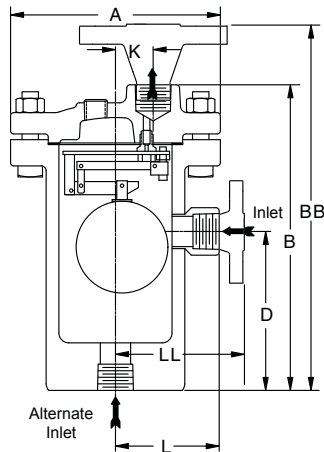




High Leverage Ball Float Type Air Relief Traps

For Low Flows at Pressures to 186 bar or Specific Gravity Down to 0,49



The Armstrong High Leverage Series of Air Relief traps were developed especially for venting gases from low specific gravity fluids at high pressures. They use standard Armstrong forged steel bodies with very high leverage air relief mechanisms. Available with screwed, socketweld or flanged connections.

Note: Models 2313-HLAR, 2316-HLAR, 2413-HLAR and 2415-HLAR are also available with cast T-316 stainless steel body and all-stainless steel internals. Consult factory.

Sour Gas Service

Forged steel and stainless steel traps can be modified to resist hydrogen sulfide stress corrosion. These modifications involve annealing the float, which will reduce the maximum working pressure of the float to about half its normal value. Consult Armstrong Application Engineering for allowable working pressures.

Table AV-344-1. Physical Data – High Leverage Ball Float Type Air Relief Traps

Model No.	2313-HLAR	2315-HLAR	2316-HLAR	2413-HLAR	2415-HLAR	2416-HLAR	25133G-HLAR	25155G-HLAR	26155G-HLAR
Pipe Connections	mm	mm	mm	mm	mm	mm	mm	mm	mm
	15 – 20 – 25	25 – 32 – 40	40 – 50	15 – 20 – 25	25 – 32 – 40	40 – 50	15 – 20 – 25	20 – 25 – 32	25 – 32
"A"	203	248	302	219	273	318	216	263	298
"B"	295	381	435	305	379	448	362	412	613
"BB" (PN100 – 160 – 250*)	343 – 349 – 355	442 – 444 – 446	500 – 505	353 – 360 – 366	440 – 444 – 448	515 – 526	472 – 473 – 487	540 – 540 – 540	740 – 740
"D"	154	198	229	137	184	229	75	102	127
"G"	130	175	213	137	175	219	146	187	213
"K"	37	44	54	37	44	54	33	44	44
"L"	98	119	146	102	122	148	—	—	—
"LL" (PN100 – 160*)	145 – 153 – 159	171 – 173 – 175	198 – 204	149 – 156 – 162	181 – 183 – 187	211 – 244	185 – 187 – 190	214 – 214 – 214	224 – 224
Weight in kg (SW)	21	44	73	31	59	95	51	78	147
Weight in kg (flanged PN100 – 160 – 250*)	23,0 – 25,0 – 26,0	46,0 – 50,0 – 53,0	84,2 – 88,2	35,0 – 37,0 – 38,0	60,6 – 64,6 – 67,6	104,0 – 108,0	56,0 – 57,0 – 58,0	101,0 – 102,0 – 103,0	154,2 – 160,2
Maximum Allowable Pressure (Vessel Design)††	69 bar @ 38°C 41 bar @ 399°C			103 bar @ 38°C 62 bar @ 454°C	125 bar @ 38°C 62 bar @ 482°C	146 bar @ 38°C 117 bar @ 482°C	159 bar @ 38°C 131 bar @ 482°C	255 bar @ 38°C 207 bar @ 482°C	

† Available with cast 316 stainless steel body and all stainless steel internals. Consult factory.

†† May be derated depending on flange rating and type.

* Other flange sizes, ratings and face-to-face dimensions are available on request.

All standard products are CE Marked according to the PED (97/23/EC).

Table AV-344-2. HLAR Series List of Materials

Model No.	Valve & Seat	Leverage System	Float	Body & Cap	Gasket
2313-HLAR 2315-HLAR 2316-HLAR	Stainless Steel	Stainless Steel	Stainless Steel	ASTM A105 Forged Steel	Compressed Asbestos-free
2413-HLAR 2415-HLAR 2416-HLAR				ASTM A182 Grade F22 Forged Steel	
25133G-HLAR 25155G-HLAR 26155G-HLAR				Spiral Wound Stainless Steel non-asbestos	

Table AV-344-3. 2315-HLAR Maximum Operating Pressures

Specific Gravity	1,00 – 0,61	0,60 – 0,49
Float weight in grams	255	191
Orifice size (in)	Maximum Operating Pressure in bar	
3/16"	56	41
5/32"	69	
1/8"		
3/32"		

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.

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High Leverage Ball Float Type Air Relief Traps

For Low Flows at Pressures to 186 bar or Specific Gravity Down to 0,49



Maximum Operating Pressures of free floating lever vents with weighted floats for different orifice sizes, and the specific gravities on which they can be used.

Table AV-345-1. 2313-HLAR Maximum Operating Pressures		
Specific Gravity	1,00 – 0,69	0,68 – 0,54
Float weight in grams	191	135
Orifice size (in)	Maximum Operating Pressure in bar	
1/8"	69	33
7/64"		
3/32"		
5/64"		
1/16"		

Table AV-345-2. 2316-HLAR Maximum Operating Pressures		
Specific Gravity	1,00 – 0,61	0,60 – 0,49
Float weight in grams	624	439
Orifice size (in)	Maximum Operating Pressure in bar	
7/32"	69	33
3/16"		
5/32"		
1/8"		
3/32"		

Table AV-345-3. 2413-HLAR Maximum Operating Pressures			
Specific Gravity	1,00 – 0,90	0,89 – 0,69	0,68 – 0,54
Float weight in grams	266	191	135
Orifice size (in)	Maximum Operating Pressure in bar		
1/8"	103	69	33
7/64"			
3/32"			
5/64"			
1/16"			

Table AV-345-4. 2416-HLAR Maximum Operating Pressures		
Specific Gravity	1,00 – 0,70	0,69 – 0,55
Float weight in grams	624	439
Orifice size (in)	Maximum Operating Pressure in bar	
7/32"	103	33
3/16"		
5/32"		
1/8"		
3/32"		

Table AV-345-5. 2415-HLAR Maximum Operating Pressures			
Specific Gravity	1,00 – 0,85	0,84 – 0,61	0,60 – 0,49
Float weight in grams	390	255	191
Orifice size (in)	Maximum Operating Pressure in bar		
3/16"	83	56	41
5/32"	119	80	
1/8"	124	83	
3/32"			

Table AV-345-6. 25133G HLAR Maximum Operating Pressures				
Specific Gravity	1,00 – 0,98	0,97 – 0,90	0,89 – 0,69	0,68 – 0,54
Float weight in grams	298	266	191	135
Orifice size (in)	Maximum Operating Pressure in bar			
1/8"	146	103	69	33
7/64"				
3/32"				
5/64"				
1/16"				

Table AV-345-7. 25155G HLAR Maximum Operating Pressures				
Specific Gravity	1,00 – 0,95	0,94 – 0,86	0,85 – 0,63	0,62 – 0,50
Float weight in grams	437	390	262	191
Orifice size (in)	Maximum Operating Pressure in bar			
3/16"	93	83	58	41
5/32"	132	119	82	
1/8"	172	138	83	
3/32"				

Table AV-345-8. 26155G HLAR Maximum Operating Pressures				
Specific Gravity	1,00 – 0,95	0,94 – 0,86	0,85 – 0,63	0,62 – 0,50
Float weight in grams	437	390	262	191
Orifice size (in)	Maximum Operating Pressure in bar			
3/16"	93	83	58	41
5/32"	132	119	82	
1/8"	186	138	83	
3/32"				