

# Delta Element Steam Traps

## Magnum Series Models

MAG03

MAG10

MAG25

MAG06

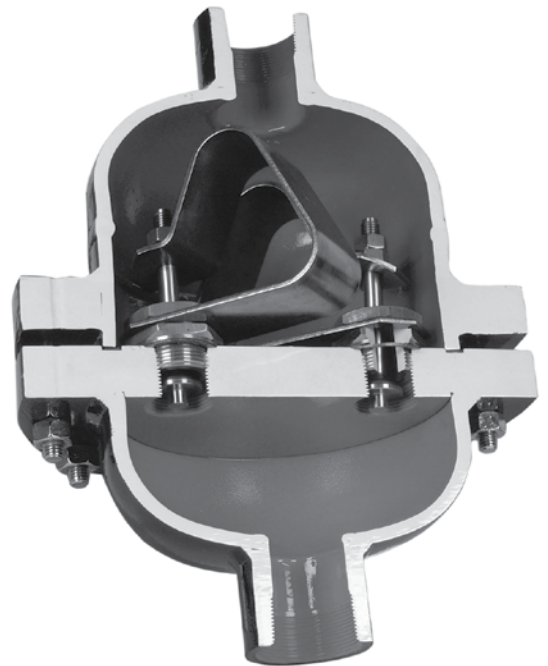
MAG16

CRN: Canadian Registration Number Available

### FOR LARGE PROCESS APPLICATIONS

A versatile line of high capacity steam traps, Bestobell's Magnum can be supplied with up to 18 bimetallic elements for hot condensate flows as high as 149,000 pounds per hour. With five models available for differential pressures up to 320 psig, you can add or delete elements to match your changing conditions.

- **Different Models to handle differential pressures from:** 30 psi (2,1 bar) to 320 psi (22,1 bar)
- **Single blade element** – offers long-term, trouble-free service because it's not prone to dirt build-up as encountered with many other bimetal designs
- **Stainless Steel internals** – leads to longer service life since materials are highly resistant to fatigue and corrosion
- **Modulating discharge** – automatically adjusts to operating pressure and load, overcoming problems associated with cyclic discharge
- **Multiple elements** – allows for variable flow conditions and the ability to add or remove elements based on future flow conditions
- **Continuous air and CO2 venting** – maximizes heat transfer while minimizing corrosion
- **High cold start-up capacity:** with cold flow capacities from 4 – 8 times higher than the hot running load capacity of the trap, process temperatures will be reached faster leading directly to savings on the bottom line
- **Single element version** offers flows to 11,000 PPH (4989 kg) and a 30 psi (2,1 bar) differential and up to 9200 PPH (4173 kg) hot 70 psi (4,8 bar) differential with 50000 and 46000 PPH cold capacity



A Division of  
Richards Industries  
3170 Wasson Road  
Cincinnati, OH 45209

toll free. 800.543.7311  
local. 513.533.5600  
fax. 513.871.0105

steam@richardsind.com  
www.bestobellsteamtraps.com

**FOR LARGE PROCESS APPLICATIONS**
**SPECIFICATIONS**

**Line Sizes:** 1-1/2", 2", 3", 4", 6", 8"

**End Connections:** Threaded, NPT, BSPT, BSPP, socket weld (1-1/2" & 2" only), raised face flanged ends: ANSI 150, 300. Flanged ends recommended for fabricated units.

**MATERIALS**

**Body & Cover:** single element units Forged Carbon Steel A105  
multi-element units fabricated Steel A234, A516, A106B

**Valve Seat 303 SST & Cone:** 17-4 SST

**Bi-Metal:** Stainless Steel NiCr

**Strainer:** Stainless Steel 304

**Bolts:** Steel Gr8

**Gasket:** Flexible Graphite

**BODY SIZE SELECTION**

(Based on number of elements used to pass the required flow)

Number of Elements	1	1 to 2	3	4 to 6	7 to 10	11 to 18
Magnum 3 or 6	Use 2" GM3 or GM6	Small	Medium	Medium	Large	N/A
Magnum 10, 16, 25	Single Element body	Small	Medium	Medium	Medium	Large

**SIZING THE MAGNUM SERIES**
**Step 1**

Select model number suitable to meet the differential pressure for the application and maximum operating conditions from **Trap Parameters**.

**Step 2**

From the **Capacity Chart**, find the column that corresponds to the differential pressure. If the required hot flow capacity exceeds the capacity listed on the chart, divide the maximum flow capacity required by the capacity of the single element to determine the number of elements required (round up).

**Step 3**

In the **Body Size Selection Chart**, select the body necessary, based on the number of elements required (see example).

**Example**

50,000 pph maximum condensate flow at 100 psi differential in a system with 120 psig maximum working pressure. On the **Capacity Chart** in the 100 psi column, the hot flow capacity of a one element Magnum 10 trap (maximum 120 psi) is 7,700 pph. Dividing 50,000 by 7,700 equals 6.5, rounding up, equals seven elements needed for this application. The body size needed for seven elements in a Magnum 10 trap in the **Body Size Selection Chart** is a medium body, this trap can be ordered with up to 3 additional holes plugged, if future capacity needs are expected.

**TRAP PARAMETERS**

Model	Max. ΔPressure
Magnum 3	30 psi (2,1 bar)
Magnum 6	70 psi (4,8 bar)
Magnum 10	120 psi (8,3 bar)
Magnum 16	200 psi (13,8 bar)
Magnum 25	320 psi (22,1 bar)

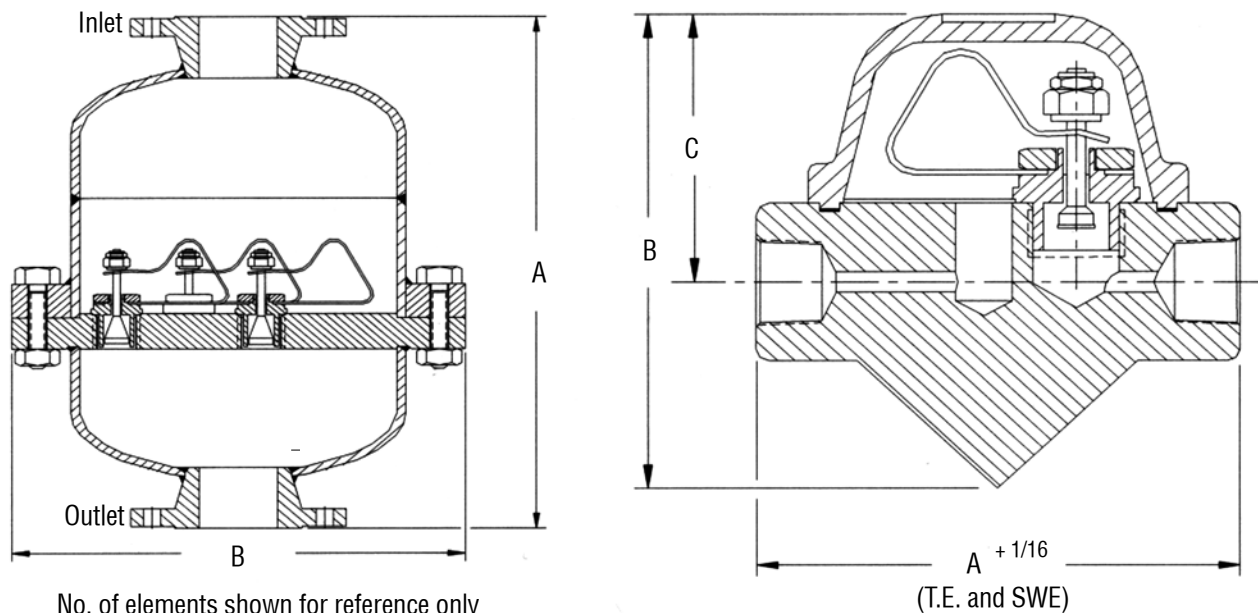
Single	750°F (399°C)	750 psi (52 bar)
Small		450 psi (31 bar)
Medium		450 psi (31 bar)
Large		310 psi (21 bar)

Note: Final body pressure/temperature ratings dependant upon ratings of end connections

# MAGNUM SERIES

## DELTA ELEMENT STEAM TRAPS

### DIMENSIONS



### INCHES

	Size	Ends	Single Element Body	Small Body	Medium Body	Large Body
A	1-1/2", 2"	NPT / SW	7.125	16.406	—	—
	1-1/2"	300#	11.50	16.00	—	—
	2"	300#	11.375	16.00	19.50	—
	3"	FE	N/A	16.125	19.875	—
	4"	FE	N/A	16.25	20.125	—
	6"	FE	N/A	16.00	20.375	24
B	All	All	9.50	12.188	18.50	23.50
Wt. (lbs)	—	—	33 to 51	110	280	340

### METRIC (mm)

	Size	Ends	Single Element Body	Small Body	Medium Body	Large Body
A	DN20 & 25	NPT / SW	181	417	—	—
	1-1/2"	300#	292	406	—	—
	2"	300#	289	406	495	—
	3"	FE	N/A	410	505	—
	4"	FE	N/A	413	511	—
	6"	FE	N/A	406	518	610
B	All	All	241	310	470	572
Wt. (kgs)	—	—	15 to 23	50	127	154

Note: Contact factory for larger sizes and configurations not specifically addressed above

## DELTA ELEMENT STEAM TRAPS

### CAPACITY CHART: CONDENSATE CAPACITY AT DIFFERENTIAL PRESSURE

#### ENGLISH

Model	psi	5	10	20	30	50	70	100	120	150	200	260	320
Magnum 3	Cold start-up, lbs/hr	20000	30000	40000	50000	—	—	—	—	—	—	—	—
	Hot (Dripleg), lbs/hr	6300	7500	9000	11000	—	—	—	—	—	—	—	—
Magnum 6	Cold start-up, lbs/hr	—	15000	25000	31000	42000	46000	—	—	—	—	—	—
	Hot (Dripleg), lbs/hr	—	4400	6000	7200	8500	9200	—	—	—	—	—	—
Magnum 10	Cold start-up, lbs/hr	—	—	10000	16000	20000	26000	31000	35000	—	—	—	—
	Hot (Dripleg), lbs/hr	—	—	2600	4550	6200	6800	7700	8300	—	—	—	—
Magnum 16	Cold start-up, lbs/hr	—	—	—	—	17000	21000	26000	31000	36000	41000	—	—
	Hot (Dripleg), lbs/hr	—	—	—	—	1800	2700	3800	4750	5850	6900	—	—
Magnum 25	Cold start-up, lbs/hr	—	—	—	—	—	—	—	—	27000	33000	40000	47000
	Hot (Dripleg), lbs/hr	—	—	—	—	—	—	—	—	2800	3900	5200	6400

#### METRIC

Model	bar	0,34	0,69	1,38	2,07	3,45	4,83	6,90	8,28	10,34	13,79	17,93	22,07
Magnum 3	Cold start-up, kgs/hr	9072	13608	18144	22680	—	—	—	—	—	—	—	—
	Hot (Dripleg), kgs/hr	2857	3402	4062	4989	—	—	—	—	—	—	—	—
Magnum 6	Cold start-up, kgs/hr	—	6804	11340	14061	19051	20865	—	—	—	—	—	—
	Hot (Dripleg), kgs/hr	—	1995	2721	3265	3855	4173	—	—	—	—	—	—
Magnum 10	Cold start-up, kgs/hr	—	—	4536	7257	9072	11793	14061	15876	—	—	—	—
	Hot (Dripleg), kgs/hr	—	—	1179	2063	2812	3984	3492	3764	—	—	—	—
Magnum 16	Cold start-up, kgs/hr	—	—	—	—	7711	9525	11793	14061	16392	18597	—	—
	Hot (Dripleg), kgs/hr	—	—	—	—	816	1224	1723	2154	2653	3129	—	—
Magnum 25	Cold start-up, kgs/hr	—	—	—	—	—	—	—	—	12247	14968	19051	21319
	Hot (Dripleg), kgs/hr	—	—	—	—	—	—	—	—	1270	1769	2358	2903

Note: Flow rates are based on discharge to atmospheric pressure, valid for back pressures up to 20% of inlet pressure. Higher back pressure require reset of control element to obtain these capacities. Consult factory for details.

### ORDERING SCHEMATIC

MODEL			6	7 & 8	9	10	11			
M	A	G	1	0	2	0	7	7	3	0

MODEL	
MAG03	Magnum 3
MAG06	Magnum 6
MAG10	Magnum 10
MAG16	Magnum 16
MAG25	Magnum 25

7 & 8 NUMBER OF ELEMENTS					
1	01	7	07	13	13
2	02	8	08	14	14
3	03	9	09	15	15
4	04	10	10	16	16
5	05	11	11	17	17
6	06	12	12	18	18

10 CONNECTIONS	
1	NPT
2	FSW
3	150# Flange
4	300# Flange
8	BSPT
9	BSPP

6 BODY SIZE	
1	Small
2	Medium
3	Large
4	Single

9 SIZE	
6	1-1/2"
7	2"
9	3"
B	4"
D	6"
E	8"

11 SPECIALS	
0	None
A	1 – Plug
B	2 – Plug
C	3 – Plug