REFRIGERATION PRESSURE VESSELS





RVS Corporation, Bryan, TX, USA

Get to Know RVS

For over 40 years, Refrigeration Vessels and Systems Corporation (RVS) has been a leading producer of ASME pressure vessels and packaged equipment for the Industrial Refrigeration industry and various Industrial Process applications as well. In 1994, EVAPCO, Incorporated acquired RVS as a wholly owned subsidiary to enhance its industry leading, full spectrum of heat transfer products, engineering innovation, financial strength, and success.

RVS' standard vessels, whether stand-alone or included in factory packaged skids, are engineered specifically for industrial refrigeration applications such as prepared food processing, beverage production, meat & fisheries processing, and cold storage. These vessels can be designed for a variety of refrigerants, but primarily for the two leading and most climate friendly natural refrigerants in the world today – ammonia (NH_3) and carbon dioxide (CO_2). EVAPCO and RVS are committed to leading the industry with natural refrigerant-based heat transfer technology.

At the core of RVS's success is a team of dedicated employee owners committed to excellence and continuous improvement. For over four decades, the RVS team has integrated engineering precision and manufacturing excellence into delivering superior quality products. RVS backs its products with the industry's best customer service – including a comprehensive number of aftermarket solutions for parts, services, and sections.

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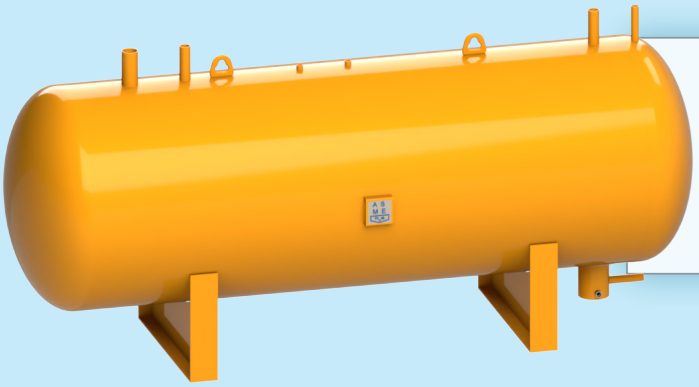
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Standard Design & Options

Standard – All Catalog Vessels:

- ASME BPVC Section VIII, Division 1 Code
- National Board Registration
- ASME Section IX Welder Certification
- Independent Authorized Inspection of all ASME Code Work
- 250 PSIG Maximum Allowable Working Pressure (MAWP)
- Full Vacuum (FV) Rated
- Non-Destructive Examination (NDE) Per ASME Code
- Carbon Steel – Shell, 2:1 Elliptical Heads, Nozzles, Supports, Lift Lugs
- Pressure Tested in Accordance with ASME Code, Fully Evacuated, and Nitrogen Charged for Shipment



Standard - High Side Vessels:

- -20˚F to 300˚F Minimum Design Metal Temperature (MDMT)
- Surfaces Abrasion Prepped to SSPC-SP6
- Base Coat Finish – High Solids Epoxy Paint - White / Gray
- Top Coat Finish – Glossy Acrylic Polyurethane (with UV Inhibitors) Paint - Forceful Orange

Standard - Low Side Vessels:

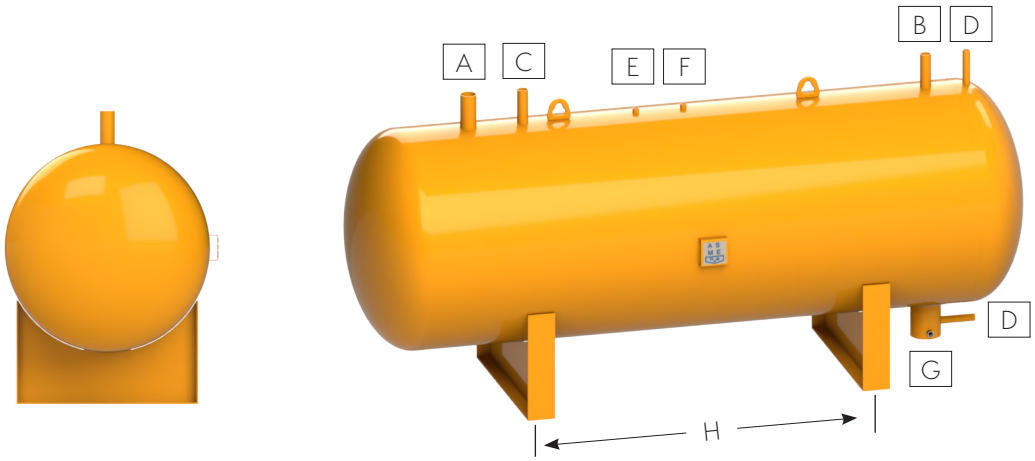
- -20˚F to 300˚F Minimum Design Metal Temperature (MDMT)
- Dual Stamp Rating of 85 PSIG MAWP at -40˚F MDMT
- Stainless Steel ASME Nameplate Bracket and Pipe Stand-off
- Surfaces Abrasion Prepped to SSPC-SP6
- Base Coat Finish – High Solids Epoxy Paint – Hyper Blue



Optional:

- Higher Maximum Allowable Working Pressure (MAWP), Lower Minimum Design Metal Temperature (MDMT)
- External Corrosion Allowance – 1/16" Typical
- Post Weld Heat Treatment (PWHT)
- Low Temperature Carbon Steel Material or 304 Stainless Steel Material
- Customer Specified NDE and/or Seismic Design
- Factory Packaging Complete with Recirculation or Transfer Pumps, Skid, Oil Pot, Interconnecting Piping, Valves, and/or Controls
- Liquid Level Column – See Page 21 for Level Column Options
- Dual Over-Pressure Protection Relief Valve Assembly
- Liquid Feed Valve Train Assemblies – Motorized or Hand Expansion
- Changes to Nozzle Sizing, Nozzle Orientation, or Additional Nozzles
- Increased Height of Vessel Support – BOV to Base (as Applicable)
- Extended Warranty

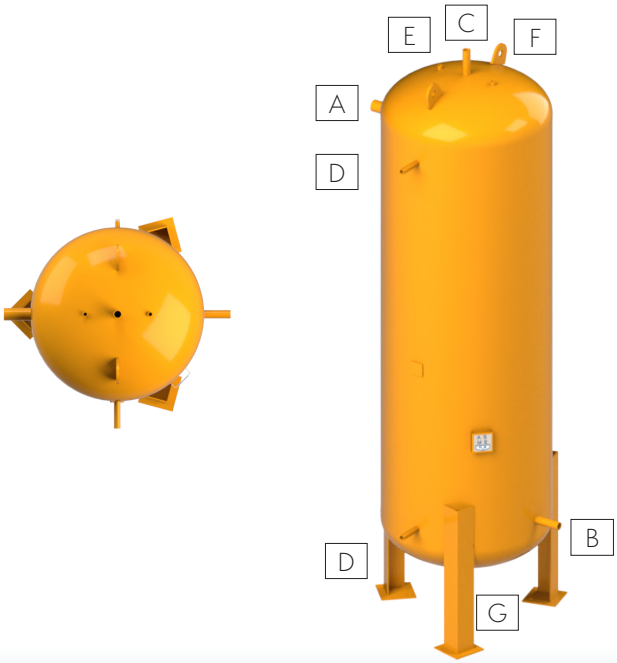
Horizontal High Pressure Receiver



Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)							H Support Spacing (In.)	Dry Ship Weight (lbs)	100% Internal Volume (Cu Ft)	80% Pump Down Capacity (lbs) R717@95°F)
	Outside Diameter	Overall Length	Shell Length	A Liquid Inlet	B Liquid Outlet	C Equalizer	D Level Column	E Purge (CPLG)	F Relief (CPLG)	G Drain (CPLG)				
HHPR20-96	20	96	81	1.25	1	0.75	(2) 1.25	0.75	0.75	0.75	48	817	15	452
HHPR20-144	20	144	129	1.5	1	1	(2) 1.25	0.75	0.75	0.75	86	1,151	24	690
HHPR24-144	24	144	127.5	2	1.25	1	(2) 1.25	0.75	0.75	0.75	86	1,395	34	1,004
HHPR24-192	24	192	175.5	2	1.25	1.25	(2) 1.25	0.75	0.75	0.75	116	1,797	46	1,350
HHPR30-138	30	138	119	2	1.25	1.25	(2) 1.25	0.75	0.75	0.75	80	1,684	51	1,505
HHPR36-141	36	141	119	2.5	1.5	1.5	(2) 1.25	0.75	0.75	0.75	83	2,078	76	2,221
HHPR42-144	42	144	119	3	2	2	(2) 1.25	0.75	0.75	0.75	72	2,526	105	3,087
HHPR48-147	48	147	119	3	2	2	(2) 1.25	0.75	0.75	0.75	74	2,949	140	4,108
HHPR48-266	48	266	238	4	2.5	2.5	(2) 1.25	0.75	1.25	0.75	158	4,958	261	7,653
HHPR54-150	54	150	119	4	2.5	2.5	(2) 1.25	0.75	1.25	0.75	75	4,493	178	5,232
HHPR54-269	54	269	238	5	3	3	(2) 1.25	0.75	1.25	0.75	161	7,504	330	9,692
HHPR60-153	60	153	119	4	2.5	2.5	(2) 1.25	0.75	1.25	0.75	77	5,273	224	6,579
HHPR60-272	60	272	238	5	3	3	(2) 1.25	0.75	1.25	0.75	162	8,622	412	12,101
HHPR72-159	72	159	119	5	3	3	(2) 1.25	0.75	1.25	0.75	80	8,178	331	9,704
HHPR72-278	72	278	238	6	4	4	(2) 1.25	0.75	1.25	0.75	168	13,212	601	17,636
HHPR84-165	84	165	119	5	4	4	(2) 1.25	0.75	1.25	0.75	74	10,049	465	13,639
HHPR84-284	84	284	238	6	5	5	(2) 1.25	0.75	1.25	0.75	170	15,940	835	24,502
HHPR96-171	96	171	119	6	4	4	(2) 1.25	0.75	1.25	0.75	73	12,746	624	18,305
HHPR96-290	96	290	238	8	5	5	(2) 1.25	0.75	1.25	0.75	178	19,488	1,109	32,542
HHPR108-177	108	177	119	6	5	5	(2) 1.25	0.75	1.25	0.75	65	17,580	810	23,754
HHPR108-296	108	296	238	8	6	6	(2) 1.25	0.75	1.25	0.75	170	25,569	1,423	41,754
HHPR120-183	120	183	119	8	5	5	(2) 1.25	0.75	1.25	0.75	65	21,490	1,015	29,781
HHPR120-302	120	302	238	10	6	6	(2) 1.25	0.75	2	0.75	170	31,639	1,768	51,880
HHPR144-195	144	195	119	10	6	6	(2) 1.25	0.75	2	0.75	60	35,685	1,539	45,160
HHPR144-314	144	314	238	12	6	6	(2) 1.25	0.75	2	0.75	166	49,875	2,629	78,149

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Standard elevation from bottom of vessel to bottom of supports is 12". Height can be adjusted to required specifications.

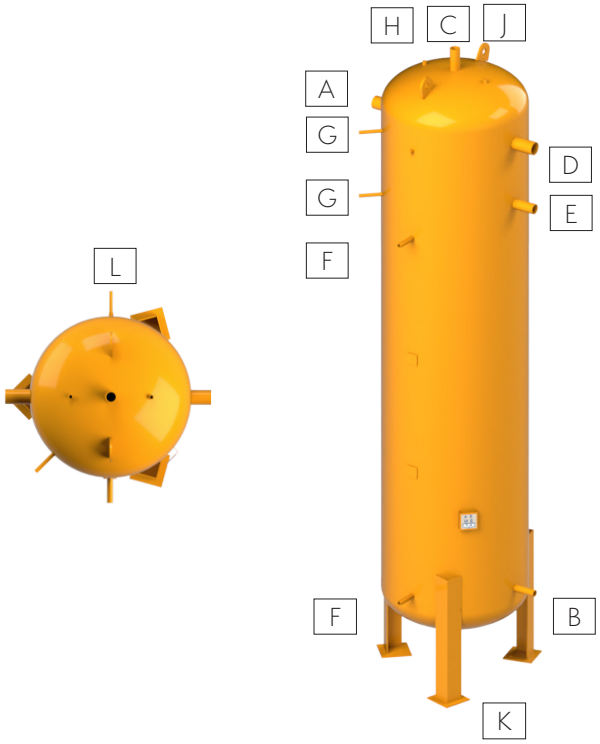
Vertical High Pressure Receiver



Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)							Dry Ship Weight (lbs)	100% Internal Volume (Cu Ft)	80% Pump Down Capacity (lbs) R717@95°F)
	Outside Diameter	Overall Length	Shell Length	A Liquid Inlet	B Liquid Outlet	C Equalizer	D Level Column	E Purge (CPLG)	F Relief (CPLG)	G Drain (CPLG)			
VHPR20-144	20	144	129	1.5	1	1	(2) 1.25	0.75	0.75	0.75	993	23.5	690
VHPR24-144	24	144	127.5	2	1.25	1	(2) 1.25	0.75	0.75	0.75	1,359	34	1,004
VHPR30-138	30	138	119	2	1.25	1.25	(2) 1.25	0.75	0.75	0.75	1,649	51	1,505
VHPR36-141	36	141	119	2.5	1.5	1.25	(2) 1.25	0.75	0.75	0.75	2,010	76	2,221
VHPR42-144	42	144	119	3	2	2	(2) 1.25	0.75	0.75	0.75	2,492	105	3,087
VHPR48-147	48	147	119	3	2	2	(2) 1.25	0.75	0.75	0.75	2,891	140	4,108
VHPR48-195	48	195	167	4	2	2	(2) 1.25	0.75	0.75	0.75	3,756	189	5,540
VHPR54-150	54	150	119	4	2	2	(2) 1.25	0.75	1.25	0.75	4,036	178	5,232
VHPR54-198	54	198	167	4	2.5	2.5	(2) 1.25	0.75	1.25	0.75	5,527	240	7,031
VHPR60-153	60	153	119	4	2.5	2.5	(2) 1.25	0.75	1.25	0.75	4,889	224	6,579
VHPR60-201	60	201	167	4	3	3	(2) 1.25	0.75	1.25	0.75	6,249	300	8,806
VHPR72-159	72	159	119	5	3	3	(2) 1.25	0.75	1.25	0.75	7,543	331	9,704
VHPR72-207	72	207	167	5	4	4	(2) 1.25	0.75	1.25	0.75	9,600	440	12,908
VHPR84-165	84	165	119	5	4	4	(2) 1.25	0.75	1.25	0.75	9,447	465	13,639
VHPR84-213	84	213	167	6	4	4	(2) 1.25	0.75	1.25	0.75	11,664	614	18,023
VHPR96-171	96	171	119	6	4	4	(2) 1.25	0.75	1.25	0.75	12,350	624	18,305
VHPR96-219	96	219	167	6	5	5	(2) 1.25	0.75	1.25	0.75	15,072	820	24,050
VHPR108-177	108	177	119	6	5	5	(2) 1.25	0.75	1.25	0.75	15,953	810	23,754
VHPR108-225	108	225	167	8	5	5	(2) 1.25	0.75	1.25	0.75	19,591	1,057	31,014
VHPR120-183	120	183	119	8	5	5	(2) 1.25	0.75	1.25	0.75	24,278	1,015	29,781
VHPR120-231	120	231	167	8	6	6	(2) 1.25	0.75	2	0.75	29,750	1,319	38,696
VHPR144-195	144	195	119	10	6	6	(2) 1.25	0.75	2	0.75	33,706	1,539	45,149
VHPR144-243	144	243	167	10	6	6	(2) 1.25	0.75	2	0.75	40,190	1,977	57,998

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Standard elevation from bottom of vessel to bottom of supports is 18". Height can be adjusted to required specifications.
4. Vessels 20" thru 72" OD include three (3) support legs, 84" OD or greater include four (4) support legs.

Vertical High Pressure Thermosyphon Receiver

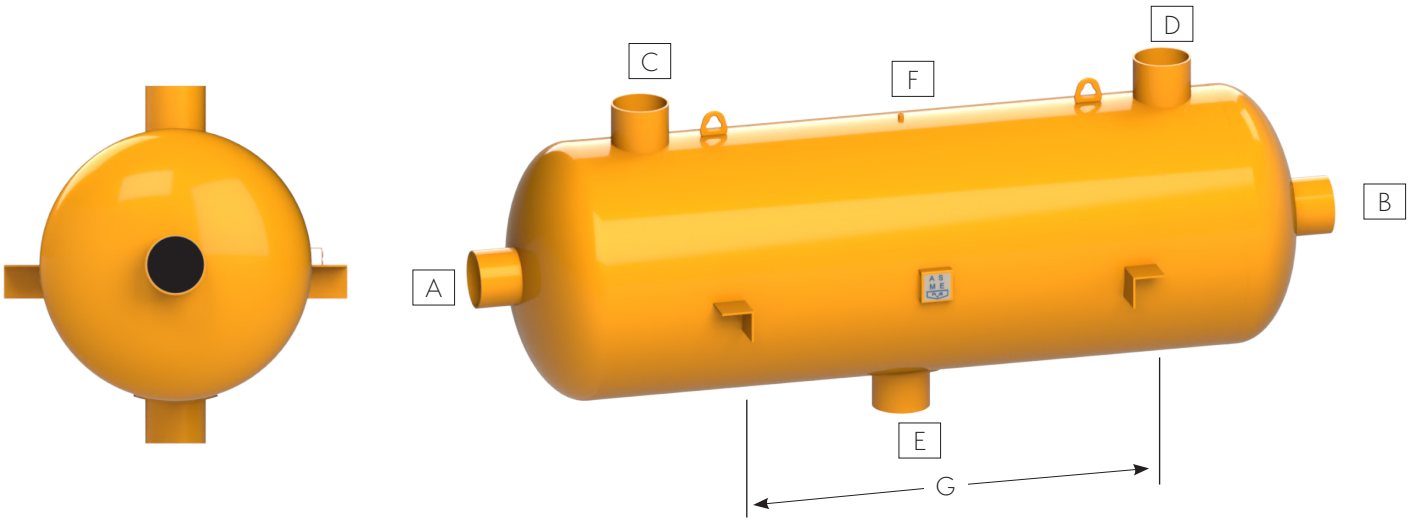


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)											Dry Ship Weight (lbs)
	Outside Diameter	Overall Length	Shell Length	A Liquid Inlet	B Liquid Outlet	C Equalizer	D Thermo Return	E Thermo Supply	F HPR Level Column	G TS Level Column	H Purge (CPLG)	J Relief (CPLG)	K Drain (CPLG)	L Thermo Drain	
VHPTSR36-141	36	141	119	2.5	1.5	1.25	3	2.5	(2) 1.25	(2) 1	0.75	0.75	0.75	0.75	2,600
VHPTSR48-195	48	195	167	4	2	3	4	3	(2) 1.25	(2) 1	0.75	0.75	0.75	0.75	4,150
VHPTSR54-198	54	198	167	4	2.5	3	4	3	(2) 1.25	(2) 1	0.75	1.25	0.75	0.75	6,150
VHPTSR60-201	60	201	167	4	3	3	4	3	(2) 1.25	(2) 1	0.75	1.25	0.75	0.75	6,975
VHPTSR72-207	72	207	167	5	4	4	5	4	(2) 1.25	(2) 1	0.75	1.25	0.75	0.75	10,750
VHPTSR84-213	84	213	167	6	4	5	6	5	(2) 1.25	(2) 1	0.75	1.25	0.75	0.75	12,640
VHPTSR96-219	96	219	167	6	5	5	6	5	(2) 1.25	(2) 1	0.75	1.25	0.75	0.75	17,395
VHPTSR108-225	108	225	167	8	5	6	8	6	(2) 1.25	(2) 1	0.75	1.25	0.75	0.75	20,750
VHPTSR120-231	120	231	167	8	6	6	8	6	(2) 1.25	(2) 1	0.75	2	0.75	0.75	32,200
VHPTSR144-243	144	243	167	10	6	8	10	8	(2) 1.25	(2) 1	0.75	2	0.75	0.75	44,100

Model No.	HPR (Lower) Volume (Cu Ft)	HPR 100% Pump Down Capacity (lbs) R717@95˚F)	TS Reserve Volume (Cu Ft)	Heat of Rejection (MBH)
VHPTSR36-141	55	1,999	9.56	2,032
VHPTSR48-195	149	5,454	17.7	3,763
VHPTSR54-198	188	6,900	22.4	4,762
VHPTSR60-201	235	8,609	27.9	5,932
VHPTSR72-207	328	12,031	39.6	8,419
VHPTSR84-213	464	17,031	54.7	11,629
VHPTSR96-219	604	22,140	71.4	15,180
VHPTSR108-225	773	28,365	90.7	19,283
VHPTSR120-231	960	35,209	112	23,769
VHPTSR144-243	1,425	52,251	163	34,632

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2.Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Standard elevation from bottom of vessel to bottom of supports is 18". Height can be adjusted to required specifications.
4. Vessels 36" thru 72" OD include three (3) support legs, 84" OD or greater include four (4) support legs.
5. Heat of Rejection (MBH) capacity based on a 5 minute supply of 95˚F TS reserve liquid volume in upper section.

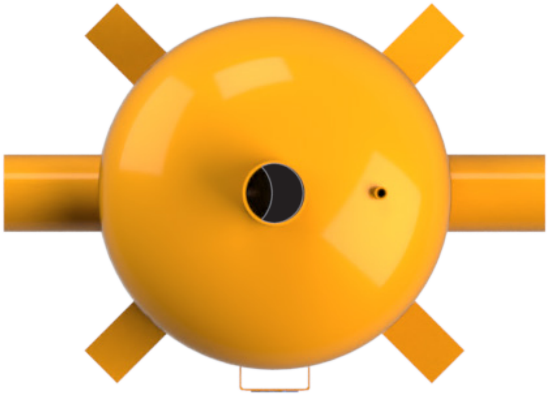
Horizontal Thermosyphon Receiver

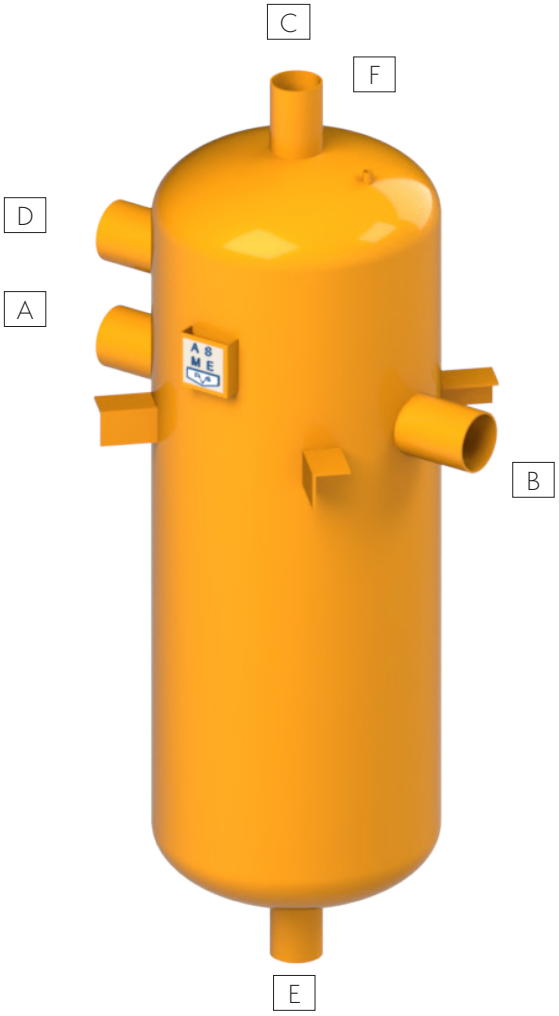


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)						G Mounting Angle Spacing (In.)	Dry Ship Weight (lbs)	100% Internal Volume (Cu Ft)	TS Reserve Volume (Cu Ft)	Heat of Rejection (MBH)
	Outside Diameter	Overall Length	Shell Length	A Liquid Inlet	B Liquid Outlet	C Equalizer	D Thermo Return	E Thermo Supply	F Relief (CPLG)					
HTSR8-48	8.625	48	40	1.5	1.5	1.25	1.25	1.25	0.5	22	165	1.4	0.50	106
HTSR10-48	10.75	48	38	2	2	1.25	2	1.25	0.5	22	220	2.1	0.77	163
HSTR12-48	12.75	48	37	2	2	1.5	2	1.5	0.5	22	290	2.9	1.2	255
HTSR12-72	12.75	72	61	2.5	2.5	2	2.5	2	0.5	32	395	4.5	1.7	361
HTSR16-72	16	72	58	3	3	2	3	2	0.5	32	410	7.2	2.7	574
HTSR20-72	20	72	57	4	4	3	4	3	0.75	32	640	11.4	4.2	893
HTSR24-72	24	72	55.5	4	4	3	4	3	0.75	32	750	16.5	6.5	1,382
HTSR30-84	30	84	65	5	5	4	5	4	0.75	38	1,090	30.3	11.9	2,530
HTSR36-96	36	96	74	8	8	6	6	6	0.75	48	1,480	50.3	17.9	3,806
HTSR42-120	42	120	95	8	8	8	8	8	0.75	55	2,250	86.6	32.7	6,952
HTSR48-147	48	147	119	10	10	10	10	10	0.75	72	3,010	140	51.2	10,885

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Heat of Rejection (MBH) capacity based on a 5 minute supply of 95˚F TS reserve liquid volume from BOV to bottom of Liquid Outlet.

Vertical Thermosyphon Receiver

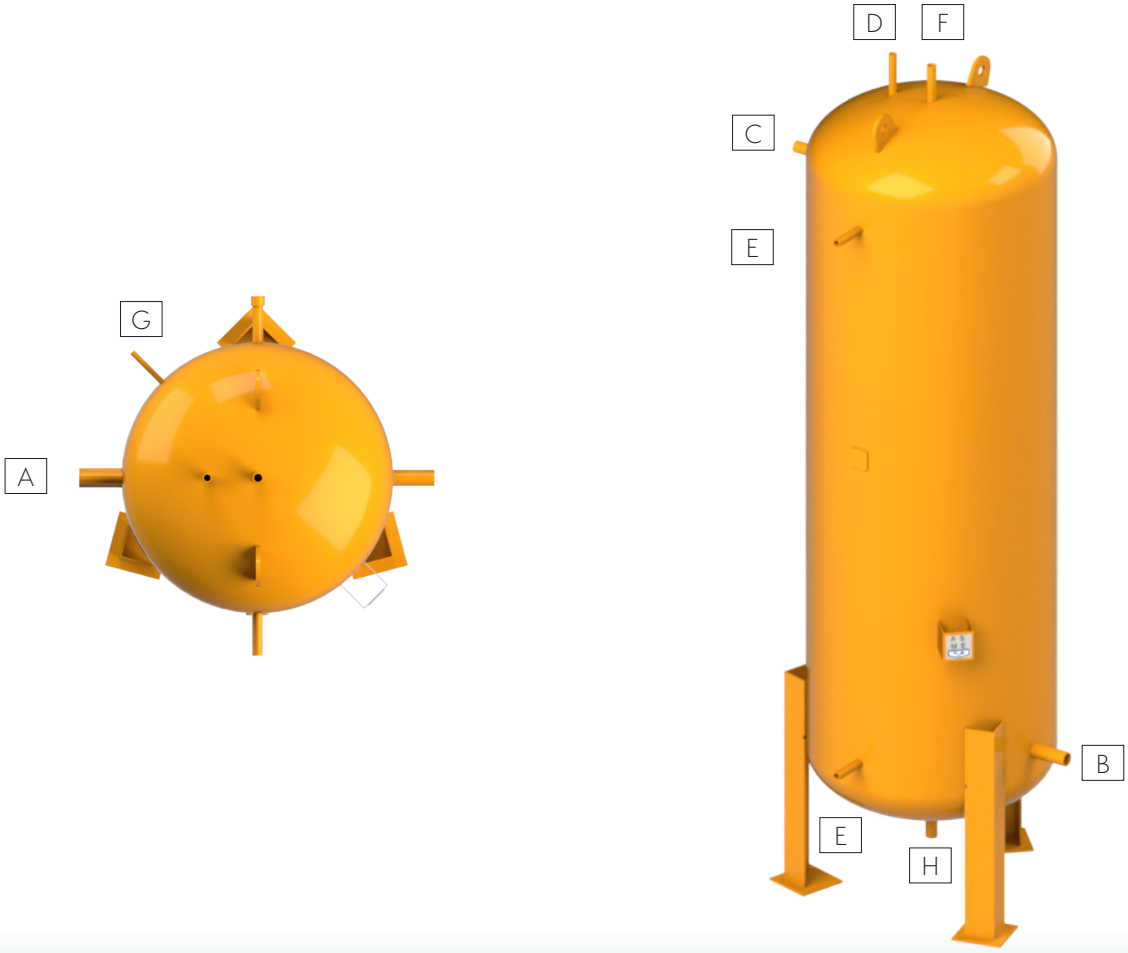




Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)						Dry Ship Weight (lbs)	100% Internal Volume (Cu Ft)	TS Reserve Volume (Cu Ft)	Heat of Rejection (MBH)
	Outside Diameter	Overall Length	Shell Length	A Liquid Inlet	B Liquid Outlet	C Equalizer	D Thermo Return	E Thermo Supply	F Relief (CPLG)				
VTSR8-48	8.625	48	40	2	2	1.25	2	1.25	0.5	165	1.4	1.00	213
VTSR10-48	10.75	48	38	2.5	2.5	1.5	2	1.5	0.5	220	2.1	1.5	319
VSTR12-48	12.75	48	37	2.5	2.5	2	2.5	2	0.5	290	2.9	2.0	425
VTSR12-72	12.75	72	61	3	3	2.5	3	2.5	0.5	400	4.5	3.4	723
VTSR16-72	16	72	58	4	4	3	4	3	0.5	510	7.2	5.1	1,084
VTSR20-72	20	72	57	5	5	4	4	4	0.75	645	11.4	7.7	1,637
VTSR24-72	24	72	55.5	5	5	4	5	4	0.75	750	16.5	10	2,126
VTSR30-84	30	84	65	6	6	5	6	5	0.75	1,110	30.3	19.6	4,167

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Heat of Rejection (MBH) based on a 5 minute supply of 95˚F TS reserve liquid volume from BOV to bottom of Liquid Outlet.

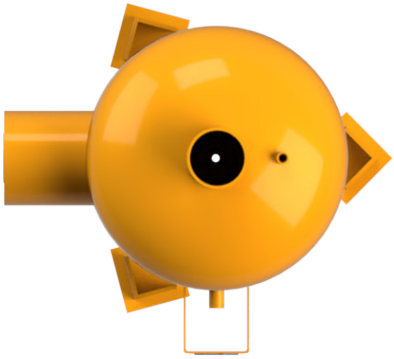
Vertical Control Pressure Receiver

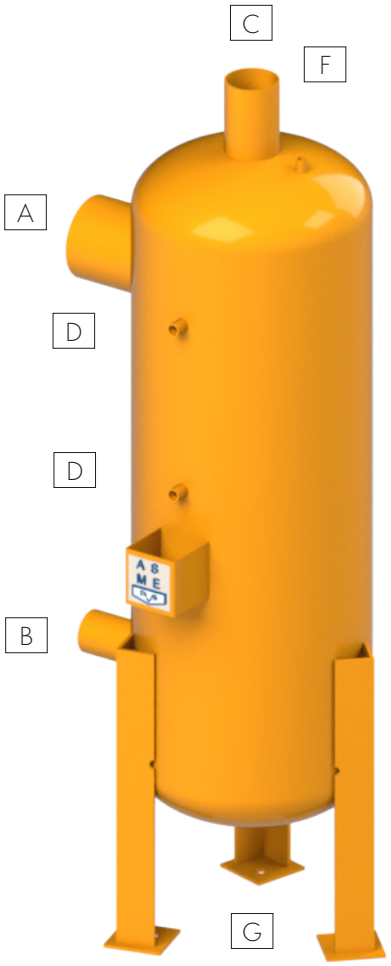


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)								Dry Ship Weight (lbs)	100% Internal Volume (Cu Ft)	80% Pump Down Capacity (lbs) (R717@95°F)
	Outside Diameter	Overall Length	Shell Length	A Liquid Transfer In	B Liquid Outlet	C Liquid Inlet	D Gas Inlet/ Outlet	E Level Column	F Relief	G Oil Pot Vent	H Drain (CPLG)			
VCPR20-144	20	144	129	1.25	1.25	3/4	3/4	(2) 1.25	1.5	0.75	2	1,200	23.5	690
VCPR24-144	24	144	127.5	1.25	1.25	1	3/4	(2) 1.25	1.5	0.75	2	1,330	34.2	1,004
VCPR30-138	30	138	119	2	1.5	1.25	3/4	(2) 1.25	1.5	0.75	2	1,695	51.3	1,505
VCPR36-141	36	141	119	2	2	1.25	3/4	(2) 1.25	1.5	0.75	2	2,140	75.7	2,221
VCPR42-144	42	144	119	2	2	1.5	3/4	(2) 1.25	1.5	0.75	2	2,600	105	3,087
VCPR48-147	48	147	119	3	2.5	2	1.25	(2) 1.25	1.5	0.75	2	2,980	140	4,108
VCPR54-150	54	150	119	4	3	2	1.25	(2) 1.25	1.5	0.75	2	4,500	178	5,223
VCPR60-153	60	153	119	4	3	2	1.25	(2) 1.25	1.5	0.75	2	5,150	224	6,579
VCPR72-159	72	159	119	5	4	2.5	1.5	(2) 1.25	1.5	0.75	2	7,940	331	9,704
VCPR84-165	84	165	119	5	4	3	2	(2) 1.25	1.5	0.75	2	9,990	465	13,639
VCPR96-171	96	171	119	5	4	3	2	(2) 1.25	1.5	0.75	2	12,765	624	18,305

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Standard elevation from bottom of vessel to bottom of supports is 18". Height can be adjusted to required specifications.
4. Vessels 20" thru 72" OD include three (3) support legs, 84" OD or greater include four (4) support legs.

Vertical Pilot Receiver

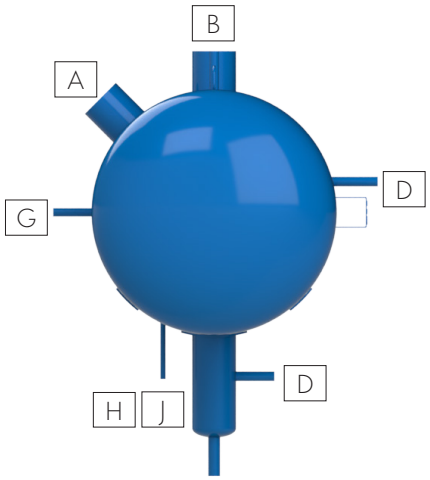


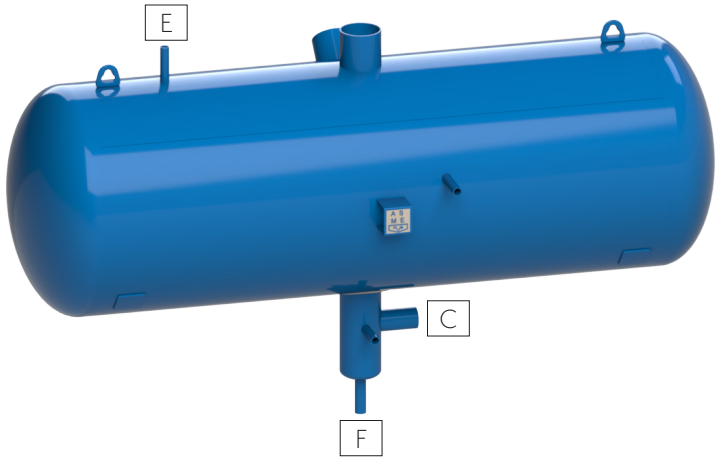


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)						Dry Ship Weight (lbs)	100% Internal Volume (Cu Ft)
	Outside Diameter	Overall Length	Shell Length	A Liquid Inlet	B Liquid Outlet	C Vent	D Float (CPLG)	G Drain (CPLG)	F Relief (CPLG)		
VPR10-48	10	48	38	2	1	1.25	(2) 0.75	0.5	0.5	225	2.1
VPR12-48	12	48	37	3	1.5	2	(2) 0.75	0.5	0.5	300	2.9
VPR16-60	16	60	47	4	2	2.5	(2) 0.75	0.5	0.5	425	6.0
VPR20-60	20	60	45	6	3	4	(2) 0.75	0.5	0.5	575	9.4
VPR24-72	24	72	55.5	8	4	5	(2) 0.75	0.5	0.75	775	16.5

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Standard elevation from bottom of vessel to bottom of supports is 18". Height can be adjusted to required specifications.

Horizontal Accumulator





Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)									Dry Ship Weight (lbs)
	Outside Diameter	Overall Length	Shell Length	A Suction Inlet	B Suction Outlet	C Liquid Outlet	D Level Column	E Relief	F Drain	G 3 Way Vent	H Oil Pot Vent	J Oil Pot Relief	
HA24-135	24	135.5	119	4	4	3	(2) 1.5	1.5	2	1.25	0.75	0.75	1,400
HA30-138	30	138	119	5	5	3	(2) 1.5	1.5	2	1.25	0.75	0.75	1,725
HA36-141	36	141	119	6	5	4	(2) 1.5	1.5	2	1.25	0.75	0.75	2,150
HA42-144	42	144	119	8	6	4	(2) 1.5	1.5	2	1.25	0.75	0.75	2,525
HA48-147	48	147	119	8	8	4	(2) 1.5	1.5	2	1.25	0.75	0.75	2,950
HA54-150	54	150	119	8	8	4	(2) 1.5	1.5	2	1.25	0.75	0.75	4,325
HA60-153	60	153	119	10	8	4	(2) 1.5	1.5	2	1.25	0.75	0.75	5,075
HA72-159	72	159	119	10	10	4	(2) 1.5	1.5	2	1.25	0.75	0.75	7,825
HA84-165	84	165	119	12	10	4	(2) 1.5	1.5	2	1.25	0.75	0.75	9,650
HA96-171	96	171	119	14	12	4	(2) 1.5	1.5	2	1.25	0.75	0.75	12,300
HA108-177	108	177	119	16	12	4	(2) 1.5	1.5	2	1.25	0.75	0.75	15,875
HA120-183	120	183	119	16	14	4	(2) 1.5	2	2	1.25	0.75	0.75	23,925
HA144-195	144	195	119	20	16	4	(2) 1.5	2	2	1.25	0.75	0.75	32,600

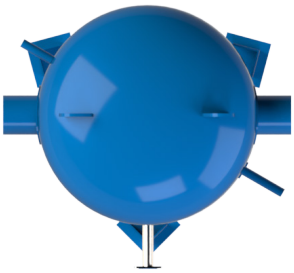
Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Vessels 24" to 72" OD include (4) 6" x 6" weld pads spaced 107" center to center for vessel elevation / support by others.
4. Vessels 84" OD and larger include (2) belly band repads spaced 99" center to center for vessel elevation with saddle type support / other method by others.

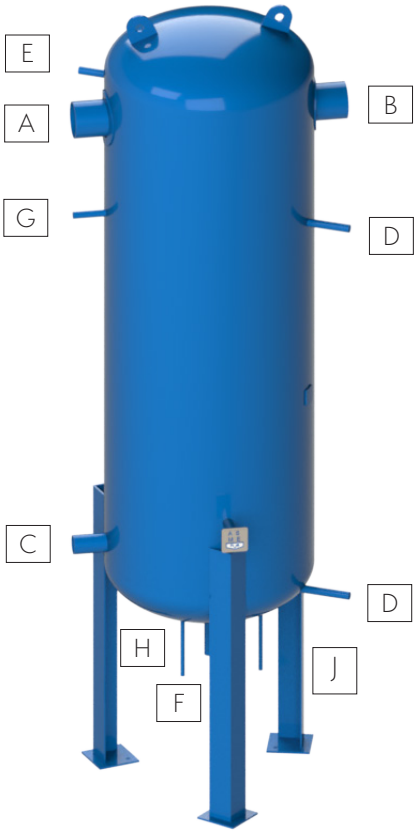
Horizontal Accumulator Capacity - Tons R717

Model No.	Evaporator Temperature (°F)									
	Single Stage (+95°F Liquid Supply)						Two Stage (+25°F Liquid Supply)			
	30	20	10	0	-10	-20	-20	-30	-40	-50
HA24-135	145	132	118	105	92	79	93	80	67	56
HA30-138	229	209	188	166	146	126	148	126	107	90
HA36-141	333	303	273	242	212	183	215	184	156	130
HA42-144	456	416	373	331	290	251	295	252	213	179
HA48-147	599	546	490	435	381	329	387	331	280	234
HA54-150	754	687	617	547	479	414	487	416	352	295
HA60-153	934	851	756	678	594	514	603	516	437	366
HA72-159	1,344	1,224	1,100	975	854	739	867	742	628	526
HA84-165	1,838	1,674	1,504	1,334	1,169	1,011	1,187	1,016	860	720
HA96-171	2,410	2,195	1,972	1,750	1,532	1,326	1,556	1,332	1,127	944
HA108-177	3,045	2,774	2,492	2,211	1,936	1,675	1,966	1,683	1,424	1,193
HA120-183	3,739	3,405	3,060	2,714	2,377	2,056	2,414	2,066	1,749	1,456
HA144-195	5,415	4,931	4,431	3,930	3,443	2,978	3,496	2,992	2,532	2,121

Separation capacity based on maximum liquid level (HLCO) at vessel centerline.

Vertical Accumulator

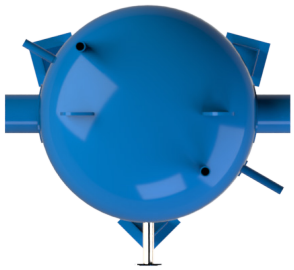


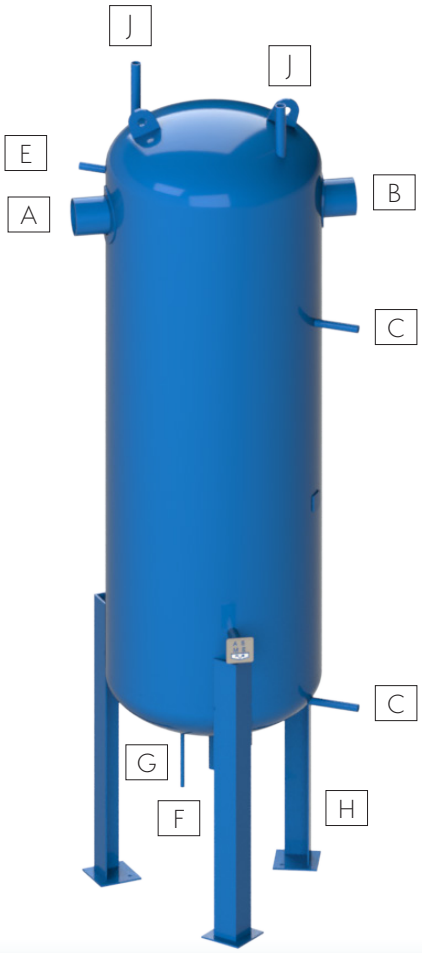


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)									Dry Ship Weight (lbs)
	Outside Diameter	Overall Length	Shell Length	A Suction Inlet	B Suction Outlet	C Liquid Outlet	D Level Column	E Relief	F Drain	G 3 Way Vent	H Oil Pot Vent	J Oil Pot Relief	
VA12-72	12	72	61	2.5	2.5	2	(2) 1.5	1.5	2	0.75	0.75	0.75	462
VA16-85	16	85	72	3	3	2	(2) 1.5	1.5	2	0.75	0.75	0.75	647
VA20-87	20	87	72	4	4	3	(2) 1.5	1.5	2	0.75	0.75	0.75	858
VA24-88	24	88	72	5	4	3	(2) 1.5	1.5	2	1.25	0.75	0.75	1,050
VA30-115	30	115	96	6	5	3	(2) 1.5	1.5	2	1.25	0.75	0.75	1,567
VA36-118	36	118	96	6	6	4	(2) 1.5	1.5	2	1.25	0.75	0.75	2,006
VA42-121	42	121	96	8	6	4	(2) 1.5	1.5	2	1.25	0.75	0.75	2,412
VA48-147	48	147	119	8	8	4	(2) 1.5	1.5	2	1.25	0.75	0.75	3,198
VA54-150	54	150	119	10	8	4	(2) 1.5	1.5	2	1.25	0.75	0.75	4,631
VA60-153	60	153	119	10	8	4	(2) 1.5	1.5	2	1.25	0.75	0.75	5,243
VA72-159	72	159	119	12	10	4	(2) 1.5	1.5	2	1.25	0.75	0.75	7,976
VA84-165	84	165	119	12	10	4	(2) 1.5	1.5	2	1.25	0.75	0.75	10,429
VA96-171	96	171	119	14	12	4	(2) 1.5	1.5	2	1.25	0.75	0.75	13,074
VA108-177	108	177	119	16	12	4	(2) 1.5	1.5	2	1.25	0.75	0.75	17,247
VA120-183	120	183	119	16	14	4	(2) 1.5	2	2	1.25	0.75	0.75	24,449
VA144-195	144	195	119	20	16	4	(2) 1.5	2	2	1.25	0.75	0.75	34,888

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Vessels 12" thru 72" OD include three (3) support legs, 84" OD or greater include four (4) support legs. Leg elevation to BOV is 42" for all.
4. Reference RVS Bulletin #570 - MVA Matrix Vertical Accumulator Package for vessel performance data, selection procedure, and factory packaging options.

Vertical Accumulator with Coil

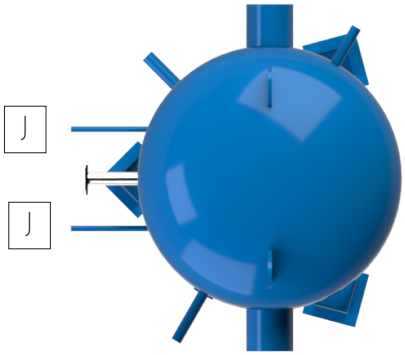


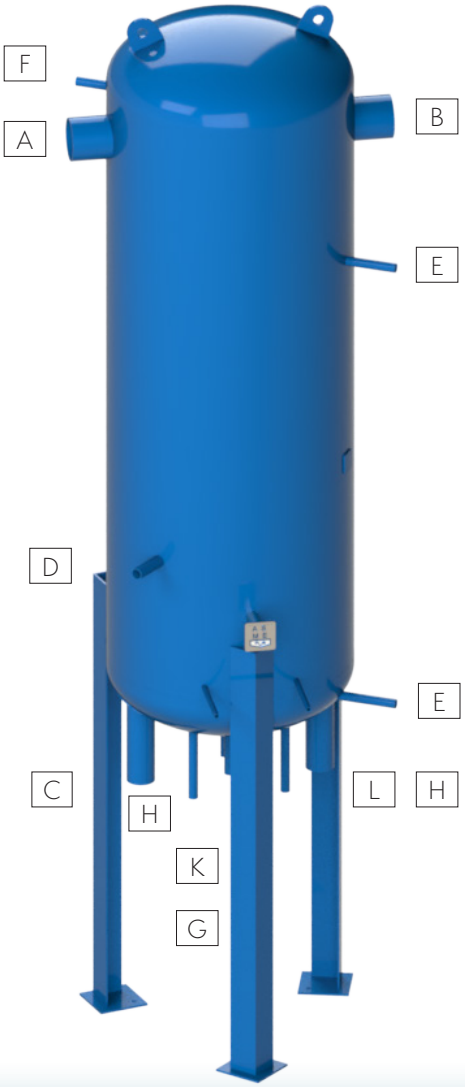


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)							Boil Out Coil			Dry Ship Weight (lbs)
	Outside Diameter	Overall Length	Shell Length	A Suction Inlet	B Suction Outlet	C Level Column	E Relief	F Drain	G Oil Pot Vent	H Oil Pot Relief	J Coil In/ Out	Height (In.)	Linear Feet	
VAC16-85	16	85	72	3	3	(2) 1.5	1.5	2	0.75	0.75	3/4	22	56	776
VAC20-87	20	87	72	4	4	(2) 1.5	1.5	2	0.75	0.75	1	25	71	1,087
VAC24-88	24	88	72	5	4	(2) 1.5	1.5	2	0.75	0.75	1.25	34	81	1,367
VAC30-115	30	115	96	6	5	(2) 1.5	1.5	2	0.75	0.75	1.25	38	128	2,087
VAC36-118	36	118	96	6	6	(2) 1.5	1.5	2	0.75	0.75	1.5	42	160	2,774
VAC42-121	42	121	96	8	6	(2) 1.5	1.5	2	0.75	0.75	1.5	34	218	3,422
VAC48-147	48	147	119	8	8	(2) 1.5	1.5	2	0.75	0.75	2	30	227	4,500
VAC54-150	54	150	119	10	8	(2) 1.5	1.5	2	0.75	0.75	2	36	289	6,214
VAC60-153	60	153	119	10	8	(2) 1.5	1.5	2	0.75	0.75	2	36	356	7,050
VAC72-159	72	159	119	12	10	(2) 1.5	1.5	2	0.75	0.75	3	34	516	10,404
VAC84-165	84	165	119	12	10	(2) 1.5	1.5	2	0.75	0.75	3	36	700	13,622
VAC96-171	96	171	119	14	12	(2) 1.5	1.5	2	0.75	0.75	4	40	918	17,178
VAC108-177	108	177	119	16	12	(2) 1.5	1.5	2	0.75	0.75	4	36	1159	22,511
VAC120-183	120	183	119	16	14	(2) 1.5	2	2	0.75	0.75	5	36	1429	28,437
VAC144-195	144	195	119	20	16	(2) 1.5	2	2	0.75	0.75	6	36	2061	40,006

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Vessels 16" thru 72" OD include three (3) support legs, 84" OD or greater include four (4) support legs. Leg elevation to BOV is 42" for all.
4. Reference RVS Bulletin #570 - MVA Matrix Vertical Accumulator Package for vessel performance data, selection procedure, and factory packaging options.

Vertical Recirculator

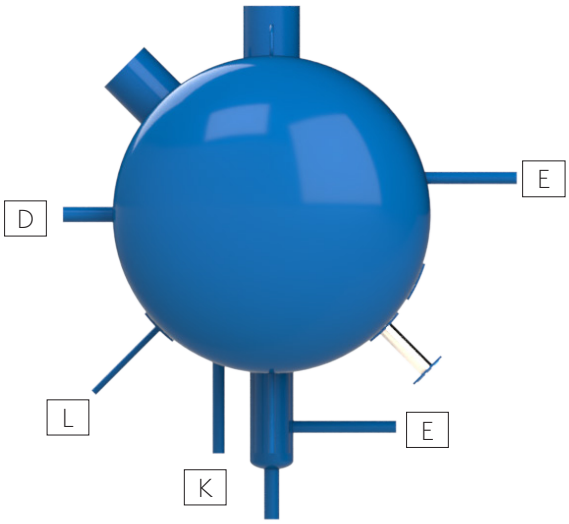


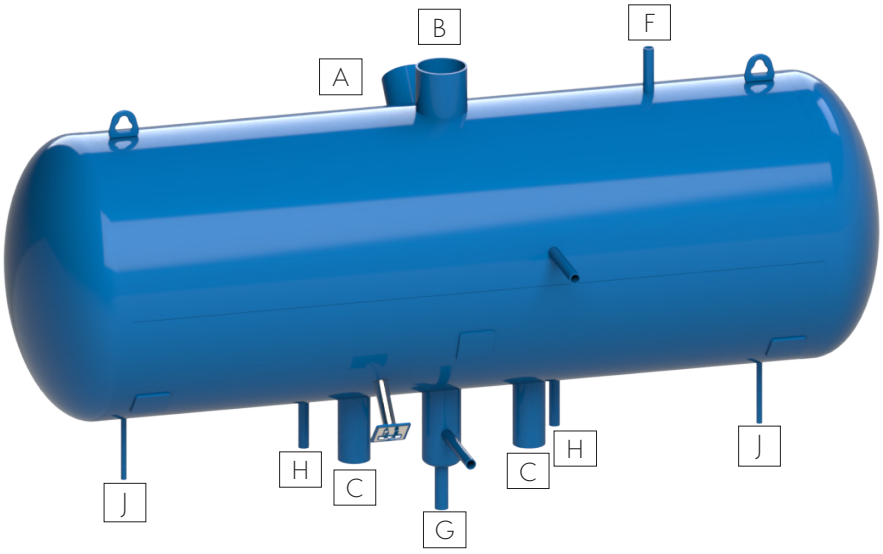


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)											M Leg Height (Inches)	Dry Ship Weight (lbs)
	Outside Diameter	Overall Length	Shell Length	A Suction Inlet	B Suction Outlet	C Pump Suction	D Liquid Make-Up	E Level Column	F Relief	G Drain	H Minumum Flow	J Motor Cooling	K Oil Pot Vent	L Oil Pot Relief		
VR24-112	24	112.5	96	5	4	(2) 4	1.25	(2) 1.5	1.5	2	(2) 1.25	(2) 0.75	0.75	0.75	58	1,450
VR30-115	30	115	96	6	5	(2) 4	1.25	(2) 1.5	1.5	2	(2) 1.25	(2) 0.75	0.75	0.75	60	1,775
VR36-118	36	118	96	6	6	(2) 4	1.5	(2) 1.5	1.5	2	(2) 1.25	(2) 0.75	0.75	0.75	60	2,250
VR42-144	42	144	119	8	6	(2) 4	2	(2) 1.5	1.5	2	(2) 1.25	(2) 0.75	0.75	0.75	60	2,975
VR48-147	48	147	119	8	8	(2) 5	2	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	64	3,500
VR54-150	54	150	119	10	8	(2) 5	2	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	64	5,045
VR60-153	60	153	119	10	8	(2) 6	2.5	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	64	5,675
VR72-159	72	159	119	12	10	(2) 6	3	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	72	8,845
VR84-165	84	165	119	12	10	(2) 8	3	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	72	11,635
VR96-171	96	171	119	14	12	(2) 8	4	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	72	13,500
VR108-177	108	177	119	16	12	(2) 8	4	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	72	18,577
VR120-183	120	183	119	16	14	(2) 8	4	(2) 1.5	2	2	(2) 1.5	(2) 0.75	0.75	0.75	72	26,000
VR144-195	144	195	119	20	16	(2) 8	5	(2) 1.5	2	2	(2) 1.5	(2) 0.75	0.75	0.75	72	36,200

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Vessels 24" thru 72" OD include three (3) support legs, 84" OD or greater include four (4) support legs.
4. Reference RVS Bulletin #550 - MRP Matrix Recirculator Package for vessel performance data, selection procedure, and factory packaging options.

Horizontal Recirculator

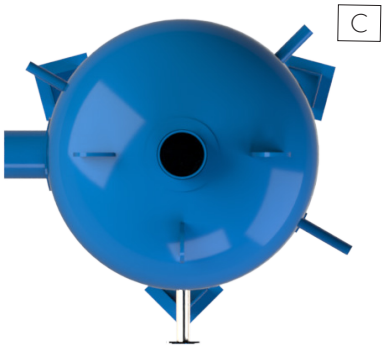




Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)											M Support Spacing (In.)	Dry Ship Weight (lbs)
	Outside Diameter	Overall Length	Shell Length	A Suction Inlet	B Suction Outlet	C Pump Suction	D Liquid Make-Up	E Level Column	F Relief	G Drain	H Minumum Flow	J Motor Cooling	K Oil Pot Vent	L Oil Pot Relief		
HR24-135	24	135.5	119	4	4	(2) 4	1	(2) 1.5	1.5	2	(2) 1.25	(2) 0.75	0.75	0.75	109	1,500
HR30-138	30	138	119	5	5	(2) 4	1.25	(2) 1.5	1.5	2	(2) 1.25	(2) 0.75	0.75	0.75	109	1,900
HR36-141	36	141	119	6	5	(2) 4	1.5	(2) 1.5	1.5	2	(2) 1.25	(2) 0.75	0.75	0.75	109	2,275
HR42-144	42	144	119	8	6	(2) 4	2	(2) 1.5	1.5	2	(2) 1.25	(2) 0.75	0.75	0.75	109	2,700
HR48-147	48	147	119	8	8	(2) 5	2	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	109	3,125
HR54-150	54	150	119	8	8	(2) 5	2	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	109	4,550
HR60-153	60	153	119	10	8	(2) 6	2.5	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	109	5,200
HR72-159	72	159	119	10	10	(2) 6	2.5	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	109	7,900
HR84-165	84	165	119	12	10	(2) 8	3	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	72	11,000
HR96-171	96	171	119	14	12	(2) 8	3	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	96	13,825
HR108-177	108	177	119	16	12	(2) 8	4	(2) 1.5	1.5	2	(2) 1.5	(2) 0.75	0.75	0.75	96	17,650
HR120-183	120	183	119	16	14	(2) 8	4	(2) 1.5	2	2	(2) 1.5	(2) 0.75	0.75	0.75	96	25,900
HR144-195	144	195	119	20	16	(2) 8	5	(2) 1.5	2	2	(2) 1.5	(2) 0.75	0.75	0.75	96	35,050

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Vessels 24" to 60" OD include (4) 6" x 6" weld pads. Vessels 72" to 84" OD include (4) 8"x 8" weld pads. Vessel elevation / support by others.
4. Vessels 96" OD and larger include (2) saddle type supports. Standard elevation from bottom of vessel to bottom of saddle support is 20". Height can be adjusted to required specifications.
5. Reference RVS Bulletin #550 - MRP Matrix Recirculator Package for vessel performance data, selection procedure, and factory packaging options.

Vertical Intercooler

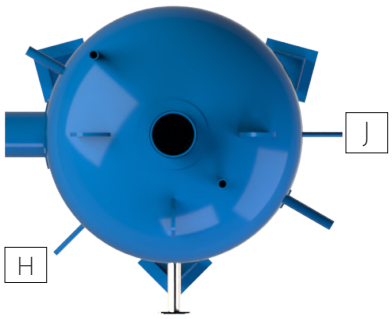


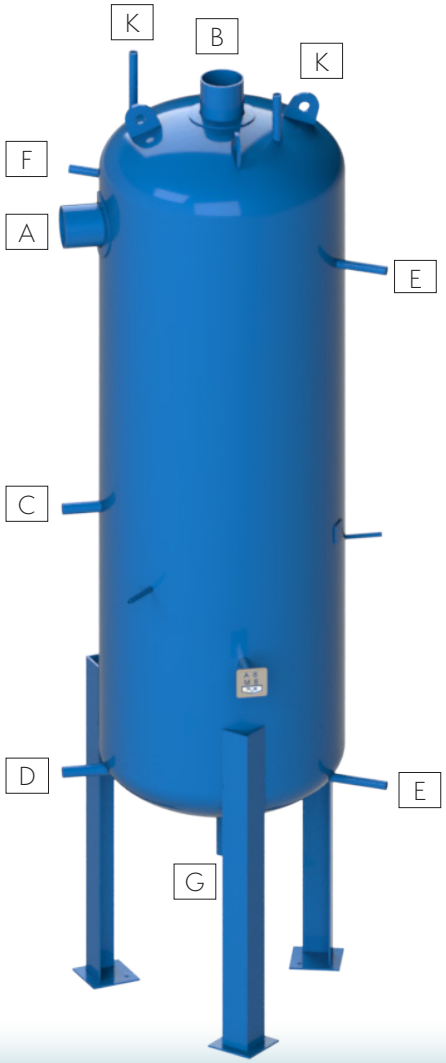


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)									Dry Ship Weight (lbs)
	Outside Diameter	Overall Length	Shell Length	A Booster Inlet	B Suction Outlet	C Liquid Make-Up	D Liquid Outlet	E Level Column	F Relief	G Drain	H Oil Pot Vent	J Oil Pot Relief	
VI16-96	16	96	83	3	3	1	1	(2) 1.5	1.5	2	0.75	0.75	800
VI20-108	20	108	93	3	3	1	1	(2) 1.5	1.5	2	0.75	0.75	1,135
VI24-112	24	112.5	96	4	4	1.25	1.25	(2) 1.5	1.5	2	0.75	0.75	1,400
VI30-115	30	115	96	5	5	1.25	1.25	(2) 1.5	1.5	2	0.75	0.75	1,775
VI36-118	36	118	96	6	6	1.5	1.5	(2) 1.5	1.5	2	0.75	0.75	2,310
VI42-144	42	144	119	6	6	2	2	(2) 1.5	1.5	2	0.75	0.75	3,050
VI48-147	48	147	119	8	8	2	2	(2) 1.5	1.5	2	0.75	0.75	3,695
VI54-150	54	150	119	8	8	2	2	(2) 1.5	1.5	2	0.75	0.75	5,185
VI60-153	60	153	119	8	8	2.5	2.5	(2) 1.5	1.5	2	0.75	0.75	5,805
VI72-159	72	159	119	10	10	3	3	(2) 1.5	1.5	2	0.75	0.75	8,985
VI84-165	84	165	119	10	10	3	3	(2) 1.5	1.5	2	0.75	0.75	11,500
VI96-171	96	171	119	12	12	4	4	(2) 1.5	1.5	2	0.75	0.75	14,595
VI108-177	108	177	119	12	12	4	4	(2) 1.5	1.5	2	0.75	0.75	19,075
VI120-183	120	183	119	14	14	4	4	(2) 1.5	2	2	0.75	0.75	27,805
VI144-195	144	195	119	16	16	5	5	(2) 1.5	2	2	0.75	0.75	38,645

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Vessels 16" thru 72" OD include three (3) support legs, 84" OD or greater include four (4) support legs. Leg elevation to BOV is 42" for all.
4. Reference RVS Bulletin #560 - MVI Matrix Vertical Intercooler Package for vessel performance data, selection procedure, and factory packaging options.

Vertical Intercooler with Coil

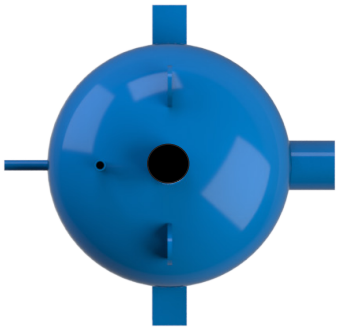


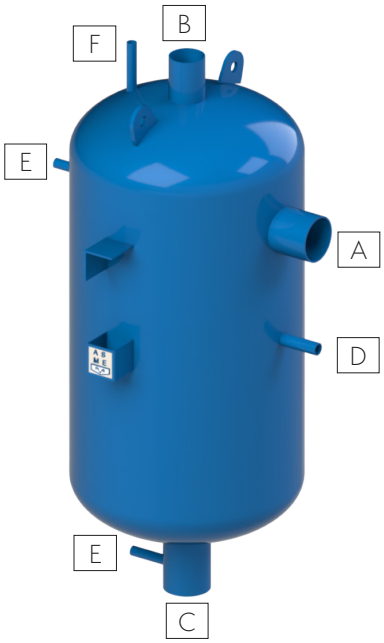


Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)									Subcooling Coil			Dry Ship Weight (lbs)
	Outside Diameter	Overall Length	Shell Length	A Booster Inlet	B Suction Outlet	C Liquid Make-Up	D Liquid Outlet	E Level Column	F Relief	G Drain	H Oil Pot Vent	J Oil Pot Relief	K Coil In / Out	Height (In.)	Linear Feet	
VI16-96	16	96	83	3	3	1	1	(2) 1.5	1.5	2	0.75	0.75	0.75	28	75	895
VI20-108	20	108	93	3	3	1	1	(2) 1.5	1.5	2	0.75	0.75	0.75	20	116	1,304
VI24-112	24	112.5	96	4	4	1.25	1.25	(2) 1.5	1.5	2	0.75	0.75	1	30	139	1,405
VI30-115	30	115	96	5	5	1.25	1.25	(2) 1.5	1.5	2	0.75	0.75	1.25	30	173	2,315
VI36-118	36	118	96	6	6	1.5	1.5	(2) 1.5	1.5	2	0.75	0.75	1.5	36	220	3,148
VI42-144	42	144	119	6	6	2	2	(2) 1.5	1.5	2	0.75	0.75	1.5	38	294	4,229
VI48-147	48	147	119	8	8	2	2	(2) 1.5	1.5	2	0.75	0.75	1.5	30	385	5,209
VI54-150	54	150	119	8	8	2	2	(2) 1.5	1.5	2	0.75	0.75	2	36	395	6,783
VI60-153	60	153	119	8	8	2.5	2.5	(2) 1.5	1.5	2	0.75	0.75	2	36	491	7,805
VI72-159	72	159	119	10	10	3	3	(2) 1.5	1.5	2	0.75	0.75	3	36	630	10,359
VI84-165	84	165	119	10	10	3	3	(2) 1.5	1.5	2	0.75	0.75	3	42	857	14,721
VI96-171	96	171	119	12	12	4	4	(2) 1.5	1.5	2	0.75	0.75	4	36	1128	18,742
VI108-177	108	177	119	12	12	4	4	(2) 1.5	1.5	2	0.75	0.75	4	42	1424	24,190
VI120-183	120	183	119	14	14	4	4	(2) 1.5	2	2	0.75	0.75	5	48	1758	33,844
VI144-195	144	195	119	16	16	5	5	(2) 1.5	2	2	0.75	0.75	6	42	2471	46,650

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. Vessels 16" thru 72" OD include three (3) support legs, 84" OD or greater include four (4) support legs. Leg elevation to BOV is 42" for all.
4. Reference RVS Bulletin #560 - MVI Matrix Vertical Intercooler Package for vessel performance data, selection procedure, and factory packaging options.

Vertical Surge Drum



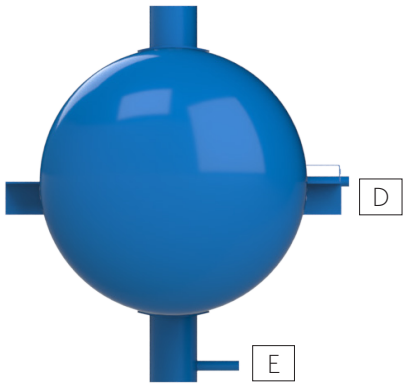


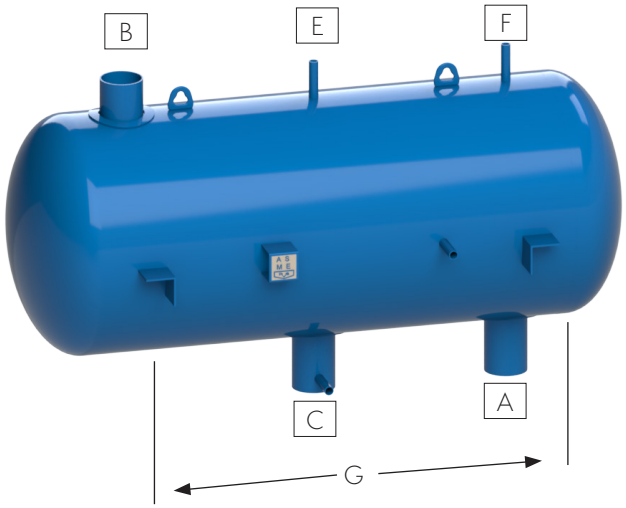
Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)						Dry Ship Weight (lbs)	Surge Volume (Cu Ft)
	Outside Diameter	Overall Length	Shell Length	A Suction Inlet	B Suction Outlet	C Liquid Outlet	D Liquid Make-Up	E Level Column	F Relief		
VSD12-48	12	48	37	2.5	2.5	2.5	0.75	(2) 1.5	1.5	295	1.5
VSD16-54	16	54	41	3	3	3	1	(2) 1.5	1.5	395	3.0
VSD20-60	20	60	45	4	4	4	1.25	(2) 1.5	1.5	545	5.3
VSD24-60	24	60	43.5	5	4	5	1.5	(2) 1.5	1.5	660	7.1
VSD30-72	30	72	53	6	5	6	2	(2) 1.5	1.5	1,175	14.5
VSD36-78	36	78	56	8	5	8	2.5	(2) 1.5	1.5	1,370	20.6
VSD42-84	42	84	59	8	6	8	3	(2) 1.5	1.5	1,630	31.4

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. All vessels include two (2) angle mounting clips for support. Angle supports for 12" & 16" are 3"x3", for 20"-30" are 4"x4", and for 36"&42" are 6"x6".
4. Surge volume is calculated from 4" OPL to HLCO at 6" below bottom of Suction Inlet elbow.

Model No.	Evaporator Temperature (°F)									
	Single Stage (+95°F Liquid Supply)						Two Stage (+25°F Liquid Supply)			
	30	20	10	0	-10	-20	-20	-30	-40	-50
VSD12-48	38.6	35.2	31.6	28.0	24.5	10.0	24.9	21.3	18.0	15.1
VSD16-54	62.4	56.8	51.1	45.3	39.7	34.3	40.3	34.5	29.2	24.4
VSD20-60	99.5	90.6	81.4	72.2	63.2	54.7	64.2	55.0	46.3	38.9
VSD24-60	145	132	119	105	92.3	79.8	93.7	80.2	67.9	56.8
VSD30-72	230	209	188	167	146	126	148	127	107	90.0
VSD36-78	333	304	273	242	212	183	215	184	156	131
VSD42-84	457	416	374	331	290	251	295	252	213	179

Horizontal Surge Drum





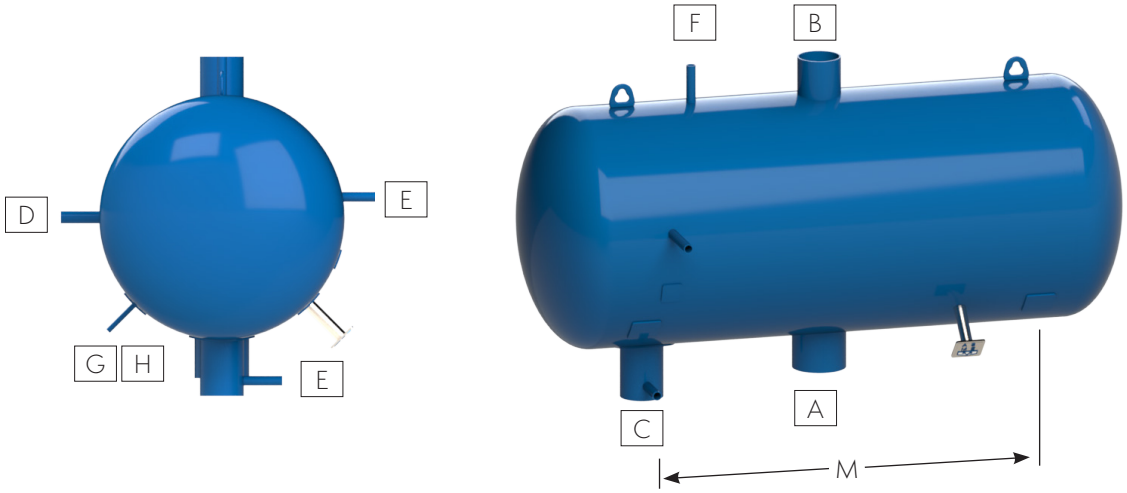
Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)						G Mounting Angle Spacing (In.)	Dry Ship Weight (lbs)	Surge Volume (Cu Ft)
	Outside Diameter	Overall Length	Shell Length	A Suction Inlet	B Suction Outlet	C Liquid Outlet	D Liquid Make-Up	E Level Column	F Relief			
HSD12-48	12	48	37	2.5	1.5	2.5	0.75	(2) 1.5	1.5	31	305	0.7
HSD16-60	16	60	47	3	2	3	0.75	(2) 1.5	1.5	41	455	1.9
HSD20-72	20	72	57	4	2.5	4	0.75	(2) 1.5	1.5	51	660	4.3
HSD24-72	24	72	55.5	4	3	4	0.75	(2) 1.5	1.5	47.5	775	6.7
HSD30-96	30	96	77	5	4	5	1.25	(2) 1.5	1.5	69	1,260	15.2
HSD36-96	36	96	74	6	4	6	1.25	(2) 1.5	1.5	62	1,555	22.8
HSD42-120	42	120	95	8	5	8	1.5	(2) 1.5	1.5	79	2,260	40.1
HSD48-122	48	122	94	8	8	8	1.5	(2) 1.5	1.5	78	2,645	53.9

Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. All vessels include two (2) angle mounting clips for support. Angle supports for 12" & 16" are 3"x3", for 20"-30" are 4"x4", and for 36"&42" are 6"x6".
4. Surge volume is calculated from 4" OPL to HLCO at vessel center line.

Model No.	Evaporator Temperature (°F)									
	Single Stage (+95°F Liquid Supply)						Two Stage (+25°F Liquid Supply)			
	30	20	10	0	-10	-20	-20	-30	-40	-50
HSD12-48	19.3	17.6	15.8	14.0	12.2	10.6	12.4	10.6	9.0	7.5
HSD16-60	31.2	28.4	25.5	22.6	19.8	17.1	20.1	17.2	14.6	12.2
HSD20-72	49.7	45.3	40.7	36.0	31.6	27.3	32.1	27.5	23.2	19.4
HSD24-72	72.5	66.1	59.3	52.6	46.1	39.9	46.8	40.0	33.9	28.4
HSD30-96	115	104	94.0	83.3	73.0	63.1	74.1	63.4	53.7	45.0
HSD36-96	167	152	136	121	106	91.7	107	92.2	78.0	65.3
HSD42-120	228	208	187	166	145	125	147	126	107	89.5
HSD48-122	300	273	245	217	190	165	193	165	140	117

Separation capacity based on maximum liquid level (HLCO) at vessel centerline.

Split Flow Horizontal Surge



Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)								M Support Spacing (In.)	Dry Ship Weight (lbs)	Surge Volume (Cu Ft)
	Outside Diameter	Overall Length	Shell Length	A Suction Inlet	B Suction Outlet	C Liquid Outlet	D Liquid Make-Up	E Level Column	F Relief	G Oil Pot Vent	H Oil Pot Relief			
MHSD20-96	20	96	81	4	4	4	1.25	(2) 1.5	1.5	0.75	0.75	69	850	5.8
MHSD24-96	24	96	79.5	5	5	4	1.25	(2) 1.5	1.5	0.75	0.75	67.5	1,050	9.1
MHSD30-96	30	96	77	6	6	6	1.5	(2) 1.5	1.5	0.75	0.75	65	1,320	15.2
MHSD36-96	36	96	74	6	6	6	2	(2) 1.5	1.5	0.75	0.75	62	1,575	22.8
MHSD42-96	42	96	71	8	8	6	2	(2) 1.5	1.5	0.75	0.75	59	1,890	31.6
MHSD48-120	48	120	92	10	8	8	2	(2) 1.5	1.5	0.75	0.75	80	2,700	53.0
MHSD54-144	54	144	113	10	8	8	2.5	(2) 1.5	1.5	0.75	0.75	101	4,500	81.5
MHSD60-144	60	144	110	10	10	10	3	(2) 1.5	1.5	0.75	0.75	98	5,000	101

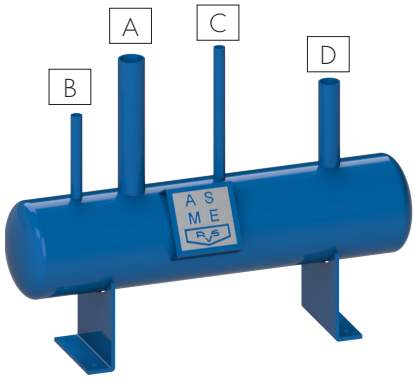
Notes:
1. Data is based on 250# Design Working Pressure and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards for R717 and can be customized to required specifications.
3. All vessels include (4) 6"x 6" weld pads. Vessel elevation / support by others.
4. Surge volume is calculated from 4" OPL to HLCO at vessel centerline.

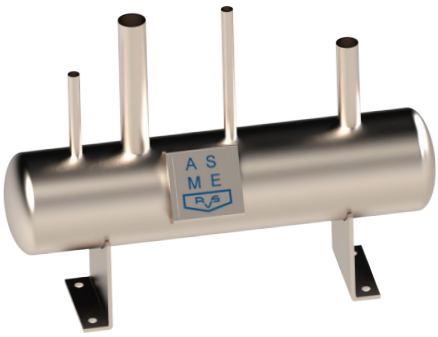
Split Flow Horizontal Surge Drum Capacity - Tons R717

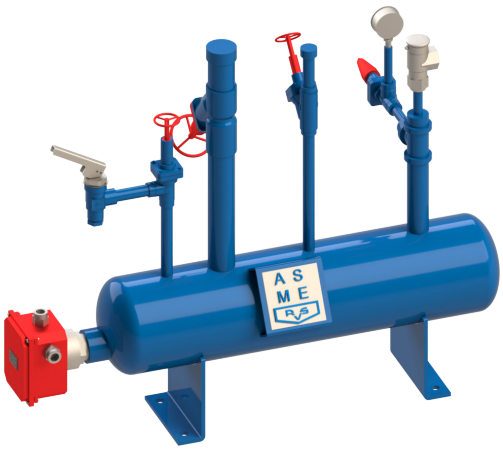
Model No.	Evaporator Temperature (°F)									
	Single Stage (+95°F Liquid Supply)						Two Stage (+25°F Liquid Supply)			
	30	20	10	0	-10	-20	-20	-30	-40	-50
MHSD20-96	99.5	90.6	81.4	72.2	63.2	54.7	64.2	55.0	46.5	38.9
MHSD24-96	145	132	119	105	92.3	79.8	93.7	80.2	67.9	56.8
MHSD30-96	230	209	188	167	146	126	148	127	107	90.0
MHSD36-96	333	304	273	242	212	183	215	184	156	131
MHSD42-96	457	416	374	331	290	251	295	252	214	179
MHSD48-120	599	546	490	435	381	330	387	331	280	235
MHSD54-144	754	687	617	547	479	415	487	417	353	295
MHSD60-144	935	851	765	678	594	514	603	516	437	366

Separation capacity based on maximum liquid level (HLCO) at vessel centerline.

Horizontal Oil Pot







Model No.	Vessel Dimensions (Inches)			Nozzle Schedule (NPS - Inches)				E Support Spacing (In.) (Leg Inside to Inside)	Dry Ship Weight (lbs)	100% Internal Volume (Cu Ft)
	Outside Diameter	Overall Length	Shell Length	A Oil Inlet	B Oil Outlet	C Vent	D Relief			
HOP8-36	8	36	28	2	0.75	0.75	1.5	20	141	0.98
HOP10-36	10	36	26	2	0.75	0.75	1.5	20	180	1.52

Notes:
1. Standard base models are carbon steel construction and fully rated at 450# Design Working Pressure, -50˚F to +300˚F (200˚F if stainless steel), and no Corrosion Allowance.
2. Vessel dimensions, nozzle sizing, and data are based on nominal standards and can be customized to required specifications.
3. Available options - stainless steel construction (middle image) - add "-SS" suffix to model number, 2" heater coupling only or supplied with heater - add "-H" suffix to model number, and/or factory packaging complete with isolation valves, spring return valve, and overpressure relief valve (right image) - add "-VP" suffix to model number. Preferred valve manufacturer required for factory packaging.

Liquid Level Column with Indicator

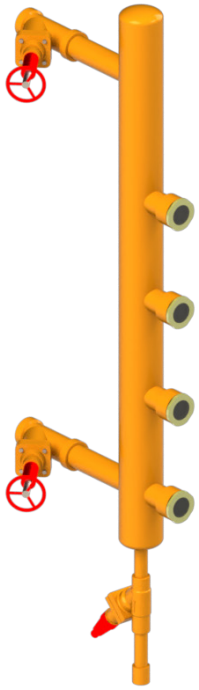
Notes:
1. Standard level column is 3" S/40 carbon steel pipe with overall length as needed for application and includes: one (1) sight glass level indicator, two (2) 1", 1.25", or 1.5" S/80 connections to match vessel nozzle size & spaced as needed, one (1) 3" pipe cap bottom, one (1) 0.75" S/80 pipe drain connection, and either a top pipe cap or flat/threaded for probe plate. Note: the minimum spacing between sight glass indicators is 4" center to center distance.

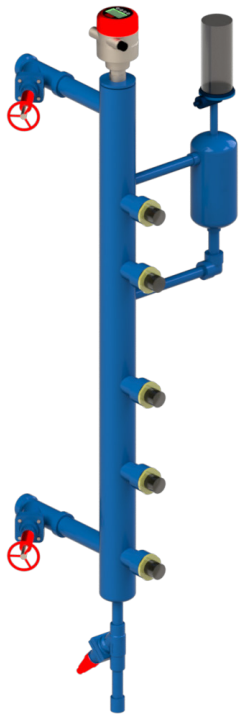
2. Typical high side level column (non-insulated), is finished in RVS forceful orange polyurethane as shown. Optional adds from base standard shown in left image include three (3) additional sight glass indicators, isolation valves to vessel, and drain valve.

3. Typical low side level column (insulated by others), is finished in RVS hyper blue epoxy as shown. Optional adds from base standard shown in right image include four (4) additional sight glass indicators, frost shields for all sight glass indicators (ship loose item), isolation valves to vessel, drain valve, mechanical high level cut-out float switch, and Danfoss wire probe.

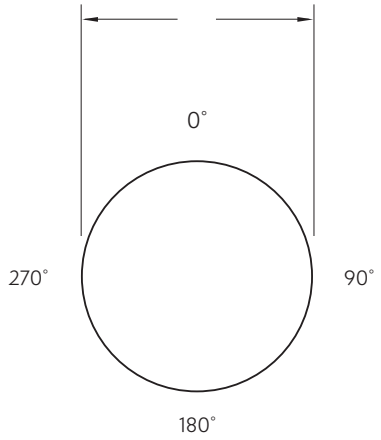
4. Available options - stainless steel construction, stainless steel float switch, 4" long sight glass housing (vs. 2" standard), additional 0.75" connections, additonal float switches, flanges on connections to vessel or connections to float switch, custom configurations, and/or factory mounting to vessel.

5. Required design information - vessel design working pressure, center to center distance of connections to vessel, orientation of level column to vessel, orientation of sight glass indicators to level column or vessel, quantity of sight glasses and elevation of each to bottom of vessel (BOV), include or exclude frost shields, elevation of float switch trip point to BOV (if equipped), materials of construction, finish coating, preferrred valve / sight glass / float manufacturer, and other options & configurations as noted in 1-4 above.

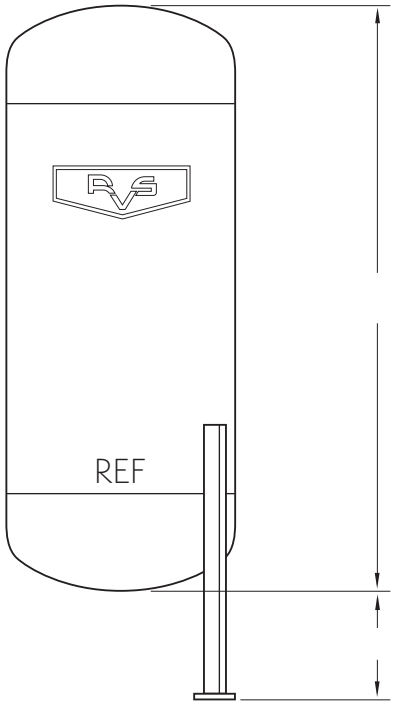




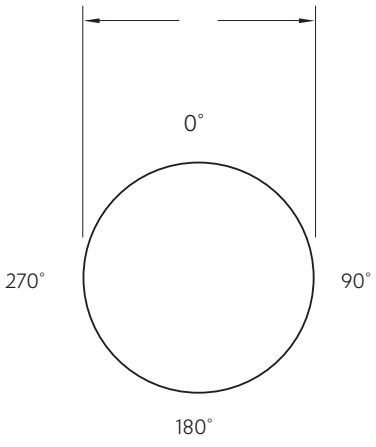
DIY-V/H Vertical Vessel



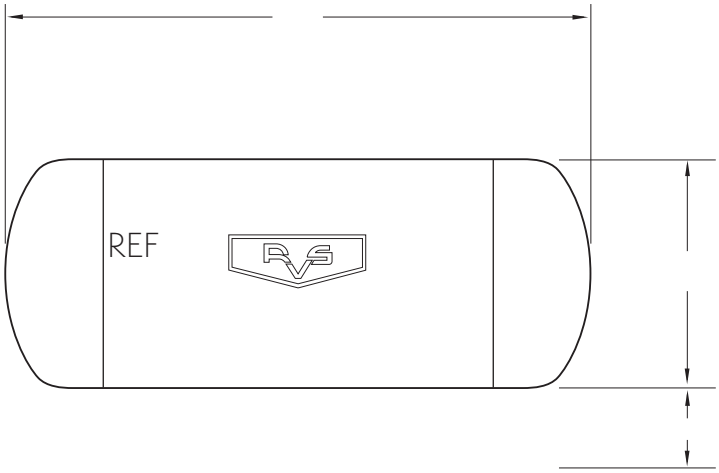
(FRONT SIDE)



DIY-H Horizontal Vessel



BOTTOM
(LEFT END VIEW)



DIY- Vertical/Horizontal Design Criteria

Complete the following information along with sketch mark-ups of page 22 in order for RVS to properly design and quote a custom vessel.

Vessel Description, ID or Tag:_____ **Function / Application:**_____

Vessel Diameter:_____(in.) **Vessel Length:**_____(in.) ☐ Overall or ☐ Shell (Seam to Seam) ☐ **Vertical** ☐ **Horizontal**

Vessel Material: ☐ Carbon Steel ☐ Low Temp Carbon Steel ☐ Stainless Steel (304) **Refrigerant:** ☐ R717 ☐ R744 ☐_____ (Specify if Other)

Vessel Support: ☐ Legs - Angle, WF Beam, Pipe (Circle Type) ☐ Saddles ☐ Skirt ☐ Sump / Skirt ☐ Weld Pads ☐ Angle Clips ☐_____ (Specify if Other)

Elevation from Reference (Floor) to BOV (Legs, Saddles, Skirt or Sump):_____(in.) Size / Quantity (Pads or Clips):_____

Vessel Finish / Paint: ☐ Yes - Apply RVS Std Coating ☐ No - Do Not Paint ☐ Other - Specify:_____

Vessel Design Working Pressure: _____PSIG **Lowest Intended Operating Temperature:**_____˚F at _____PSIG

Performance Requirement:_____Tons _____Cu Ft Surge Volume _____Cu Ft Holding Volume @_____% of Total Volume

Corrosion Allowance: ☐ Yes ☐ No (1/16" External) **Applied To:** ☐ Shell ☐ Heads ☐ Nozzles **Post Weld Heat Treatment (PWHT):** ☐ Yes ☐ No

RT Requirement: ☐ Per ASME Code ☐ Per Customer, Project, or Other Specification - Define: _____
☐ Project in California ☐ Project in Canada - Specify Province for CRN Requirement: _____

Other Loading: ☐ Seismic ☐ Wind ☐ Nozzle ☐ Equipment Mounted to Vessel If Yes to Any Loads, Define:_____

Additional Details: _____

NOZZLE SCHEDULE					
I.D.	SIZE (In.)	NOZZLE TYPE Pipe Cplg	DESCRIPTION / SERVICE	NOZZLE ORIENTATION Degrees (Sides/End View - pg 22)	NOZZLE LOCATION Inches (REF Girth Seam - pg 22)
1		☐ ☐			
2		☐ ☐			
3		☐ ☐			
4		☐ ☐			
5		☐ ☐			
6		☐ ☐			
7		☐ ☐			
8		☐ ☐			
9		☐ ☐			
10		☐ ☐			
11		☐ ☐			
12		☐ ☐			
13		☐ ☐			
14		☐ ☐			
15		☐ ☐			

NORTH AMERICAN NATURAL REFRIGERATION MANUFACTURING & ENGINEERING LOCATIONS



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