

# DISCHARGE BYPASS VALVES

**SHGB-15**



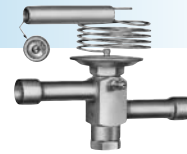
**ADRI**



**ADRHE-6**



**DRHE-6**



UL and CE LISTED or Recognized

The Sporlan line of discharge bypass valves are designed to provide an economical method of compressor capacity control in place of cylinder unloaders or to handle unloading requirements below the last step of cylinder unloading. These modulating control valves automatically bypass the required amount of discharge gas to the low side to maintain the desired minimum evaporator pressure. The valves are applicable on any refrigeration or air conditioning system that operates during periods of low load, which can result in coil icing or short cycling. These valves respond to downstream pressure changes and open when the evaporator pressure falls below the valve setting. At normal loads and evaporator conditions, the valve remains closed and the system operates in a conventional manner.

The DR line of valves consists of three basic types of valves: the adjustable models, the adjustable remote bulb models, and the non-adjustable models (contact Sporlan for information).

The SHGB valves are adjustable and pilot operated with a solenoid stop feature that eliminates the need for a hot gas solenoid valve. They were developed for use on larger capacity systems.

## Application

The discharge bypass valve is normally applied in a branch line off the discharge line. To allow system pump down control, a solenoid valve or hand valve must be installed upstream of the discharge DR type bypass valves. The bypassed hot gas can enter the low side at several locations; however, two of the possible locations are preferred because of superior operating performance: into the side connection of a Sporlan side connection distributor or directly into the suction line. By using the side connection distributor method, the system TEV will act as a desuperheating valve to keep the compressor suction temperature below the recommended maximum temperature published by the compressor manufacturer. When the hot gas is

bypassed directly into the suction line, an auxiliary desuperheating TEV may be required. See Bulletin 90-40 and 90-40-1 for complete application details.

## Selection and Capacity Ratings

The capacities given in the table below are valve hot gas capacities and not the capacities of the system on which the valve is to be applied. To select a valve, first determine the compressor capacity at the minimum allowable evaporating temperature. Then the discharge bypass valve must supply the difference between this compressor capacity and the minimum evaporator load at which the system is to be operated. The valve pressure setting will be that pressure at which the bypass valve must start to open.

Connections – (Standard Connections are in **BOLD** type. Non-standard connections may be subject to availability and/or require a minimum quantity).

**ADRI(E)-1-1/4, - 3/8"** ODF Solder

**ADRS(E)-2 - 3/8", 1/2", 5/8"** ODF Solder or 3/8", 1/2", 5/8" SAE Flare

**ADRP(E)-3 - 1/2", 5/8",** ODF Solder or 1/2", 5/8" SAE Flare

**ADRHE-6 & DRHE-6 - 5/8", 7/8", 1-1/8"** ODF Solder

**SHGB(E)-8 - 7/8"** ODF, 1-1/8" ODF Solder

**SHGB(E)-15 - 1-1/8", 1-3/8"** ODF Solder

**HGB(E)-5 - 3/8, 1/2, 5/8** ODF Solder

**HGB(E)-8 - 7/8, 1-1/8** ODF Solder

Note: Refer to Bulletin R-410A for capacities.

Valves with ODF solder connections are supplied standard with 1/4" ODF external equalizer, 1/4" SAE Flare external equalizer available on special order. Pilot operated models are supplied with 1/4" SAE external equalizer.

## Capacities – kW

Capacities based on 3.3°C evaporator temperature change from closed to rated opening (does not apply to pilot operated models), discharge temperature 17°C above isentropic compression, 38°C condensing temperature, 0°C subcooling, 14°K superheat at the compressor and includes both the hot gas bypassed and liquid refrigerant for desuperheating, regardless of whether the liquid is fed through the system thermostatic expansion valve or auxiliary desuperheating thermostatic expansion valve.

REFRIGERANT	MINIMUM ALLOWABLE EVAPORATOR TEMP. °C	VALVE TYPE & ADJUSTMENT RANGE (bar)														
		ADRI-1-1/4 ADRIE-1-1/4		ADRS-2 ASRSE-2		ADRP-3 ADRPE-3		ADRHE-6		DRHE-6 (Adjustable "Remote Bulb Model")*				SHGB-8 SHGBE-8	SHGB-15 SHGBE-15	
		0/3.79	0/5.17	0/6.90	0/2.07	0/5.52	0/2.07	0/5.52	0/2.07	0/5.52	1.72/2.41	2.21/3.03	3.79/4.83	4.48/5.52	0/6.90	0/5.17
22	5	—	2.04	1.86	—	12.3	—	21.1	—	32.2	—	—	69.7	—	55.3	204
	-5	1.55	2.25	1.90	—	12.5	—	22.0	—	34.8	—	—	59.5	—	56.0	218
	-15	2.22	2.11	1.72	13.7	12.9	26.0	23.2	48.9	38.3	—	—	—	—	57.0	232
	-25	2.08	1.76	1.55	13.2	12.8	26.2	23.4	49.6	38.7	—	—	—	—	57.0	243
134a	5	1.41	1.51	1.19	—	9.40	—	17.4	—	32.9	33.9	—	—	—	38.3	144
	-5	1.44	1.37	1.12	9.15	8.59	17.4	15.5	32.9	25.5	29.2	—	—	—	38.3	151
	-15	1.34	1.09	0.98	8.66	—	17.2	—	33.1	—	—	—	—	—	38.7	162
404A	5	—	—	1.94	—	—	—	—	—	—	—	—	—	—	61.6	—
	-5	—	2.36	2.11	—	13.7	—	23.6	—	36.6	—	—	—	75.3	62.3	225
	-15	2.35	2.50	1.97	—	14.1	—	25.2	—	41.2	—	—	—	—	63.0	229
	-25	2.39	2.15	1.79	14.7	14.1	28.4	25.6	53.8	42.6	—	—	—	—	63.0	229
407C	5	—	2.74	2.29	—	14.9	—	26.4	—	42.6	—	—	80.5	—	65.4	260
	-5	2.15	2.74	2.22	—	14.9	—	26.4	—	42.6	—	67.9	—	—	65.8	264
	-15	2.60	2.39	1.97	15.9	15.2	30.4	27.5	57.3	45.7	—	—	—	—	66.5	267
	-25	2.39	1.97	1.76	15.2	14.9	30.4	27.1	58.0	45.4	—	—	—	—	67.2	271
507	5	—	—	1.86	—	—	—	—	—	—	—	—	—	—	61.2	—
	-5	—	2.28	2.07	—	13.6	—	23.2	—	35.9	—	—	—	—	62.3	225
	-15	—	2.50	2.00	—	13.8	—	24.9	—	40.5	—	—	—	—	62.6	225
	-25	2.43	2.18	1.83	14.7	14.1	28.2	25.5	53.5	42.2	—	—	—	—	63.0	229

\*These models applicable on air conditioning systems only. For complete information consult your nearest Sporlan Wholesaler or email europecold@parker.com and request Bulletin 90-40.