

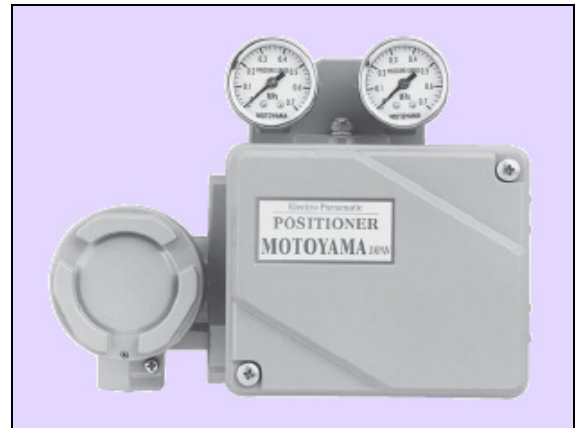
## Model EA91A Flameproof Type      Explosion-protected Construction

## Model EA90A Intrinsic Safety Type      Explosion-protected Construction

# ELECTRO-PNEUMATIC VALVE POSITIONER

The Models EA91A/EA90A electro-pneumatic valve positioners are mounted to control valve as accessories. This device converts electric signals transmitted from controller into pneumatic pressure to control the valve opening position precisely.

- Model EA91A : This is an explosion-protection certified product which is available to use for flammable and explosive gas atmospheres including Hydrogen.
- Model EA90A : This is available to use for intrinsic safety type of explosion-protection in combination with safety barriers.



## 1. FEATURES

### 1. Certified Explosion-Protection in accordance with the New Recommend practice

[Complied with the new technical standard (IEC matching standard) test.]

- Model EA91A : "Ex sd IIC T6X"  
..... flameproof type.
- Model EA90A : "Ex ia IIC T5"  
..... intrinsic safety type.

### 2. Economical and Highly Reliable

- These products are interchangeable with the former products EA91/EA90 ; No additional parts or works required.
- The consumable parts (e.g. pilot) required are also compatible with the former products.
- Measures against vibration and impact are highly improved on reducing the weight by 20%.
- Applicable to a wide range of actuator size and maintains very stable/reliable performance.
- Achieved Protection is IEC class IP65. IP66 is available as option.

### 3. Wide Function

- Applicable to a single acting rotary valve by using cam.
- Includes manual changeover system that allows manual switching operation.
- The design provides conformity to a control valve.

### 4. Easy Maintenance

- Allows easier overhaul by adopting a unit construction.  
(Construction is the same as EA91/EA90).
- All external bolts and nuts are made of stainless steel which provides superior corrosion resistance and workability.
- Pilot valve assembly is the same one as those of EA91/EA90 and has sufficient experience of field-proven and reliable function.

## 2. STANDARD SPECIFICATION

Type		Model EA91A	Model EA91AC	Model EA90A	Model EA90AC
		Lever Type (Single Action)	Cam Type (Single Action)	Lever Type (Single Action)	Cam Type (Single Action)
Input Current		4 ~ 20mA DC			
Input Resistance		250Ω			
Supply Air Pressure		MAX. 500kPaG (5.0kgf/cm <sup>2</sup> G)			
Structure	Explosion protection	Flameproof Type		Intrinsic Safety Type	
		(JIS)	Ex sd IIC T6X	(JIS)	Ex ia IIC T5
		(NEPSI)	Ex dmb IIC T6 Gb	(NEPSI)	Ex is IIC T5 Ga
		(KOSHA)	Ex dmb IIC T6		
Protection Class		IEC IP65 (※ IEC IP66)			
Connection	Air Piping Connection	Rc1/4 (PT1/4)			
	Conduit Connection	G1/2			
Characteristics	Output Characteristics	Linear			
	Standard Stroke	10 ~ 65mm (※ over 65 ~ 130mm)	60° (Linear) (※ 60°Eq%, 90°Linear)	10 ~ 65mm (※ over 65 ~ 130mm)	60° (Linear) (※ 60°Eq%, 90°Linear)
	Linearity	≤ ±1.0% F.S.	≤ ±2.0% F.S.	≤ ±1.0% F.S.	≤ ±2.0% F.S.
	Hysteresis Error	≤ 1.0% F.S.	≤ 1.5% F.S.	≤ 1.0% F.S.	≤ 1.5% F.S.
	Dead band (substance alone)	≤ 0.1% F.S.	≤ 0.3% F.S.	≤ 0.1% F.S.	≤ 0.3% F.S.
	Repeatability	≤ 0.3% F.S.			
	Air Consumption	≤ 6.0ℓ/min Nor (SUP. 140kPaG (1.4kgf/cm <sup>2</sup> G), Signal 50%)			
	Max. Supply and Exhaust of air	70ℓ/min Nor (SUP. 140kPaG (1.4kgf/cm <sup>2</sup> G), Signal 50%)			
	Insulation Resistance	≥ 100MΩ (with 500VDC Mega between terminal and case)			
	Ambient Temp.	-40 °C ~ +100 °C (-20 °C ~ +60 °C for Explosion protection)		-20 °C ~ +60 °C	
Painting		Polyurethane resin paint, Munsell 2.5PB 5/8 Blue			
Weight		Approx. 2.9 kg			

- [Notes] (1) ※Available as options on customer's request.  
 (2) Model EA90A/EA90AC positioner is not available for reverse action type pilot.

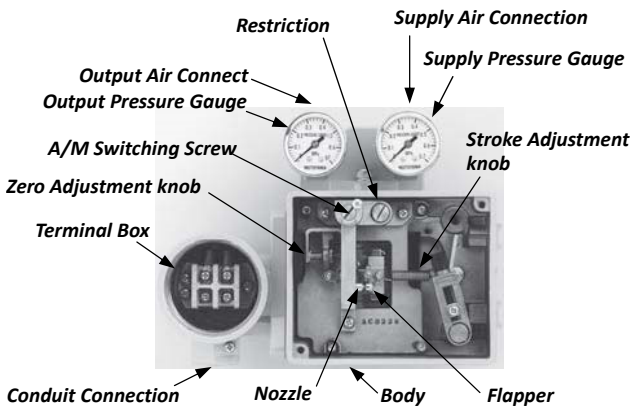
## 3. MODEL NUMBERING SYSTEM

Specifications		Basic Model No.	Specification Code	
Structure	Flameproof Type	EA91A		
	Intrinsic safety Type	EA90A		
Displacement transfer Method	Lever Type		(None)	
	Cam Type		C	
Method of Leading External Cable	Conduit Type (Standard)			(None)
	Explosion-proof connector with packing Type (option)			T

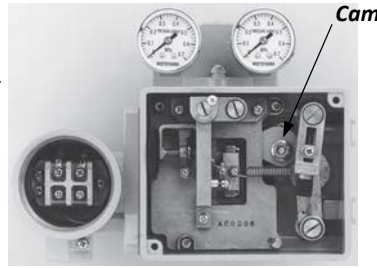
[Note] If method of leading external cable is explosion-proof connector (Spec. code : T), applicable standard is JIS, flameproof. In case of NEPSI flameproof type, flameproof packing connector (cable glands), certified by NEPSI, shall be supplied by customer.

## 4. CONSTRUCTION

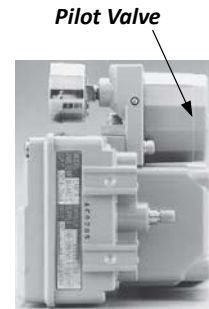
● **Lever Type**



● **Cam Type**



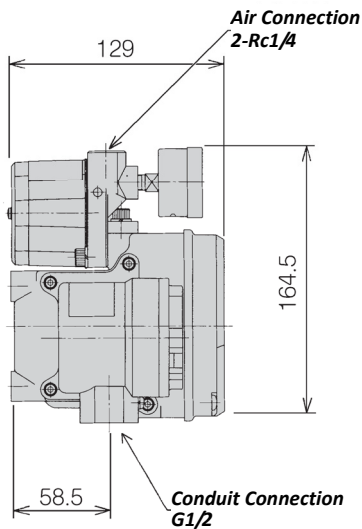
● **Right lateral face**



## 5. EXTERNAL DIMENSIONS

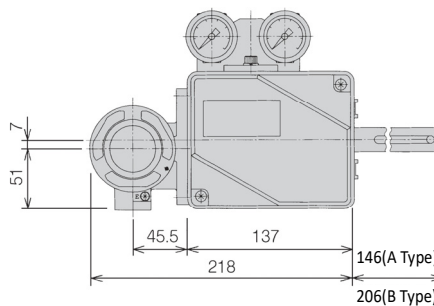
Unit: mm

● **Left lateral face**

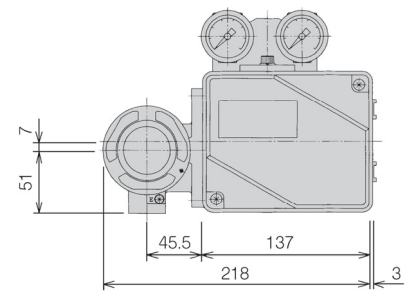


● **Lever Type**

Type	Actuator Size
A	φ200~φ330
B	φ400~φ650



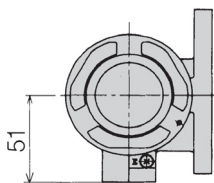
● **Cam Type**



### Leading External Cable Gland

● **Conduit Type (standard)**

Model : EA91A(C)/ EA90A(C)

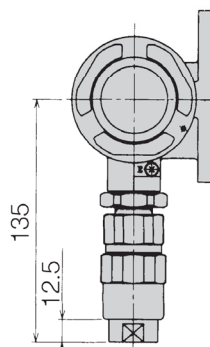


● **Flameproof Packing Type (optional)**

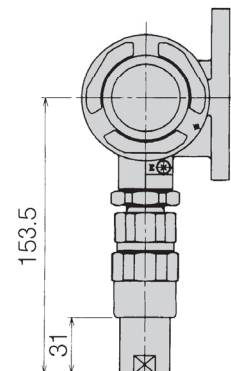
Applicable cable OD : φ9.1~φ11

Model : EA91A(C) T

**KXB-LO-16**  
(Standard)

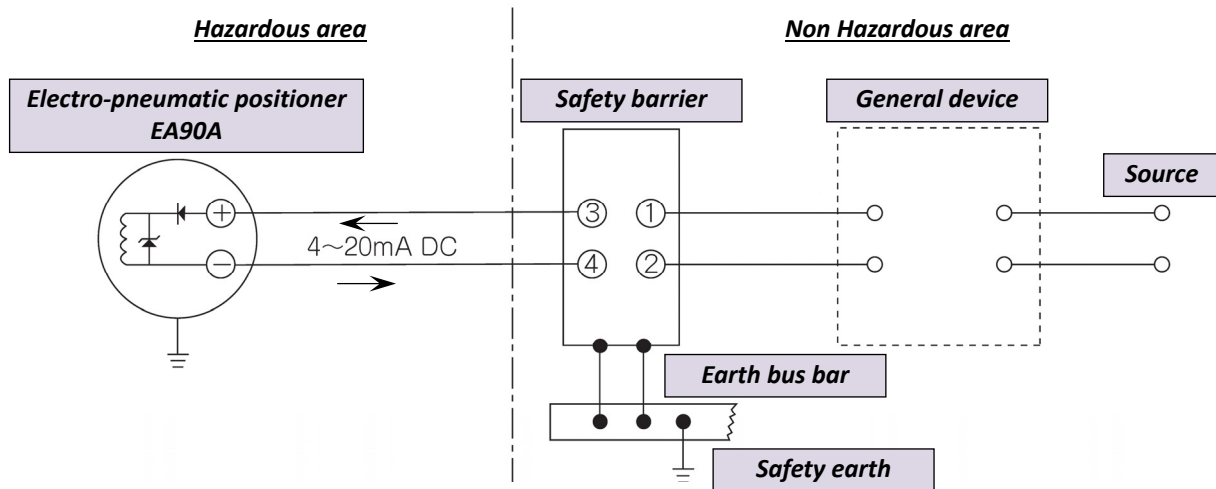


**KXB-LO-16F**  
(Optional Spec.)



## 6. System construction

(EA90A Type intrinsically safety construction)



### To combine with a safety barrier

The safety barrier which is used in combination with Electro-pneumatic positioner EA90A must be  $\ast 2$ TIIS certified type.

For the safety barrier selection, please refer to the following data for intrinsically safe approval of Model EA90A.

① Performance classification and Group

ia II C

② Permissible maximum values

$U_i = 30\text{V}$ ,  $I_i = 100\text{mA}$ ,  $P_i = 0.75\text{W}$

③ Parameters

$C_i = \text{negligibly small}$

$L_i = \text{negligibly small}$

$\ast 2$ TIIS ; Technology Institution of Industrial Safety (JAPAN)

$\ast$ Motoyama distribute recommended safety barriers. If you are interested or have any questions about the product, please contact our sales offices or sales agents.

This catalogue is supplied for information purpose only and should not be considered certified marketability and conformability of this product.

MOTOYAMA is continuously improving and upgrading its product design, the specifications and/or dimensions, Information included herein is subject to change without notice.



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