flange material	Stainless steel SUS316 / SUS304,SUS316						
Fluid temperature	-10°C ~ 90°C						
Ambient temperature	-10°C ~ 60°C						
Installation	Horizontal						
Duty cycle	100% ED						
Coil type	DIN						
Protection class	IP65 (DIN 40 050)						
Insulation class	F						
Voltage tolerance	±10%						
Standard voltage	12VDC, 24VDC						
Power consumption	Power save 75% = 3.7W(4.6W option)						
Net weight	775g		1550g		2820g		4665g

### Seal material selection guide

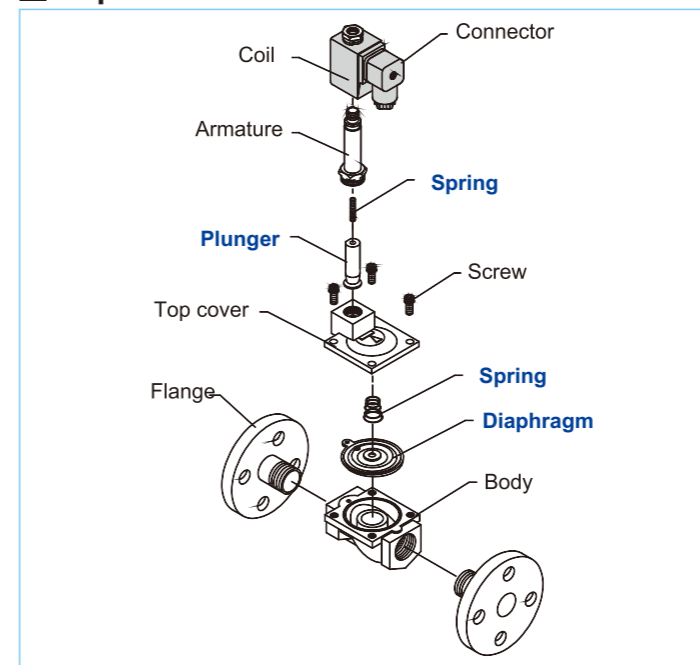
Seal	Temperature range	Suitable fluid	Unsuitable fluid
<b>NBR</b>	-15°C ~ 80°C	Air, Water, Neutral gases, Mineral oil	Fuel oil, Gasoline and Hi-test gasoline, Diesel fuel
<b>HNBR</b>	-40°C ~ 150°C	Air, Water, Gear oil, Engine oil	Pharmaceutical liquid, Gasoline and Hi-test gasoline, Light oil
<b>VITON</b>	-10°C ~ 180°C	Fuel oil, Gasoline and Hi-test gasoline, Diesel fuel	Hot water, Steam, Brake oil (ATE Blue)
<b>EPDM</b>	-5°C ~ 130°C	Hot water, Detergent liquid	Mineral oil, Gasoline

### Dimensions



Model	R	A	B	C	Model	R	A	B	C	D
E-SPU225A-03	3/8"	66.5	106.5	48	E-SPU225AF-03	3/8"	110	45	137	90
E-SPU225A-04	1/2"	66.5	106.5	48	E-SPU225AF-04	1/2"	110	47.5	139.5	95
E-SPU225A-06	3/4"	100	126.5	75	E-SPU225AF-06	3/4"	149	50	152.5	100
E-SPU225A-08	1"	100	126.5	75	E-SPU225AF-08	1"	150	62.5	164	125
E-SPU225A-12	1 1/4"	131.5	145.5	96	E-SPU225AF-12	1 1/4"	180	67.5	173	135
E-SPU225A-14	1 1/2"	131.5	145.5	96	E-SPU225AF-14	1 1/2"	180	70	182.5	140
E-SPU225A-20	2"	160	160.5	112	E-SPU225AF-20	2"	210	77.5	210	155

### Explosion



### Flow chart

