

## New Products

Pilot Kick Solenoid Valve for Steam SPK Series New Product



# Increased reliability! Proven 1 million cycle-life!!

SPK Series solenoid valve improves on the reliability of our conventional model APK Series' 30 years.



CKD Corporation

## SPK11 Series

## JIS symbol

## **Common specifications**

Descriptions	SPK11
Working fluid	Steam
Working pressure differential range MPa	0 to 1.0
Max. working pressure MPa	1
Pressure resistance (water) MPa	2
Fluid temperature °C	5 to 180
Ambient temperature °C	-10 to 60
Heat proof class	Н
Atmosphere	Place free of corrosive and explosive gases
Valve structure	Pilot kick type poppet, piston structure
Valve seat leakage (Note 2) cm <sup>3</sup> /min (ANR)	400 or less (air)
Mounting attitude	Limited to vertical position with the coil on top, and horizontal positions (Note 3)

Note 1: No freezing.

Note 2: This applies at a pneumatic pressure between 0.05 and 1.0 MPa. When using at pressure less than 0.05 MPa, the sealant may be unstable. Contact CKD in this case.

Note 3: For use under 0.05 MPa, valve must be installed vertically.

## Individual specifications

Descriptions	ns			Apparent power (VA)				Power consumption (W)	Majaht	
Madalina	Port size	(mm)	Rated voltage	Holding		Starting		AC	(ka)	
wodel no.				50Hz	60Hz	50Hz	60Hz	50/60Hz	(kg)	
SPK11-15A	Rc1/2	16	100VAC 110VAC 200VAC 220VAC	100VAC						1.0
SPK11-20A	Rc3/4	23		12 10	10	42	36	5.6/4.7	1.3	
SPK11-25A	Rc1	28							1.7	

\*1: Variation of rated voltage should be within ±10%. However, when operating with a pressure differential of over 0.7 MPa, please operate it within a fluctuation of -5% to +10% voltage rating.

### How to order



СК

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## Internal structure diagram, parts list and dimensions

## Internal structure and parts list



No.	Part name	Material	
1	Core assembly	SUS405 equivalent/SUS316L/SUS430	Stainless steel
2	Shading coil	Cu (stainless steel body: Ag)	Copper(stainless steel body:silver)
3	Coil	-	-
4	Plunger assembly	SUS405 equivalent/SUS304/PFA	Stainless steel
5	Plunger spring	SUS304	Stainless steel
6	Kick spring	SUS304	Stainless steel
7	Stuffing	CAC408 (SCS13)	Molded bronze ( Cast stainless steel )
8	Seal	PTFE/PFA	Polytetrafluoroethylene resin
9	Main valve assembly	SUS303/SUS304/PTFE	Stainless steel/polytetrafluoroethylene resin
10	Seal ring set	SUS304/PTFE	Stainless steel/polytetrafluoroethylene resin
11	Body	CAC408 (SCS13)	Molded bronze ( Cast stainless steel )
12	Square ring	PTFE	Polytetrafluoroethylene resin

() indicates dimension is for stainless steel body.

### Dimensions



Model no.	Α	В	С	D	E	F	G
SPK11-15A-*4A	71	27(29)	14.5	72	119.5	50	Rc1/2
SPK11-20A-*4A	80	32(35)	17.5	76	126.5	60	Rc3/4
SPK11-25A-*4A	90	41(45)	21.5(22.5)	82	136.5(137.5)	71	Rc1

## **Option dimensions**



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## SPK11 Series

## Safety precautions

Always read this section before starting use.

Refer also to the precautions of "General Purpose Valves (No. CB-03-1SA)".

## **CAUTION**

#### Design and selection

#### About leakage current from other control machinerv When using a programmable loo

About leakage current nom other control		1			
When using a programmable logic controller (PLC)	Voltage	A	.C	Triac C	
to operate the solehold valve, please ensure that the leakage current from the output of the PLC is	Model no.	100VAC	200VAC		current
within the range specified below.	SPK	6mA or less	3mA or less	Programmable	lovol
0 1					Solenoid valve

#### Installation and adjustment

#### Installation

(1) The principle installation position is vertically, with the coil on top.

#### Piping

(1) If the piping vibrates when opening or closing the solenoid valve, firmly stabilize the pipe.

- (2) Steam generated in the boiler contains high amounts of drainage. Please be sure to use a drain trap.
- (3) When using steam, feed water in the boiler may contain calcium/magnesium salts. It can react to oxygen/carbonic gases, melt, and form scales or sludge. Therefore, please be sure to install the hard water softener and the steam filter.
- (4) If the solenoid valve is connected directly to the regulator, the two devices may vibrate together, resonate, and cause chattering. (5) If the cross section of the fluid inlet pipe is too narrow, then operation may become unstable due to a pressure differential fault. Please use an inlet pipe of the same size as the port size of the valve.

#### During use and maintenance

#### About instant leakage

In piloted and 2-port pilot kick-type valves, in the event of a violent surge of pressure when the valve is in the closed position, the instantaneous valve will open and it is possible that fluid will be expelled, so exercise caution when operating.

#### About operation

Do not apply back pressure. This may cause a malfunction.

#### About the thermal insulation cover

Please use a thermal insulation cover that can be disassembled for maintenance.

Please refrain from installing the thermal insulation cover into the coil portion or entirety of the solenoid valve. It can cause burnout at coils.

#### Tightening torque

When disassemble or install the body bolts, core assembly and nu use the tightening torgue values listed to the right. Do not tighten the body bolts to the specified torque at once, inste tighten incrementally on a diagonal pattern. After assembly, add pressure and check for leakage.

ıts,			Body bolt tightening torque	Core assembly tightening torque	Nut tightening torque	
ad		15A	7 to 9Nm			
	SPK11	20A		50 to 80Nm	8 to 16Nm	
		25A	15 to 19Nm			

CR circuit

#### Disclaimer

#### **1** Term of warranty

"Warranty Period" is one (1) year from the first delivery to the customer.

#### 2 Scope of warranty

In case any defect attributable to CKD is found during the Warranty Period, CKD shall, at its own discretion, repair the defect or replace the relevant product in whole or in part, according to its own judgement.

Note that the following faults are excluded from the warranty term:

(1) Product abuse/misuse contrary to conditions/environment recommended in its catalogs/specifications.

- (2) Failure caused by other than the delivered product.
- (3) Use other than original design purposes.

(4) Third-party repair/modification.

(5) Failure caused by reason that is unforeseeable with technology put into practical use at the time of delivery.

(6) Failure attributable to force majeure.

In no event shall CKD be liable for business interruptions, loss of profits, personal injury, costs of delay or for any other special, indirect, incidental or consequential losses, costs or damages.

#### 3 Compatibility confirmation

In no even shall CKD be liable for merchantability or fitness for a particular purpose, notwithstanding any disclosure to CKD of the use to which the product is to be put.

If the goods and their replicas, or the technology and software in this catalog are to be exported, laws require the exporter to make sure they will never be used for the development or the manufacture of weapons for mass destruction.

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