

PRESSURE RELIEF VALVE:
 TYPE _____
 MODEL NO. _____
 SIZE _____
 STA. USED _____

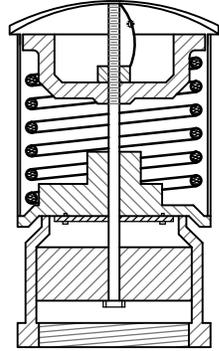
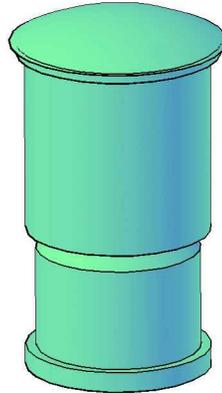
NOTE: METAL PARTS BELOW THE GROUND SHALL HAVE A BITUMINUS OR COAL TAR PROTECTIVE COATING.

NOMENCLATURE

D = DIAMETER OF VERTICAL STEEL PIPE
 D₁ = DIAMETER OF UNDERGROUND PIPE
 D₂ = DIAMETER OF PUMP DISCHARGE PIPE

☉ OF CROSS SECTION

MAX. Q		STEEL STAND D MIN. (INCHES)	CONCRETE BASE VOLUME (CU. YD.)
C.F.S.	G.P.M.		
0.79	355	8½	0.05
1.07	480	10	0.06
1.23	550	10⅝	0.06
1.40	630	11⅜	0.06
1.77	795	12¾	0.07
2.18	980	14¼	0.08
2.41	1080	14⅞	0.08
3.14	1410	17	0.09
3.98	1785	19⅝	0.10
4.91	2205	21¼	0.12



PRESSURE RELIEF VALVES FOR PLASTIC PIPES

(REVISED LAST ON 6-12)

Designed <u>BEB, AJS</u>	Date <u>8-80</u>	File Name
Drawn <u>DDD</u>	<u>6-12</u>	Drawing Name
Checked <u>BEB</u>	<u>9-80</u>	<u>CO-SSP-71C</u>
Approved <u>J.E. ANDREWS</u> S.C.E.	<u>6-12</u>	Sheet 1 of 2

DESIGN AND CONSTRUCTION NOTES

1. DOWNWARD WATER VELOCITIES IN THE STAND SHALL NOT EXCEED 2 FEET PER SECOND. IN NO CASE SHALL THE INSIDE DIAMETER OF THE STAND BE LESS THAN THE INSIDE DIAMETER OF THE PIPELINE.
2. WHEN THE WATER VELOCITY IN THE INLET (FROM THE PUMP OR OTHER WATER SOURCE) EQUALS OR EXCEEDS 3 TIMES THE VELOCITY IN THE OUTLET PIPELINE, THE CENTERLINE OF THE INLET SHALL HAVE A MINIMUM VERTICAL OFFSET FROM THE CENTERLINE OF THE OUTLET AT LEAST EQUAL TO THE SUM OF THE DIAMETERS OF THE INLET AND OUTLET PIPES.
3. VIBRATION CONTROL MEASURES SUCH AS SPECIAL COUPLERS OR FLEXIBLE PIPE SHALL BE PROVIDED AS NEEDED TO INSURE THAT VIBRATION FROM THE PUMP DISCHARGE PIPE(S) IS NOT TRANSMITTED TO THE STAND.
4. PRESSURE RELIEF VALVES SHALL BE INSTALLED ON THE TOP OF THE STAND. WHEN A PIPE IS USED TO EXTEND THE HEIGHT OF THE STAND, IT SHALL HAVE SUFFICIENT CROSS-SECTIONAL AREA TO KEEP WATER VELOCITIES AT 10 FEET PER SECOND OR LESS.
5. SAND TRAPS, WHEN COMBINED WITH A STAND, SHALL HAVE A MINIMUM INSIDE DIA. OF 30 INCHES AND SHALL BE CONSTRUCTED SO THAT THE BOTTOM IS AT LEAST 24 INCHES BELOW THE INVERT OF THE OUTLET TO THE PIPELINE. THE DOWNWARD VELOCITY OF FLOW OF THE WATER IN A SAND TRAP SHALL NOT EXCEED 0.25 FEET PER SECOND. SUITABLE PROVISIONS FOR CLEANING SAND TRAPS SHALL BE PROVIDED.
6. PRESSURE RELIEF VALVES DO NOT FUNCTION AS AIR RELEASE VALVES AND SHALL NOT BE USED AS SUBSTITUTES FOR SUCH VALVES WHERE RELEASE OF ENTRAPPED AIR IS REQUIRED.
7. PRESSURE RELIEF VALVES SHALL BE USED IN CONJUNCTION WITH AIR AND VACUUM VALVES AT ALL PUMP STANDS.
8. A PRESSURE RELIEF VALVE SHALL BE USED AT THE END OF PIPELINES WHEN NEEDED TO RELIEVE SURGE AT THE END OF THE LINES.
9. FOR LOW PRESSURE UNDERGROUND PLASTIC PIPELINES, THE FLOW CAPACITY OF PRESSURE RELEASE VALVES SHALL BE THE PIPELINE DESIGN FLOW RATE WITH A PIPELINE PRESSURE NO GREATER THAN 50 PERCENT ABOVE THE PERMISSIBLE WORKING PRESSURE FOR THE PIPE.
10. FOR HIGH PRESSURE UNDERGROUND PLASTIC PIPELINES PRESSURE RELIEF VALVES SHALL BE NO SMALLER THAN 1/4 INCH NOMINAL SIZE FOR EACH DIAMETER INCH OF THE PIPELINE, AND SHALL BE SET TO OPEN AT A PRESSURE NO GREATER THAN 5 PSI ABOVE THE DESIGN WORKING PRESSURE OF THE PIPE.
11. PRESSURE RELIEF VALVES SHALL BE MARKED WITH THE PRESSURE AT WHICH THE VALVE STARTS TO OPEN. ADJUSTABLE PRESSURE RELIEF VALVES SHALL BE SEALED OR OTHERWISE ALTERED TO PREVENT CHANGING OF THE ADJUSTMENT FROM THAT MARKED ON THE VALVE.
12. MANUFACTURERS OF PRESSURE RELIEF VALVES SHALL PROVIDE CAPACITY TABLES, BASED ON PERFORMANCE TESTS, WHICH GIVE THE DISCHARGE CAPACITIES OF THE VALVES AT THE MAXIMUM PERMISSIBLE PRESSURE AND DIFFERENTIAL PRESSURE SETTING. SUCH MANUFACTURERS TABLES SHALL BE THE BASIS FOR THE DESIGN OF THE PRESSURE SETTING AND OF ACCEPTANCE OF THESE VALVES.
13. PRESSURE RELIEF VALVES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS DIRECTIONS.
14. A PRESSURE RELIEF VALVE SHALL BE INSTALLED BETWEEN THE PUMP DISCHARGE AND THE PIPELINE WHEN EXCESSIVE PRESSURES CAN BE DEVELOPED BY OPERATING WITH ALL VALVES CLOSED.
15. A PRESSURE RELIEF VALVE SHALL BE INSTALLED ON THE DISCHARGE SIDE OF THE CHECK VALVE WHERE A REVERSAL OF FLOW MAY OCCUR. A REVERSAL OF FLOW WOULD OCCUR WHEN PUMPING UPHILL.
16. A PRESSURE RELIEF VALVE SHALL BE USED UPSTREAM OF ANY POINT IN THE PIPELINE WHERE THE PIPELINE HAS A METHOD OF COMPLETE SHUTOFF SUCH AS A GATE VALVE.
17. STANDARDIZED DESIGNS – MUST BE ADAPTED TO THE SPECIFIC SITE.



NRCS

Natural Resources Conservation Service
United States Department of Agriculture

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