

ELECTRONIC TEMPERATURE CONTROL SYSTEMS

Electric Discharge Gas Bypass Valves

SDR series valves are Step Discharge Regulators, or electrically operated discharge gas bypass valves. Unlike previous mechanical discharge gas bypass valves that only control a downstream pressure, the SDR series offers direct temperature control of air or liquid. The valves use the same 12DC bipolar step motor as all other Sporlan step motor operated valves, including the CDS valves above. Balanced pistons and ports, uniquely characterized for hot gas flow, have been incorporated into the design. Seating materials, motors and gears have all been laboratory and field proven in high temperature gas applications.

With capacities up to 25 nominal R-22 tons, the SDR series is suitable for use in small process chillers and environmental chambers, as well as large direct expansion air conditioning applications. The valves may be controlled by third party controllers or by the Sporlan TCB interface/controller shown below. SDR valves are normally installed in the same manner as mechanical discharge gas bypass valves; in a bypass branch of the discharge gas line. The valves may be piped to feed into

the evaporator at the distributor, downstream of the evaporator, or at the compressor suction. Contact Sporlan for additional piping recommendations. When applied with a third party controller or DDC building management system, the SDR can be used with the IB or TCB as an interface to the existing system. For stand-alone control, the SDR and TCB with sensor will allow close temperature control of the air or liquid stream. See the section below for information on the TCB and IB.

The SDR valves are tight seating and will act as solenoid valves for shut off.

Specifications

TYPE	CONNECTIONS Inches	CONFIGURATION	CABLE LENGTH Feet	CABLE ENDS
SDR-3	3/8, 1/2, 5/8 ODF	Angle	10, 20, 30, 40	S-Stripped and Tinned
SDR-3X	3/8, 1/2, 5/8 ODF	Angle		
SDR-4	7/8, 1-1/8 ODF	Straight through		

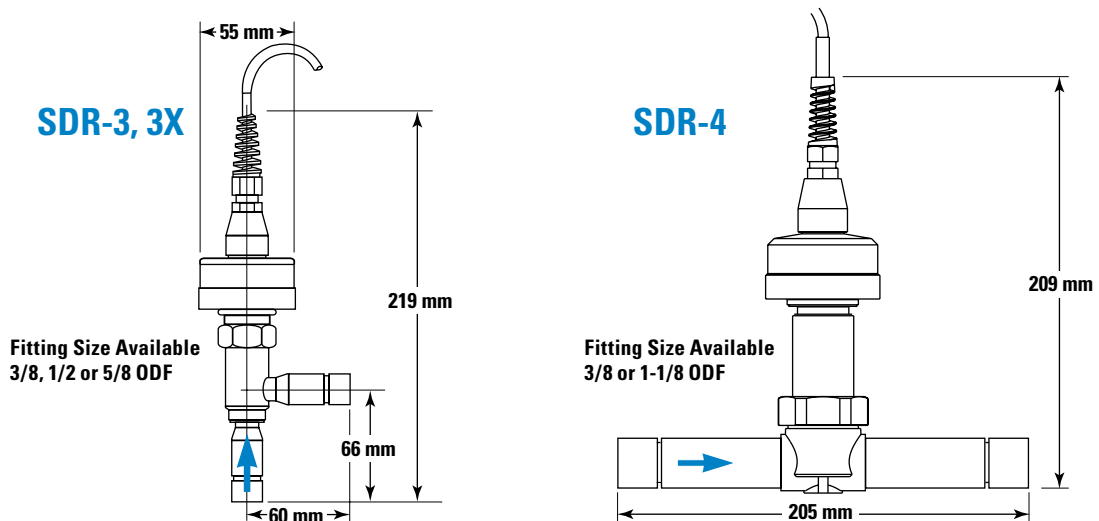
Discharge Bypass Valve Capacities – kW

REFRIGERANT	VALVE TYPE	MINIMUM ALLOWABLE EVAPORATOR TEMPERATURE AT REDUCED LOAD °C																	
		5°C			3°C			-7°C			-18°C			-29°C			-40°C		
		26	38	49	26	38	49	26	38	49	26	38	49	26	38	49	26	38	49
22	SDR-3	18.9	24.2	30.5	18.9	23.5	29.1	18.6	23.5	28.4	17.2	21.7	26.6	16.1	20.3	24.9	15.1	19.3	23.8
	SDR-3X	34.3	44.1	55.7	34.7	44.5	56.0	34.7	44.5	56.0	35.0	44.8	56.7	35.4	45.5	57.4	35.7	46.2	58.1
	SDR-4	62.7	88.2	122	67.9	92.4	125	69.3	98.0	127	73.2	98.4	130	75.6	100	131	77.0	104	132
134a	SDR-3	13.3	16.5	19.3	12.6	15.4	18.2	12.3	14.7	17.9	10.9	13.3	16.5	9.8	12.3	15.4	9.1	11.6	14.7
	SDR-3X	24.1	30.0	35.2	23.1	29.2	35.1	22.9	27.9	35.3	22.1	27.5	35.1	21.5	27.5	35.6	21.6	27.7	35.9
	SDR-4	46.6	64.4	83.3	49.7	66.9	85.4	50.8	67.6	86.1	53.2	69.7	87.5	54.6	70.7	88.6	55.3	71.4	89.3
404/507	SDR-3	21.0	25.6	30.1	22.1	25.9	29.8	21.4	25.2	29.4	19.6	23.5	27.7	17.5	21.0	26.3	16.8	20.3	25.2
	SDR-3X	38.1	46.7	55.0	40.4	49.1	57.3	39.9	47.8	58.1	40.0	48.4	58.9	38.4	47.1	60.6	39.9	48.7	61.5
	SDR-4	69.7	91.7	111	80.9	104	126	83.0	105	127	87.5	109	130	85.1	104	123	93.1	115	136
407C	SDR-3	18.9	23.1	28.7	18.2	23.1	27.3	17.9	21.7	27.0	16.5	20.3	25.2	15.1	18.9	23.8	14.0	17.9	22.8
	SDR-3X	34.3	42.2	52.5	33.4	43.8	52.6	33.3	41.1	53.2	33.6	41.9	53.7	33.0	42.4	55.0	33.2	42.8	55.5
	SDR-4	64.1	87.5	119	69.3	97.3	123	71.1	96.3	125	75.6	97.3	128	78.4	100	132	80.5	103	135
410A	SDR-3	31.9	39.6	47.7	31.9	39.6	47.7	31.9	39.6	47.6	31.9	39.6	47.7	31.9	39.6	47.7	—	—	—
	SDR-3X	57.0	71.1	85.6	57.3	71.1	85.6	57.3	71.1	85.6	57.3	71.1	85.6	57.3	71.1	85.6	—	—	—
	SDR-4	104.0	139.8	174.0	112.9	146.5	179.4	115.7	148.7	185.6	122.4	154.1	185.9	126.3	157.5	188.9	—	—	—

Note: Capacities are based on discharge temperature 28°C above isentropic compression, 55°C condensing temperature, 0°C subcooling, 13°C superheat at the compressor and includes both the hot gas bypassed and the liquid refrigerant for desuperheating, regardless of whether the liquid is fed through the system thermostatic expansion valve or auxiliary desuperheating expansion valve.

For complete information consult your nearest Sporlan Wholesaler or email europesold@parker.com and request Bulletin 100-60.

Dimensions



SDR – Valve Nomenclature/Ordering Instructions

S	DR	4	7/8 x 7/8	10	S
Step Motor Operated	Discharge Regulator	Nominal Size 3 or 4 Available	Connections ODF SDR-3, 3x - 3/8, 1/2, 5/8 SDR-4 - 7/8, 1-1/8	Cable Length 10' standard, 20,30,40 also available	S = Stripped and tinned cable ends. Custom Connectors available