

# Desuperheater Selection Guide



DESUPERHEATER	MA			SAMN	VAD	SA-35	MNSD-V	VO		PRDS		
	MA-I	MA-II	MA-III					VO-76	VO-II			
<b>Turndown Ratio</b>	2:1 (on coolant flow)		2:5:1 (on coolant flow)	3:3:1 (on coolant flow)	9:1 (on coolant flow)	15:1 (on coolant flow)	25:1 (on vapor flow)(2)	Up to 75:1	Up to 100:1 (limited only by CWW)	Up to 100:1 (limited only by CWW)	50:1 Typ. (varies with trim)	
<b>Type of Atomizing</b>	Mechanical		Mechanical	Mechanical	Mechanical	Velocity	Vapor	Mechanical	Velocity	Velocity	Velocity	
<b>Minimum Outlet Temperature</b>	Sat. + 20°F		Sat. + 20°F	Sat. + 15°F	Sat. + 15°F	Sat. + 10°F	Sat. + 15°F	Sat. + 15°F	Sat. + 10°F	Sat. + 10°F	Sat. + 10°F	
<b>Temperature Control Accuracy (5)</b>	±15°F		±15°F	±10°F	±10°F	±5°F	±10°F	±10°F	±5°F	±5°F	±5°F	
<b>Mounting/Orientation</b>	Any		Any	Any	Any	Any	Any	Any	Vertical w/ flow upward	Vertical w/ flow upward	Any	
<b>ANSI Pressure Class</b>	150-1500	2500	150-2500	900-2500	150-2500	150-600	150-1500	150-2500	150-2500	150-900	150-250	
<b>Main Header Size</b>	<b>Minimum Size</b>	3"	8"	8"	8"	6"	1"	4"	6" (7)	2"	3"	1"
	<b>Maximum Size</b>	24"	30"	30"	30"	24"	16"	24"	24" (7)	No limitations	No limitations	No limitations
<b>Size(s)</b>	3"		3"	3"	3"	1"-16" 14 separate sizes	3-4, 4-6, 6-8, 8-10 (Fig. Size-Min. Header)	3/2, 3/2, 3/5, 4/5	2"-24"	3"-20"	Standard: 1"x2" to 6"x12" Custom: 8"x16" & up	
<b>Std. End Connections:</b>	<b>Coolant</b>	SW		SW	SW or BW	Flg. or SW	Thd., Flg. or BW	Flg. or BW	Flanged	Flanged	Flanged	SW
	<b>Header Mounting</b>	Flanged		Flanged	Flanged	Flanged	Flg. or BW	Flanged	Flanged	Flg. or BW	Flanged	SW/BW
<b>Coolant Shutoff Class</b>	III-V		III-V	III-V	III-V	III-V	III-V	V	III-V	III-V	III-V	
<b>Velocity Limits:</b>	<b>@ max. flow</b>	50,000 ft/min	50,000 ft/min	30,000 ft/min	50,000 ft/min	1/3 sonic	50,000 ft/min	50,000 ft/min	30K ft/min (4)	30K ft/min (4)	Per Application	
	<b>@ min. flow</b>	5,000 ft/min	5,000 ft/min	1,800 ft/min	1,000 ft/min (1)	900 ft/min	2,000 ft/min	1,000 ft/min	NA	600 ft/min		
<b>Pressure Drop:</b>	<b>@ max. flow</b>	Negligible		Negligible	Negligible	3 psi nominal	Negligible	Negligible	Per Application	Per Application	Per Application	
	<b>@ min. flow</b>	Negligible		Negligible	Negligible	3 psi nominal	Negligible	Negligible	Nominally 3-5 psi	Nominally 3-5 psi		
<b>Required Coolant Pressure Steam Line Pressure +</b>	40-160 psi		60-400 psi	30-500 psi	225-1000 psi	7-25 psi	10-40 psi	60-3,000 psi	5-100 psi	5 psi	Per Application	
<b>Atomizing Steam Pressure (Nozzle Delta P) Line Pressure +</b>	NA		NA	NA	NA	NA	Any (3)	NA	NA	NA	NA	
<b>Distance to Temperature Sensor (DTS)</b>	30-50 ft.		30-50 ft.	16-30 ft.	16-30 ft.	20-33 ft.	25-40 ft.	16-30 ft.	12-20 ft.	12-20 ft.	12-18 ft.	
<b>Min. Straight Pipe Distance to Elbow or Valve</b>	<b>Upstream-</b>	3 pipe diameters (not less than 3 ft)	3 pipe diameters (not less than 3 ft)	5 pipe diameters (not less than 4 ft)	5 pipe diameters (not less than 4 ft)	6 pipe diameters (not less than 1 ft)	3 pipe diameters (not less than 4 ft)	5 pipe diameters (not less than 4 ft)	Long radius elbows may be installed at inlet and outlet	Long radius elbows may be installed at inlet and outlet	5 pipe diameters (not less than 3 ft)	
	<b>Downstream-</b>	70% of "DTS"	70% of "DTS"	70% of "DTS"	70% of "DTS"	50% of "DTS"	80% of "DTS"	70% of "DTS"			LR Elbow (refer to GN-03)	
<b>System Components</b>	MA-D.S.H Coolant Valve Temp Controller (6)	MA-D.S.H Coolant Valve Temp Controller (6)	MA-III Coolant Valve Temp Controller (6)	SAMN-D.S.H Coolant Valve Temp Controller (6)	VAD-D.S.H Coolant Valve Temp Controller (6)	SA-35-D.S.H Coolant Valve Temp Controller (6)	MNSD-V Temp Controller (6) Block Valve	VO-D.S.H Coolant Valve Temp Controller (6)	VO-D.S.H Coolant Valve Temp Controller (6)	PRDS-D.S.H Coolant Valve Temp Controller		
<b>Installation Guidance Notes No.</b>	GN-04		GN-05	Pending	GN-08	GN-09	GN-06	GN-07	GN-02	GN-02	GN-03	
<b>Product Specifications No.</b>	PS No. 18		PS No. 19	PS No. 60	PS No. 28	PS No. 51	PS No. 20	PS No. 29 & 52	PS No. 21	PS No. 21	PS No. 23 & 24	

1. Velocity is as low as 1,000 ft/min is possible depending on amount of residual superheat and temperature differential between vapor and coolant.  
 2. 25:1 turndown is subject to a check on the amount of atomizing vapor being used.  
 3. Pressure breakdown orifices or PRV may be required in order to limit the pressure drop to less than critical.  
 4. Velocity shown is seat velocity. Inlet and outlet velocities will be much lower.  
 5. Control accuracy is a function of the complete system which includes temperature controller and coolant valve.  
 6. Application involving pressure reduction will include a pressure reducing valve (PRV) and pressure controller.  
 7. 6"-24" Header for 3/2 & 3/3; 12"-24" Header for 3/5 and 12"-20" Header for 4/5 Model.





## SPECIAL APPLICATION GLOBE STYLE CONTROL VALVES

- General Service application
- Severe Duty application
- High turndown
- .75 - 24" Sizes
- 150 - 4500 ANSI Ratings
- Special ANSI Ratings
- Meets ASTM/ASME Standards
- Threaded, Butt/Socket Weld, Flanged Ends



## STEAM CONDITIONING EQUIPMENT (DESUPERHEATERS)

- 7 Styles
- Mechanical Atomizing
- Variable Orifice
- Integral Cooling Water function available
- High turndowns
- 150 - 2500 ANSI Ratings
- Special ANSI Ratings
- Meets ASTM/ASME Standards



## TRIM TYPES

- 13 types
- RAVEN™
- HUSH™
- CAV B9©
- One Stage Hush©
- Noise control
- Cavitation elimination
- Velocity & Erosion control



## ACTUATORS

- Diaphragm Style, Model 700
- Diaphragm Style, Model 1000
- Manual Style 820
- Electric available
- Electro/Hydraulic available
- Piston
- Reverse acting
- Direct acting



## NUCLEAR CONTROL VALVES

- Pneumatic, Motor, Manual Operators
- Metal & Resilient Seats
- Widest Selection of Trim in the Industry
- Size Range: 3/8" - 20" class 150 - 2500
- Globe, Angle, Isolation & Three Way Body Configurations
- ASME Section III "N" & "NPT" Stamp Certified



## NUCLEAR HIGH PERFORMANCE BUTTERFLY AND BALL VALVES

- Bi-Directional Class VI Shut off
- Metal & Resilient Seats
- Pneumatic, Motor, Manual Operators
- Modulating or Isolation
- Two & Three Piece Ball Valve design
- Torque Seated/Position Seated (Butterfly only)
- ASME Section III "N" & "NPT" Stamp Certified



## AFTERMARKETS AND REFURBISHMENTS

- Reduce Outage Cycle Times
- Maximize Years/Life Cycle
- Recondition the OEM parts, while minimizing lead times and costs.

Common Applications: Power, Pulp & Paper, Water, Oil & Gas, Petrochemical.  
 Manufacturing Standards: Certifications - ISO-9001, ASME SECTION III "N" & "NPT" Stamps, ASME SECTION I "S" Stamp, CSA-Z299.2, .3 & .4, 97/23/EC-PED-CE

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