**Technical data** 

# **Technical data sheet**





Type overview	
Туре	DN
B225HT1160	25

Functional data	Valve size [mm]	1" [25]
	Fluid	high temperature hot water/low pressure steam, up to 60% glycol
	Fluid Temp Range (water)	60266°F [16130°C]
	Fluid Temp Range (steam)	250°F [120°C]

	steam, up to 60% glycol
Fluid Temp Range (water)	60266°F [16130°C]
Fluid Temp Range (steam)	250°F [120°C]
Body Pressure Rating	600 psi
Close-off pressure ∆ps	200 psi
Flow characteristic	A-port equal percentage
Servicing	maintenance-free
Max Differential Pressure (Steam)	15 psi
Flow Pattern	2-way
Leakage rate	0%
Controllable flow range	75°
Cv	11.6
Maximum Inlet Pressure (Steam)	15 psi

# Materials

Valve body	Nickel-plated brass (DZR) P-CuZn35Pb2	
Spindle	stainless steel	
Spindle seal	Vition O-ring	
Seat	ETFE	
Characterized disc	ETFE	
Pipe connection	NPT female ends	
O-ring	EPDM (lubricated)	
Ball	stainless steel	
Non-Spring	LRB(X)	

# Suitable actuators

Non-Spring	LRB(X)	
Spring	LF	

# Safety notes



• WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to www.p65warnings.ca.gov

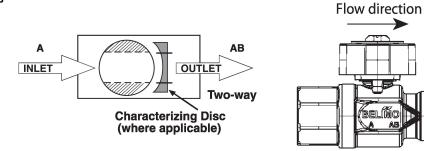


# **Product features**

# Application

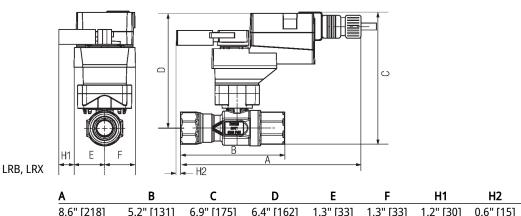
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include unit ventilators, VAV box reheat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow. This valve is designed to fit in compact areas where on/off, floating point and modulating control is required using 24 VAC.

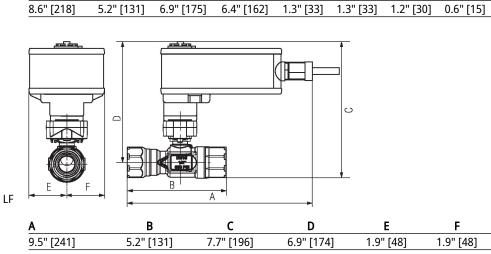
#### Flow/Mounting details



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171		e.	w	ns

Туре	DN
B225HT1160	25







On/Off, Spring Return, AC 120 V, Auxiliary Switch

On/Off, Spring Return, 120/230 VAC, Torque min. 35 in-lb, for control of air dampers

**Technical data sheet** 





**LF120-S US** 

5-year warranty



Functional data			
Nominal voltage frequency Power consumption in operation Power consumption in operation Functional data  Functional data  Functional fata  Functional fata  Functional fata  Functional data  Fun	Technical data		
Nominal voltage frequency Power consumption in operation Power consumption in operation S.5 W Power consumption in rest position Transformer sizing 7.5 VA Auxiliary switch Switching capacity auxiliary switch Electrical Connection Electrical Protection Electrical Protection Electrical Protection Torque motor Direction of motion motor Direction of motion fail-safe Angle of rotation Running Time (Motor) Running time fail-safe Sol/60 Hz  5.5 W Power consumption in operation S.5 W Transformer sizing 7.5 VA Auxiliary switch 1 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V 250 V, adjustable 095° Switching capacity auxiliary switch 3 A resistive (0.5 A inductive) @ AC 250 V 250 V, adjustable 095° Fortation connectors, 3 ft [1 m], Overload Protection Electrical Protection Electronic throughout 095° rotation actuators are double insulated  Torque motor 35 in-lb [4 Nm] Direction of motion motor selectable with switch 0/1 reversible with switch 0/1 Foreversible with cw/ccw mounting Angle of rotation Angle of rotation Angle of rotation Sol y0° Running Time (Motor) To s s / y0° Running Time (Motor) To s s / y0° Running Time fail-safe 225 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C] Noise level, motor Sol dB(A) Noise level, fail-safe 62 dB(A) Shaft Diameter 3/81/2" round, centers on 1/2"	Electrical data	Nominal voltage	AC 120 V
Power consumption in operation Power consumption in rest position Transformer sizing 7.5 VA  Auxiliary switch Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, adjustable 095° Switching capacity auxiliary switch Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, adjustable 095° Switching capacity auxiliary switch Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Connection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Connection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Connection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Connection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Connection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Connection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Connection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Electrical Protection Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Electrical Protection Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Electrical Protection Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V  Electrical Protection Tx SPDT, 3 A resistive (0.5 A inductive) @ A			50/60 Hz
Power consumption in rest position Transformer sizing 7.5 VA  Auxiliary switch 1 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, adjustable 095°  Switching capacity auxiliary switch Electrical Connection (2) 18 GA appliance cables with 1/2" conduit connectors, 3 ft [1 m],  Overload Protection electronic throughout 095° rotation Electrical Protection actuators are double insulated  Functional data Torque motor Direction of motion motor selectable with switch 0/1 Direction of motion fail-safe reversible with cw/ccw mounting Angle of rotation Max. 95° Running Time (Motor) 75 s / 90° Running time fail-safe <25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C] Noise level, motor 50 dB(A) Noise level, fail-safe 62 dB(A) Shaft Diameter 3/81/2" round, centers on 1/2"			5.5 W
Transformer sizing  Auxiliary switch  1 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, adjustable 095°  Switching capacity auxiliary switch  Electrical Connection  (2) 18 GA appliance cables with 1/2" conduit connectors, 3 ft [1 m],  Overload Protection  Electrical Protection  Electrical Protection  Torque motor  Direction of motion motor  Direction of motion fail-safe  Angle of rotation  Running Time (Motor)  Running time fail-safe  -25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C]  Noise level, motor  50 dB(A)  Noise level, fail-safe  3781/2" round, centers on 1/2"			3.5 W
Switching capacity auxiliary switch  Electrical Connection  Coverload Protection  Electrical Protection  Torque motor  Direction of motion motor  Electrable with switch 0/1  Direction of motion fail-safe  Angle of rotation  Running Time (Motor)  Running Time (Motor)  Running time fail-safe  -25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C]  Noise level, motor  Noise level, fail-safe  50 dB(A)  Noise level, fail-safe  53/81/2" round, centers on 1/2"			7.5 VA
Electrical Connection  (2) 18 GA appliance cables with 1/2" conduit connectors, 3 ft [1 m],  Overload Protection electronic throughout 095° rotation  Electrical Protection actuators are double insulated  Functional data  Torque motor 35 in-lb [4 Nm]  Direction of motion motor selectable with switch 0/1  Direction of motion fail-safe reversible with cw/ccw mounting  Angle of rotation Max. 95°  Running Time (Motor) 75 s / 90°  Running time fail-safe <25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C]  Noise level, motor 50 dB(A)  Noise level, fail-safe 62 dB(A)  Shaft Diameter 3/81/2" round, centers on 1/2"		Auxiliary switch	
Connectors, 3 ft [1 m],  Overload Protection electronic throughout 095° rotation Electrical Protection actuators are double insulated  Functional data  Torque motor 35 in-lb [4 Nm]  Direction of motion motor selectable with switch 0/1  Direction of motion fail-safe reversible with cw/ccw mounting  Angle of rotation Max. 95°  Running Time (Motor) 75 s / 90°  Running time fail-safe <25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C]  Noise level, motor 50 dB(A)  Noise level, fail-safe 62 dB(A)  Shaft Diameter 3/81/2" round, centers on 1/2"		Switching capacity auxiliary switch	3 A resistive (0.5 A inductive) @ AC 250 V
Functional data  Torque motor  Direction of motion motor  Direction of motion fail-safe Angle of rotation  Running Time (Motor)  Running time fail-safe  You will be refail-safe Running time fail-safe  Noise level, motor  Noise level, fail-safe Shaft Diameter  Torque motor  35 in-lb [4 Nm]  Relectable with switch 0/1  Reversible with cw/ccw mounting  Max. 95°  Reversible with cw/ccw mounting  Max. 95°  Reversible with cw/ccw mounting  Angle of rotation  Max. 95°  Running Time (Motor)  75 s / 90°  Running time fail-safe  425 s @ -4122°F [-2050°C], <60 s @ -22°F  [-30°C]  Noise level, motor  50 dB(A)  Noise level, fail-safe  62 dB(A)  Shaft Diameter  3/81/2" round, centers on 1/2"		Electrical Connection	• •
Functional data Torque motor Direction of motion motor Direction of motion fail-safe Angle of rotation Running Time (Motor) Running time fail-safe Noise level, motor Noise level, fail-safe Shaft Diameter  Torque motor 35 in-lb [4 Nm] Shart New Selectable with switch 0/1 Reversible with cw/ccw mounting Max. 95° Reversible with cw/ccw mounting Max. 95° Reversible with cw/ccw mounting Angle of rotation Max. 95° Running Time (Motor) 75 s / 90° Running time fail-safe <25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C] Noise level, motor So dB(A) Shaft Diameter 3/81/2" round, centers on 1/2"		Overload Protection	electronic throughout 095° rotation
Direction of motion motor  Selectable with switch 0/1  Direction of motion fail-safe  Angle of rotation  Max. 95°  Running Time (Motor)  Running time fail-safe  25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C]  Noise level, motor  Noise level, fail-safe  62 dB(A)  Shaft Diameter  3/81/2" round, centers on 1/2"		Electrical Protection	actuators are double insulated
Direction of motion fail-safe reversible with cw/ccw mounting  Angle of rotation Max. 95°  Running Time (Motor) 75 s / 90°  Running time fail-safe <25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C]  Noise level, motor 50 dB(A)  Noise level, fail-safe 62 dB(A)  Shaft Diameter 3/81/2" round, centers on 1/2"	Functional data	Torque motor	35 in-lb [4 Nm]
Angle of rotation Max. 95°  Running Time (Motor) 75 s / 90°  Running time fail-safe <25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C]  Noise level, motor 50 dB(A)  Noise level, fail-safe 62 dB(A)  Shaft Diameter 3/81/2" round, centers on 1/2"		Direction of motion motor	selectable with switch 0/1
Running Time (Motor)  Running time fail-safe		Direction of motion fail-safe	reversible with cw/ccw mounting
Running time fail-safe  <25 s @ -4122°F [-2050°C], <60 s @ -22°F  [-30°C]  Noise level, motor  50 dB(A)  Noise level, fail-safe  62 dB(A)  Shaft Diameter  3/81/2" round, centers on 1/2"		Angle of rotation	Max. 95°
[-30°C]  Noise level, motor 50 dB(A)  Noise level, fail-safe 62 dB(A)  Shaft Diameter 3/81/2" round, centers on 1/2"		Running Time (Motor)	75 s / 90°
Noise level, motor50 dB(A)Noise level, fail-safe62 dB(A)Shaft Diameter3/81/2" round, centers on 1/2"		Running time fail-safe	
Noise level, fail-safe 62 dB(A) Shaft Diameter 3/81/2" round, centers on 1/2"		Noise level, motor	
		Noise level, fail-safe	
Desition in direction Made animal		Shaft Diameter	3/81/2" round, centers on 1/2"
Position indication Mechanical		Position indication	Mechanical
Safety data Degree of protection IEC/EN IP54	Safety data	Degree of protection IEC/EN	IP54
Degree of protection NEMA/UL NEMA 2		Degree of protection NEMA/UL	NEMA 2
Enclosure UL Enclosure Type 2		Enclosure	UL Enclosure Type 2
Agency Listing  cULus acc. To UL 873 and CAN/CSA C22.2 No. 24-93; Listed to UL 2043 - suitable for use in air plenums per Section 300.22(c) of the NEC and Section 602.2 of the IMC		Agency Listing	24-93; Listed to UL 2043 - suitable for use in air plenums per Section 300.22(c) of the NEC and
Quality Standard ISO 9001		Quality Standard	ISO 9001
Ambient temperature -22122°F [-3050°C]		Ambient temperature	-22122°F [-3050°C]
Storage temperature -40176°F [-4080°C]		Storage temperature	-40176°F [-4080°C]
Ambient humidity Max. 95% RH, non-condensing		Ambient humidity	Max. 95% RH, non-condensing
Servicing maintenance-free		Servicing	maintenance-free

Footnotes †Rated Impulse Voltage 4kV, Type of Action 1.AA.B, Control Pollution Degree 3.

galvanized steel

Materials

Housing material



#### **Accessories**

Electrical accessories	Description	Туре
	Auxiliary switch, mercury-free	P475
	Auxiliary switch, mercury-free	P475-1
	Signal simulator, Power supply AC 120 V	PS-100
	Conduit box converter	ZG-CBLS
Mechanical accessories	Description	Туре
	Shaft extension 170 mm Ø10 mm for damper shaft Ø 616 mm	AV6-20
	End stop indicator	IND-LF
	Shaft clamp	K6 US
	for LF	
	Shaft clamp reversible, clamping range Ø1620 mm	K6-1
	Ball joint suitable for damper crank arm KH8 / KH10, Multipack 10 pcs.	KG10A
	Ball joint suitable for damper crank arm KH8, Multipack 10 pcs.	KG6
	Ball joint suitable for damper crank arm KH8, Multipack 10 pcs.	KG8
	Damper crank arm Slot width 8.2 mm, for Ø1.05"	KH12
	Damper crank arm Slot width 6.2 mm, clamping range Ø1018 mm	KH6
	Damper crank arm Slot width 8.2 mm, clamping range Ø1018 mm	KH8
	Actuator arm, clamping range Ø816 mm, Slot width 8.2 mm	KH-LF
	V-bolt Kit for KH-LF.	KH-LFV
	Anti-rotation bracket LF.	LF-P
	Push rod for KG10A ball joint 36" L, 3/8" diameter	SH10
	Push rod for KG6 & KG8 ball joints (36" L, 5/16" diameter).	SH8
	Wrench 0.32 in and 0.39 in [8 mm and 10 mm]	TOOL-06
	Angle of rotation limiter, with end stop	ZDB-LF
	Form fit adapter 8x8 mm	ZF8-LF
	Mounting Bracket: ZS-260 Right Angle	ZG-109
	Linkage kit	ZG-110
	Mounting bracket	ZG-112
	for LF	
	Damper clip for damper blade, 3.5" width.	ZG-DC1
	Damper clip for damper blade, 6" width.	ZG-DC2
	LF crankarm adaptor kit (includes ZG-112).	ZG-LF112
	LF crankarm adaptor kit (T bracket included).	ZG-LF2
	Shaft extension for 3/8" diameter shafts (4" L).	ZG-LMSA-1
	Shaft extension for 1/2" diameter shafts (5" L).	ZG-LMSA-1/2-5
	Weather shield 330x203x152 mm [13x8x6"] (LxBxH)	ZS-100
	Base plate, for ZS-100	ZS-101
	Weather shield 406x213x102 mm [16x8-3/8x4"] (LxWxH)	ZS-150
	Explosion proof housing 406x254x164 mm [16x10x6.435"] (LxBxH), UL and CSA, Class I, Zone 1&2, Groups B, C, D, (NEMA 7), Class III, Hazardous	ZS-260
	(classified) Locations Weather shield 438x222x140 mm [17-1/4x8-3/4x5-1/2"] (LxBxH), NEMA	ZS-300
	4X, with mounting brackets	
	Weather shield 438x222x140 mm [17-1/4x8-3/4x5-1/2"] (LxBxH), NEMA	ZS-300-5
	4X, with mounting brackets	7C 200 C1
	Shaft extension 1/2" Shaft extension 3/4"	ZS-300-C1
		ZS-300-C2
	Shaft extension 1"	ZS-300-C3

#### **Electrical installation**



# \( \) Warning! Live electrical components!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



Meets cULus requirements without the need of an electrical ground connection.

Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.

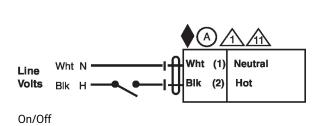


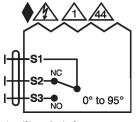
(A) Actuators with appliance cables are numbered.

A Provide overload protection and disconnect as required.

Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.

One built-in auxiliary switch (1x SPDT), for end position indication, interlock control, fan startup,





**Auxiliary Switches** 

#### **Dimensions**

