RAPID

COMBINATION VALVES

(Suitable up to 1380 kPa — 200 psi)
(or fitted with stainless steel base up to 2070 kPa — 300 psi)

* Also available in Stainless Steel (except for lever and cap) in sizes 25 and 50NB.

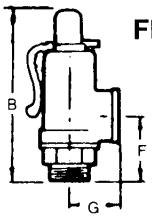

FIG. 248

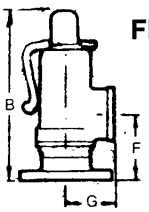

FIG. 247

This Combination Safety Relief Valve has a closed side outlet with right angle discharge combined with a manual easing lever. The outlet is female threaded and of the same size as the inlet. Available with screwed base (248) or flanged base (247).
Max operating temp. 200°C
Suitable for discharge of steam, water, oil, air and liquids non-injurious to copper alloys.

SPECIFICATION:

BODY	— GUNMETAL LG2
CAP	— GUNMETAL LG2
LOCK NUT	— BRASS SM1
LEVER	— GUNMETAL LG2
VALVE	— GUNMETAL LG2
BASE	— GUNMETAL LG2
SPRING	— CARBON STEEL ZINC PLATED
ADJ SCREW	— BRASS SM1
BUTTON	— BRASS SM1

* Stainless Steel Springs available upon request.

DIMENSIONS AND SIZES:

FIG. 248
(Screwed Base (BSP Thread)

Size mm	B	F	G
15	153	54	35
20	175	57	41
25	222	70	45
32	264	83	51
40	298	89	67
50	330	102	70
65	397	117	83
80	445	134	95

FIG. 247
(Flanged Base)

Size mm	B	F	G
15	146	48	35
20	168	51	41
25	213	60	45
32	251	70	51
40	286	76	67
50	318	89	70
65	384	105	83
80	425	115	95

Flanges available undrilled or drilled to purchaser's written instructions.

Manufactured in Australia by

Stead & Baker engineering

AS/NZ ISO 9001 QEC 11655 Quality System

RAPID

SAFETY VALVES

(Suitable up to 1380 kPa — 200 psi)
(or fitted with stainless steel base up to 2070 kPa — 300 psi)

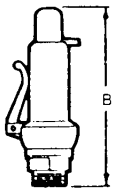

FIG. 228

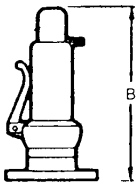

FIG. 227

This Safety valve is pop type with open ports for the discharge of steam and air. Available with screwed base (228) or flanged base (227).

Maximum operating temperature -200°C

SPECIFICATION:	BODY	— GUNMETAL LG2
	CAP	— GUNMETAL LG2
	LEVER	— GUNMETAL LG2
	PEG	— GUNMETAL LG2
	SPINDLE	— BRASS SM1
	SPRING	— CARBON STEEL ZINC PLATED
	VALVE	— GUN METAL LG2
	ADJ. SCREW	— BRASS SM1
	BUTTON	— BRASS SM1

* Stainless Steel Springs available upon request.

DIMENSIONS & SIZES

FIG. 228
(Screwed Base.B.S.P. Thread)

Size mm	B
15	143
20	156
25	203
32	229
40	254
50	292
65	368
80	400

FIG. 227
(Flanged Base)

Size mm	B
15	150
20	162
25	220
32	242
40	267
50	305
65	381
80	420

Flanges available undrilled or drilled to purchaser's written instructions.

Manufactured in Australia by

Stead & Baker engineering

AS/NZ ISO 9001 QEC 11655 Quality System

RAPID

RELIEF VALVES

(Suitable up to 1380 kPa — 200 psi)
(or fitted with stainless steel base up to 2070 kPa — 300 psi)

*Also available in Stainless Steel in sizes 25 and 50NB only

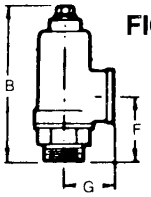

FIG. 268

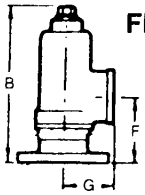

FIG. 270

This Relief Valve has a closed side outlet with right angle discharge. The outlet is female threaded and of the same size as the inlet. Available with screwed base (268) or flanged base (270).

Suitable for discharge of steam, water, oil, air and liquids non-injurious to copper alloys.
Maximum operating temperature 200°C

SPECIFICATION:

BODY	— GUNMETAL LG2
LOCK NUT	— BRASS SM1
VALVE	— GUNMETAL LG2
BASE	— GUNMETAL LG2
SPRING	— CARBON STEEL ZINC PLATED
ADJ SCREW	— BRASS SM1
BUTTON	— BRASS SM1

* Stainless Steel Springs available upon request.

DIMENSIONS AND SIZES:

FIG. 268
(Screwed Base (BSP Thread)

Size mm	B	F	G
15	118	54	35
20	133	57	41
25	172	70	45
32	203	83	51
40	229	89	67
50	254	102	70
65	305	118	83
80	343	134	95

FIG. 270
(Flanged Base)

Size mm	B	F	G
15	111	48	35
20	127	51	41
25	162	60	45
32	191	70	51
40	216	76	67
50	242	89	70
65	292	105	83
80	324	115	95

Flanges available undrilled or drilled to purchaser's written instructions.

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RAPID

SIZING OF VALVES

STEAM SAFETY VALVES

To protect equipment supplied with reduced pressure steam by a Pressure Regulator may usually be sized by using the Steam Capacity Chart for 10% accumulation. Note that for sizing purposes, the maximum capacity of the Pressure Regulator must be taken into account rather than the steam consumption of the unit to be protected (see Chart 1).

STEAM BOILER SAFETY VALVES

Should be sized by using the Steam Capacity Chart for 6% accumulation (see Chart 2).

AIR AND GAS SAFETY VALVES

May usually be sized by using the Gas Capacity Chart for 10% accumulation after applying specific gravity and temperature correction factors if required (see chart below). Where equipment to be protected is supplied by a Pressure Regulator the notes on Steam Safety valves above may apply (see Chart 3).

LIQUID RELIEF VALVES

Chart applies when valve discharge is at atmospheric pressure and inlet pressure is approximately 10% above set point (ie. the pressure at which the valve begins to discharge). If a rise of 25% above set pressure is tolerable subtract one third from capacity before entering Chart. (See Chart 4.)

SPECIFIC GRAVITY & TEMPERATURE CORRECTION MULTIPLIERS

Multipliers for Temperature Variation

Mulipliers for Specific Gravity Variation

Temp. °F	Mult.	Temp. °F	Mult.	SP GR.	Mult.	SP GR.	Mult.
30	1.038	220	0.882	0.50	1.414	1.10	0.955
40	1.027	240	0.869	0.55	1.350	1.15	0.933
50	1.017	260	0.857	0.60	1.290	1.20	0.913
60	1.007	280	0.845	0.65	1.240	1.25	0.895
70	1.000	300	0.834	0.70	1.195	1.30	0.877
80	0.990	320	0.823	0.75	1.155	1.40	0.845
90	0.980	340	0.813	0.80	1.117	1.50	0.817
100	0.972	360	0.803	0.85	1.085	1.60	0.791
120	0.954	380	0.793	0.90	1.055	1.70	0.768
140	0.938	400	0.784	0.95	1.025	1.80	0.745
160	0.923	420	0.775	1.00	1.000	1.90	0.725
180	0.908	440	0.767	1.05	0.975	2.00	0.707
200	0.895	460	0.759				

VALVE SEAT AREAS (mm²)

Nominal Size mm							
15	20	25	32	40	50	65	80
126	285	506	791	1139	1382	3167	4560

Metric Conversion Factors

cu ft	28.317 l
sq in	645.16 sq m
psi	6.893 kPa
Gallons (imperial)	4.55 l
Fahrenheit	1.8 Celcius + 32

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1. **STEAM CAPACITY CHART**
(kg/hour saturated steam) with 10% accumulation

Nominal Size (mm)	Set Pessure kPa gauge									
	35	69	104	173	345	517	690	1034	1380	1724
15	17	21	25	34	55	77	98	140	183	225
20	38	47	58	76	124	172	220	316	412	508
25	70	86	104	136	222	308	393	566	735	904
32	111	136	170	214	349	483	614	890	1149	1417
40	154	190	231	306	498	694	884	1270	1646	2032
50	273	340	410	546	889	1229	1569	2254	2939	3624
65	426	530	639	852	1388	1918	2453	3519	4581	5624
80	613	766	920	1229	2000	2762	3538	5034	6577	8119

2. **STEAM CAPACITY CHART**
(kg/hour saturated steam) with 6% accumulation

Nominal Size (mm)	Set Pessure kPa gauge									
	35	69	104	173	345	517	690	1034	1380	1724
15	17	17	20	27	44	61	78	112	146	180
20	30	38	46	61	99	137	176	253	329	405
25	56	68	83	108	177	246	315	452	587	723
32	88	108	136	171	279	386	491	712	919	1134
40	123	152	185	244	398	555	707	1016	1315	1623
50	218	272	327	437	711	982	1254	1805	2349	2898
65	341	424	511	680	1111	1533	1964	2816	3665	4495
80	490	613	737	982	1601	2209	2830	4018	5261	6486

3. **GAS CAPACITY CHART**
(M^3 per minute of air at 15.5°C) with 10% accumulation

Nominal Size (mm)	Set Pessure kPa gauge									
	35	69	104	173	345	517	690	1034	1380	1724
15	0.48	0.56	0.76	1.24	1.72	2.20	3.14	4.07	5.04	6.00
20	1.04	1.30	1.70	2.77	3.85	4.92	7.08	9.20	11.32	13.53
25	1.92	2.32	3.02	4.95	6.85	8.77	12.60	16.36	20.16	24.06
32	3.03	3.79	4.75	7.78	10.76	13.70	19.82	25.62	31.48	37.94
40	4.25	5.15	6.82	11.10	15.49	19.70	28.31	36.72	45.30	53.52
50	7.59	9.14	12.17	19.82	27.41	34.97	50.26	65.55	80.84	96.00
65	11.83	11.24	19.03	30.92	42.75	54.65	78.43	101.94	125.44	149.79
80	17.10	20.55	27.41	44.59	61.59	78.86	112.13	146.68	181.22	215.77

4. **LIQUID CAPACITY CHART**
(L/min cold water)

Nominal Size (mm)	Set Pessure kPa gauge									
	35	69	104	173	345	517	690	1034	1380	1724
15	6.1	8.6	10.5	13.5	19.1	23.5	27	33	38.5	42.9
20	15.7	19.4	23.7	30.5	43.3	53	61	75	86.6	97.3
25	24.3	34.5	42.1	54.3	76.8	94.1	108	133	153	172
32	41.8	58.8	71.8	92.7	131	160	185	227	261	293
40	59.4	84.3	103	132	187	230	266	326	376	421
50	115	163	199	256	364	445	514	631	727	859
65	179	254	311	401	568	695	802	982	1135	1268
80	257	365	446	576	816	1000	1152	1413	1629	1823

RAPID

WATER HEATER — NOISELESS STEAM MUFFLERS

(Penberthy Type)

For use as Water Heater or Steam Muffler with an open tail pipe 250-300mm long. Screwed into the large end of the heater. Screw the small end of the heater on to the steam supply pipe and immerse the unit in the liquid to be heated. Maximum steam temperature -200°C

SPECIFICATION: BODY — BRONZE

SIZE No.	Nominal Steam Pipe mm	Nominal Discharge Pipe mm	Litres of Water/hr raised 16°C at steam pressure of 4.5 kg	36 kg	Kg of Steam/min per heater at Pressure of 4.5 kg	36 kg
G	10	15	1022	4136	0.40	1.49
H	15	20	1818	6932	0.68	2.54
J	20	25	2386	8637	0.86	3.17
K	25	32	3068	11251	1.18	4.08
L	32	40	4000	14320	1.40	5.21
M	40	50	4727	17729	1.72	6.44
N	50	65	7273	27730	2.76	10.29

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RAPID

TANK HEATERS

Steam Pressure kPa Gauge	SIZE OF RAPID TANK HEATER					
	15	20	25	40	50	100
	STEAM DISCHARGED Kg/Hr					
34.47	18	32	36	91	159	591
68.95	32	50	57	168	264	977
103.4	42	89	95	255	418	1445
137.9	48	114	123	336	518	1886
172.3	57	136	141	418	645	2318
206.8	64	159	170	482	750	2768
275.8	82	182	199	609	982	3300
344.7	93	255	264	727	1159	3864
413.7	111	291	305	836	1341	4500
482.6	123	336	355	973	1523	5091
551.6	143	377	386	1045	1659	5500
620.5	157	414	425	1145	1886	6227
689.5	166	432	455	1241	2014	6727
861.9	202	491	511	1520	2445	8023
1034	237	600	639	1832	3073	9364
1103	257	632	691	1923	3095	10364
1379	323	823	870	2427	3909	13091

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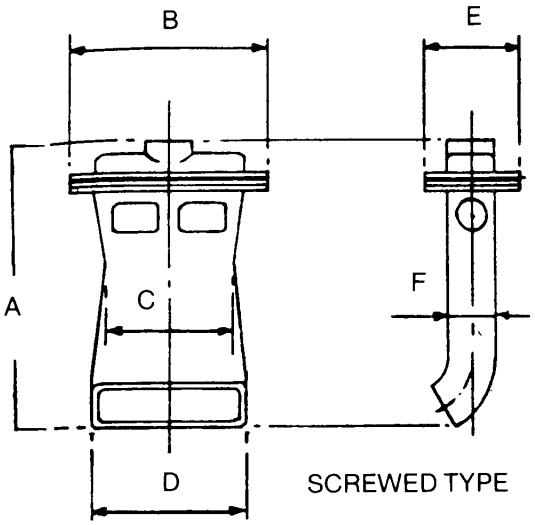

SCREWED TYPE

Pipe	15mm	20	25	40	50	100
A	216	324	324	337	343	391
B	171	216	216	216	235	305
C	114	140	140	140	165	216
D	140	165	165	165	197	229
E	63	100	100	100	121	178
F	28	50	50	50	75	100

Available in Stainless Steel
Cast Iron
Bronze
Aluminium

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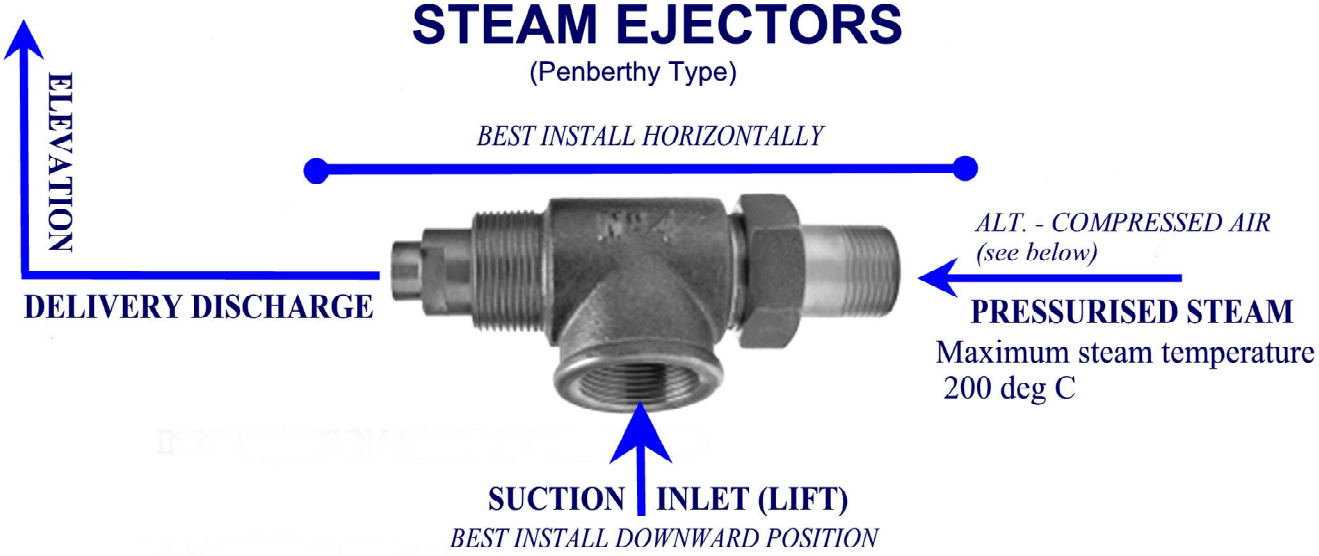
RAPID

STEAM EJECTORS

(Penberthy Type)



With this jet pump, any liquid (if not too thick) can be transported from one level to another or horizontally almost any distance and for priming centrifugal pumps. When operated by air the function is to exhaust air or gases and form a partial vacuum but *air cannot be used to elevate water* as air does not mix with water and will not allow the water to pass through the delivery end of Ejector.

By elevation is meant the distance from Ejector to same height above it. By lift is meant the distance from the Ejector to the surface of water below. When the work is situated so that the Ejector must work both lifting and elevating it may be located to lift and elevate within the limits of 6 to 7.5m Lift and elevate 12 to 18 metres with 27 to 45 kg pressure. When Ejector is placed not more than 3 feet above the surface of the water it will elevate 18 to 36 metres or proportionately with the stream pressure by which it is operated. Where an Ejector is used with a lift of 3 metres or over, a foot valve should be placed on the lower end of the suction pipe.

Sizes available No 1 to 7

Size Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Pipe Connection Steam	10	15	20	25	32	40	50
Pipe Connection Suction and Delivery	15	20	25	32	40	50	65
Capacity Per Hour							
18 to 30 kg steam 1 metre lift - litres	1091	2273	3818	6137	8864	15911	25912
9 to 18 kg, or 30 to 45 kg - litres	1068	2045	3182	5909	8410	13638	19775
18 to 30 kg, 15 metre elevation - litres	545	1136	1909	2955	4432	7955	11365
18 to 30 kg, 7 metre elevation - litres	818	1704	2841	4318	6591	11819	17047
Vertical Lift							
18 to 34 kg steam - metres	7.0	7.6	7.6	7.6	7.6	7.6	7.6
11 to 18 kg or 34 to 45 kg - metres	6.1	6.7	6.7	6.7	6.7	6.7	6.7

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AS/NZ ISO 9001 QEC 11655 Quality System
Quality Endorsed Company
Standards Australia

RAPID

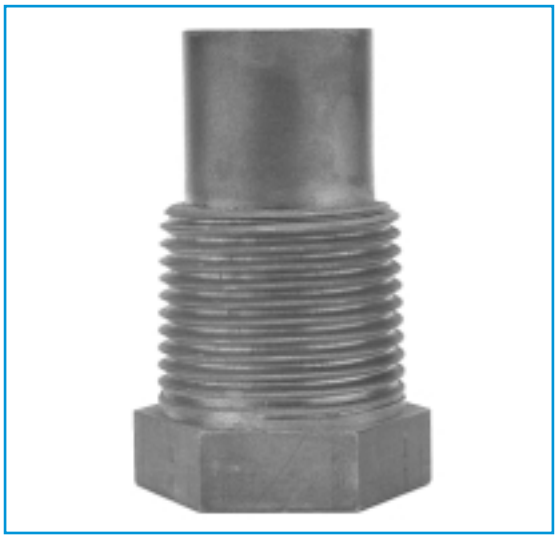
GAUGE GLASS PROTECTORS

The 3 pane protector will withstand thermal and mechanical shocks and safeguards boiler operators against burst gauge glasses. The wire rod protector guards glass tubes from external damage on low pressure units.

When ordering please state type and size of mount and the vessel mounting centres or the visible glass length. Also state whether plate glass or toughened glass is required available in any length to 3 metres.

*** Plain gloss does not comply will D.I.R. — Regulations Boiler Code.**

FUSIBLE PLUGS



Fireside Plug

SPECIFICATION: BODY — BRONZE
INSERT — TIN

Waterside Plug

Made in B.S.P. sizes 15mm to 50mm and conforming to Boiler Code Standard No. AS 1732. Standard temperature is 232°C. Suitable for saturated steam pressures up to 1240 kPa. Steam pressures in excess of 1240 kPa, require plugs 21 to 65°C above the steam temperature. ~~Special plugs can be supplied within the range 180°C to 325°C.~~

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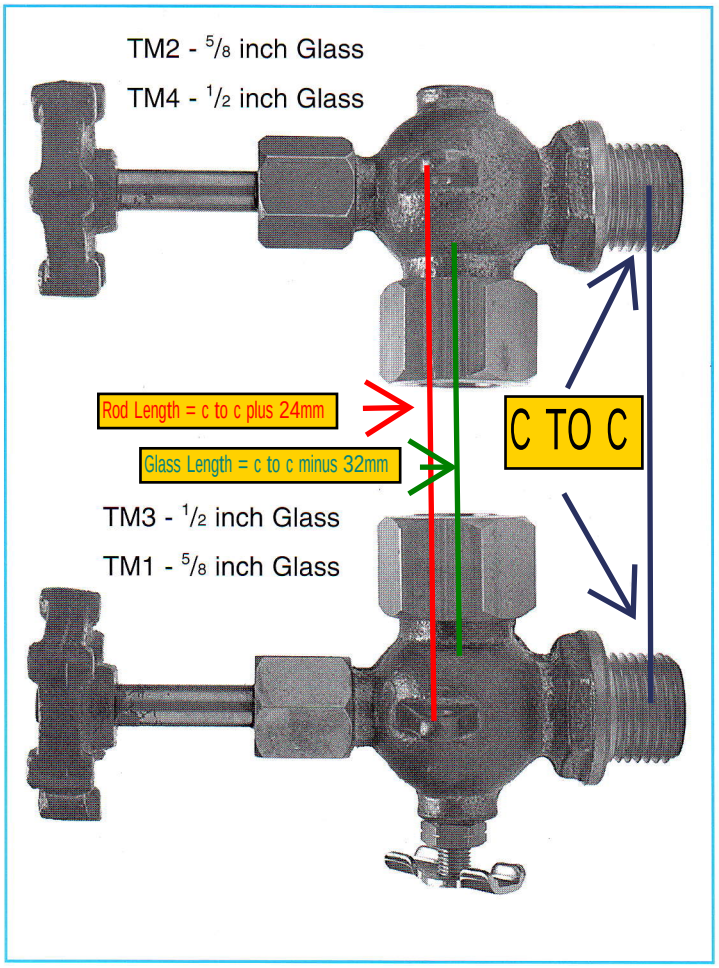
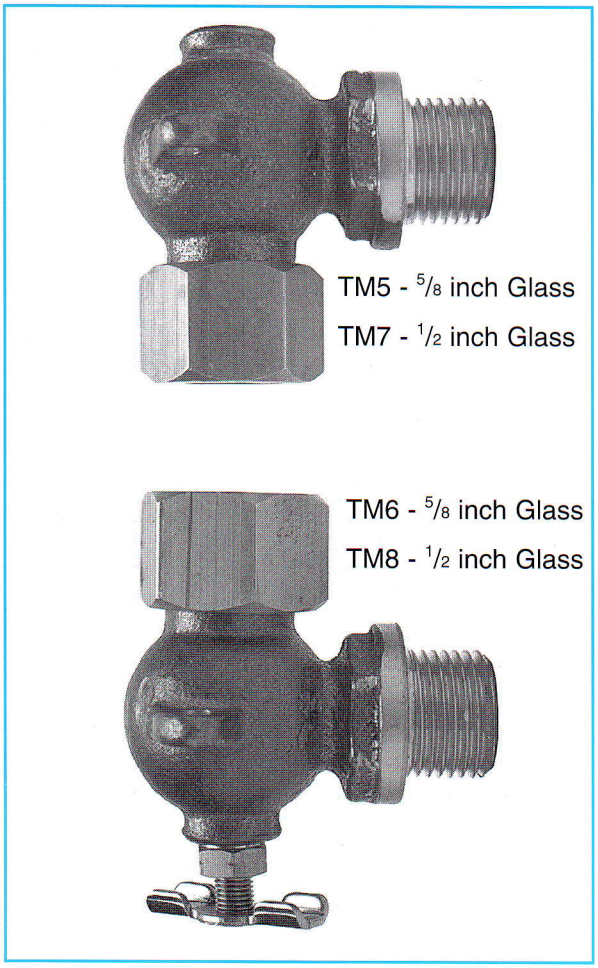
WATER GAUGE MOUNTINGS





Gauge mounts for low pressure tanks for water and oil etc.

Available in three combinations:
VIZ:

1. Self cleaning unit top and bottom.
2. Plain right angle unit top and bottom.

All types supplied fitted with tee drain cock.

Maximum steam temperature - 80°C
Maximum Pressure - 700 kpa

Size mm	Glass Dia.	Thread
12	12mm - ½"	15 BSP
16	16mm - ⅝"	15 BSP

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Stead & Baker engineering
incorporated in nsw

RAPID

INSTALLATION INSTRUCTIONS FOR

RAPID Safety Valves Fig.228
RAPID Combination Safety/Relief Valves. Fig.248
RAPID Relief Valves. Fig. 268

WARNING- VALVES WILL LEAK IMMEDIATELY AFTER FIRST OPERATION IF FOREIGN MATTER IS ALLOWED TO ENTER THE VALVE.

NOTE. The sealing surfaces inside the valve are precision lapped before the valve is set and tested immediately before despatch

A. BEFORE INSTALLING VALVE.

1. Ensure that ALL pipework is totally free of foreign matter such as swarf, rust, and pipe thread sealants such as teflon tape, stag and hemp.
2. Flush the pipework until the flushing fluid is fully clear.

B. WHEN INSTALLING VALVE.

1. Ensure that no thread sealant such as teflon tape, hemp and stag is allowed to enter the valve.

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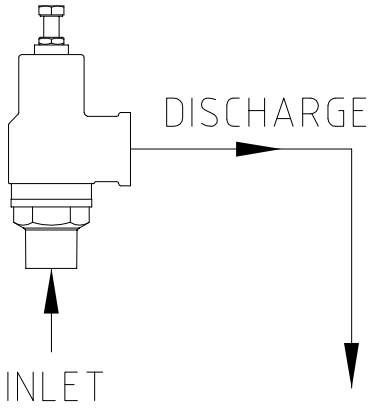
RAPID

INSTALLATION PRACTICE

FOR

RELIEF VALVES AND COMBINATION VALVES

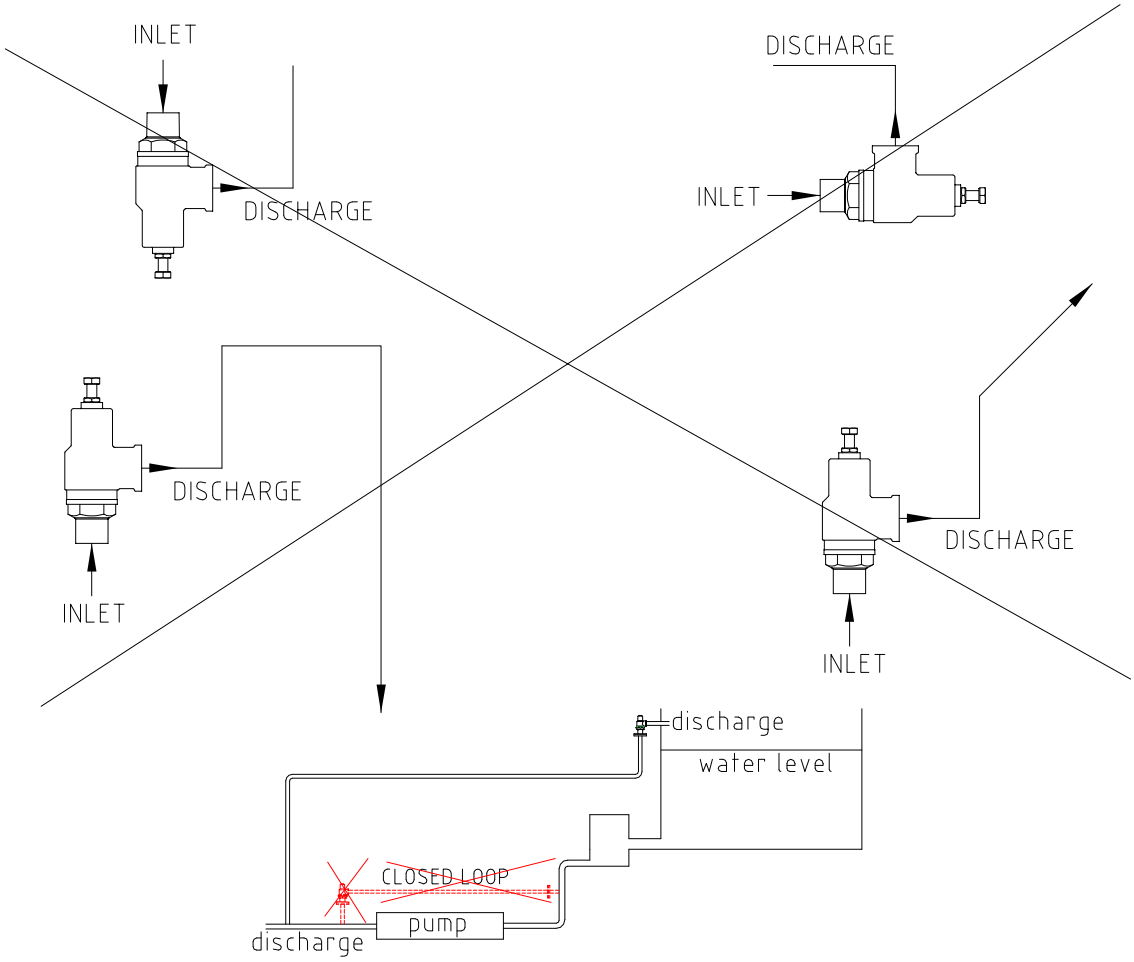


CORRECT

RELIEF VALVES (FIG. 268 & 270) AND COMBINATION VALVES (FIG. 248 & 247) ARE DESIGNED FOR DISCHARGE PRESSURE OF '0'. FOR THAT REASON THEY ARE NOT SEALED ON THE DISCHARGE SIDE. TO AVOID LEAKS MAKE SURE OF CORRECT INSTALLATION.

- VALVE IN THE UP POSITION,
- DISCHARGE PIPE TO THE TANK POSITIONED BELOW VALVE.

INCORRECT PRACTICE



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