

# spirax sarco®

## KX 51 and KY 51 Bronze Valves

### KX 51

Normally closed, opens with temperature rise for cooling, single seat. Adjustable bleed 1/8" (Cv .44) provides bypass. (1" KX 51 only)

### KY 51

Normally closed, opens with rising temperature, single seat. The valve incorporates a pressure balancing bellows, which enables the valve to operate against higher differential pressures.

Model	KX 51	KY 51
<b>Sizes</b>	1", 1-1/4", 1-1/2", 2"	1-1/4", 1-1/2", 2"
<b>Connections</b>	NPT	
<b>Construction</b>	Bronze Body Stainless Steel Trim	
<b>Options</b>	BSP Connections	

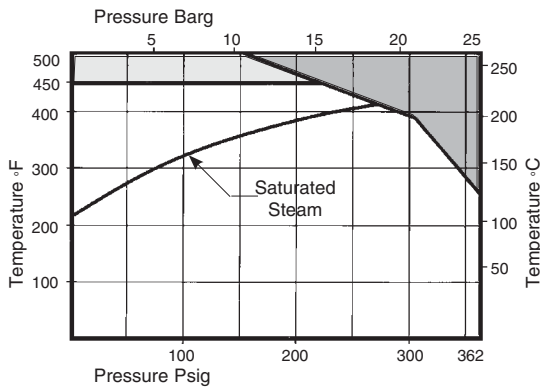
[ All KY Valves have fixed bleeds ]

### Limiting Operating Conditions

#### Maximum Differential Pressure

Size	KX 51*		KY 51	
1	50 psi	3.5 bar	-	-
1-1/4	33 psi	2.3 bar	130 psi	9 bar
1-1/2	24 psi	1.9 bar	119 psi	8.2 bar
2	16 psi	1.1 bar	100 psi	6.9 bar

\* On liquid applications, the permissible maximum differential pressure may be affected by high static pressure. Please consult the factory if the application requires a large differential pressure with a high inlet pressure.



If a KA 51 valve is to be used in this region, a spacer (stock #0467000) must be fitted between the valve and the control system to protect the control system from overheating. The KB 51 valve cannot be used with a spacer, and is limited to 450°F

The valves must not be used in this region

The valves may be used in this region provided that the above maximum differential pressures are not exceeded. Valves with ANSI flanges must not be used above flange limits.

SHUTOFF: ANSI CLASS IV

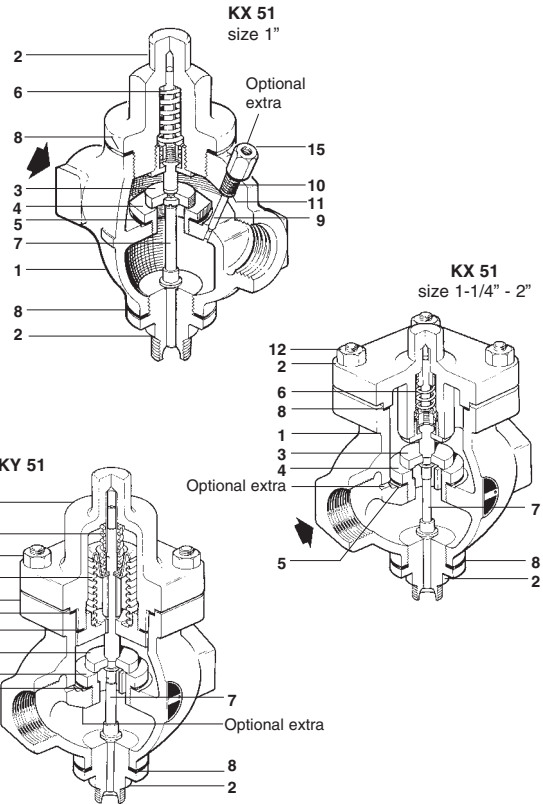
### Pressure Shell Design Conditions

<b>PMA</b>	362 psig/248°F	25 barg/120°C
Max. allowable pressure	253 psig/428°F	17.5 barg/220°C
	152 psig/500°F	10.5 barg/260°C

<b>TMA</b>	500°F/0-152 psig	260°C/0-10.5 barg
Max. allowable temperature		

Local regulation may restrict the use of this product below the conditions quoted. Limiting conditions refer to standard connections only.

In the interests of development and improvement of the product, we reserve the right to change the specification.



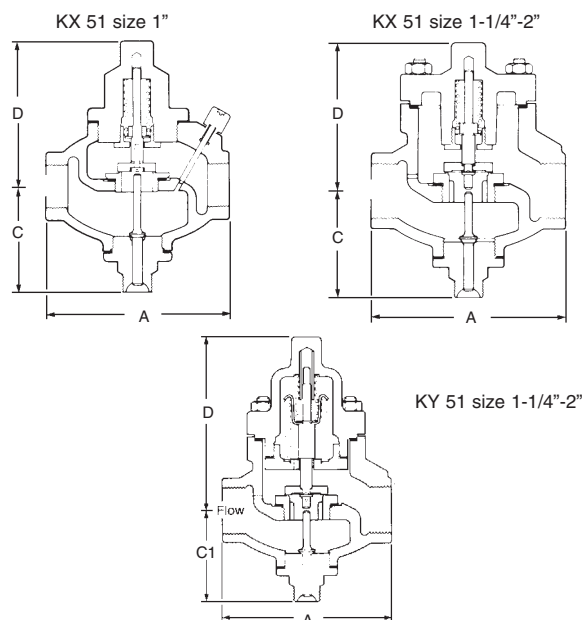
### Construction Materials

No.	Part	Material	Material Spec.	Closest Equivalent
1	Body	Bronze	BS 1400 LG2	B62 UNS 83600
2	Bonnet	Bronze	BS 1400 LG2	B62 UNS 83600
3	Valve	Stainless Steel	BS 970 431 S29	A276 Type 431
4	Valve Seat	Stainless Steel	BS 970 431 S29	A276 Type 431
5	Valve Seat Gasket			
1		Mild Steel	BS 1449 CS 4	A366
1-1/4 to 2		Nickle Reinforced Exfoliated Graphite		
6	Return Spring (KA)	Stainless Steel	BS 970 302 S 25	
7	Push Rod	Brass	BS 2874 CZ 121	B16M
8	Bonnet Gasket	Nickle Reinforced Exfoliated Graphite		
9	Bleed Valve 1/8"	Stainless Steel	BS 970 431 S29	A276 Type 431
10	Bleed Valve Gasket	Brass	BS 2874 CZ 121	B16M
11	Bleed Valve 'O' Ring	Rubber		
12	Bonnet Studs	Steel	BS 4439 Gr. 8.8	A354
	Bonnet Nuts		BS 3692	ANSI B18.2.4.1 M
	1-1/4 & 1-1/2	M10 x 35 mm		
	2	M12 x 35 mm		
13	Bellows (KB)	Phosphor Bronze		
14	Bellows Gasket (KB)	Nickle Reinforced Exfoliated Graphite		

# KX 51 and KY 51 Bronze Valves

## Dimensions (NOMINAL) IN INCHES AND MILLIMETERS

SIZE	A	C	C1	D	WEIGHT	
					KX	KY
1	5.3 136	3.2 80	4.3 108	—	9.0 lb 4.10 kg	—
1-1/4	5.6 144	3.2 80	4.4 112	6.0 154	13.9 lb 6.23 kg	15.9 lb 7.25 kg
1-1/2	5.9 150	3.5 90	4.4 112	6.0 154	16.8 lb 7.62 kg	19.0 lb 8.57 kg
2	7.1 180	4.0 100	4.4 112	6.0 154	20.9 lb 9.50 kg	23.2 lb 10.60 kg



## Typical Applications

Industrial or commercial applications using water as a cooling medium.

## Sample Specification (KY)

Control valve shall be bronze body with stainless steel trim and single seated. Valve shall achieve ANSI Class IV Shutoff. For operation against high differential pressures, valve shall be supplied with pressure balancing bellows. Provide with screwed pipe connections. For continuous minimum flow requirements, valve to be fitted with bleed bypass. Valve is coupled to the appropriate temperature control system. This combined unit is self acting and provides proportional control action. The temperature control system shall be brass with PVC covered capillary or stainless steel sensor and capillary, oil filled, hydraulically operated; and shall incorporate packless glands and a gas filled overheat protection device. Temperature setting shall be adjustable while control is in service, include °F adjustment scale and shall incorporate a tamper proof device. When required, sensor bulb shall be mounted in a separable well for removal from the equipment. Refer to TIS 1.900 or 1.901 for temperature control system details.

## Installation

The valve should be installed in a horizontal section of the cooling medium inlet piping. The control system connection must point vertically downward. A bypass with suitable stop valves should be provided to permit servicing, and a Y-pattern strainer should be installed upstream of the valve.

## Maintenance

Except for periodic cleaning of the upstream strainer, maintenance or servicing is normally required only if a malfunction is detected. **Complete installation and maintenance instructions are given in the IMI sheet, which accompanies the product.**

## Cv at P Band\*

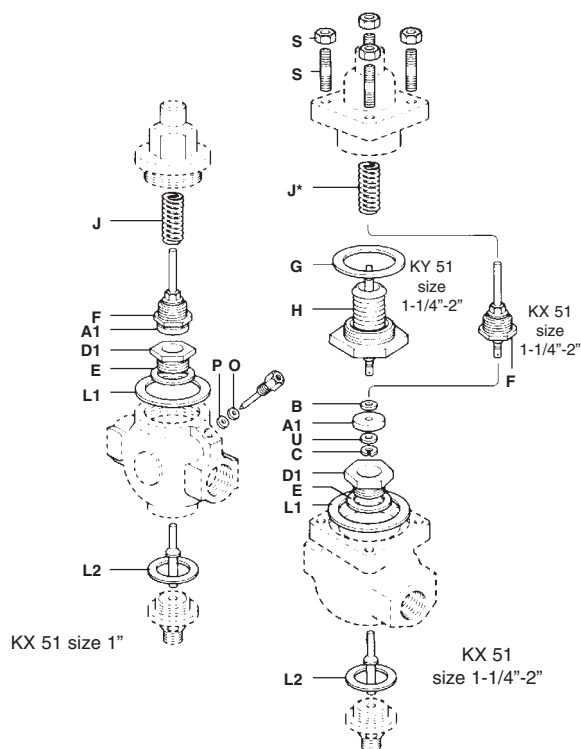
Size	1	1-1/4	1-1/2	2
C <sub>v</sub>	11.4	19.2	27.6	39.6
P Band (°F)*	12.4°	20°	22.5°	23.8°

\* The proportional band (P Band) is the difference required between the desired set temperature and the actual controlled temperature to open the valve fully. The above figures apply to valves fitted with 121 or 123 control systems. For 122 or 128 systems, (which cannot be used on valves larger than 1") the P Band will be twice the amount shown.

Example: For a 1" KX 51 valve with a 122 control system, the valve will not fully open until the controlled temperature rises to 24.8°F above the set point.

For complete sizing information, see TIS 1.011 (steam) or TIS 1.012 (water).

## Spare Parts



### KX 51

Valve & Seat Assembly	A1, D1, E, J, F, L1
Set of all Gaskets (1)	L1, L2, E, P, O
Set of all Gaskets (1-1/4 to 2)	E, L1, L2, B, U, C
Set of Bonnet Studs & Nuts (set of 4)	S

### KY 51

Valve & Seat Assembly	A1, B, C, D1, E, L1, U
Bellows & Push Rod Assembly	H, G, L1, B, C, U
Set of all Gaskets	B, C, U, E, G, L1, L2
Set of Bonnet Studs & Nuts (set of 4)	S

\* Part "J" available in KX Valve only.