



LIQUID RING VACUUM PUMP SPECIFICATION (WEB)

Contact	Phone
Company	Fax
Street Address	Email
City	Cust Ref
State, Zip	Due Date

SIZING/PUMP MATERIAL INFORMATION

Process Conditions – select Steady State and/or Evacuation

<input type="checkbox"/> Steady State:	
Flow Rate (PPH) or Capacity (ACFM)	
Gas Composition Breakdown	By PPH <input type="checkbox"/> , or Wt % <input type="checkbox"/> , or Vol % <input type="checkbox"/> and MW
Gas 1	
Gas 2	
Gas 3	
Gas 4	
Gas 5	
Inlet Temperature	
Inlet Pressure	
Discharge Pressure	

<input type="checkbox"/> Evacuation:	
Gas to Evacuate	
Volume to Evacuate	
Time to Evacuate	
Initial Suction Pressure	
Final Suction Pressure	
Temperature	
In-leakage (pph)	

Seal Liquid:	
Type Of Seal Liquid Available (Water typical)	
Temperature And Pressure	
If Other Than Water Give:	
Specific Gravity	
Specific Heat	
Vapor Pressure (and/or normal boiling point)	
Viscosity	

Cooling Media: required for Total Recirculation System (see P&I diagram on page 4)	
Cooling Liquid (Water typical)	
Temperature	
Max GPM / Temperature Rise	

Vacuum Pump Materials of Construction:		Standard <input type="checkbox"/>	316 SS <input type="checkbox"/>	Other <input type="checkbox"/>
Casing(s) (Body & Heads)		Cast Iron	316 SS	
Impeller(s)		316SS (bronze or CI for pumps \geq 50 HP)	316 SS	
Side plates (Port plates)		Cast Iron	316 SS	
Shaft		416 SS	316 SS	
Shaft Sealing:		Mechanical seal materials:		
Standard Single Mechanical seals:	<input type="checkbox"/>	Standard (Carbon/SiC/Viton/316SS): <input type="checkbox"/>		
Cartridge type seals (single or dual):	<input type="checkbox"/>	Alternate materials: O-ring Material Seal Face Material Hardware		



Seal Manufacturer: Standard <input type="checkbox"/> Customer Preference <input type="checkbox"/>	For Dual cartridge seals only – Seal Pots: Graham Standard Per API Plan 53 <input type="checkbox"/> Customer Supplied <input type="checkbox"/>
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LRVP SYSTEM INFORMATION

Motor Details:	
Supply-Phase/Cycles/Voltage	Phase / Hz / Voltage
Enclosure / Area Classification	
Other special requirements	

Transmission:	
Standard Elastomeric Coupling <input type="checkbox"/> Flexible Disc Type Coupling <input type="checkbox"/>	Standard Steel Guard <input type="checkbox"/> Non-Sparking Aluminum Guard <input type="checkbox"/>
For larger pumps, a speed reducer (V-belt or gearbox) may be required. Graham will advise.	

Service liquid system (See P&I diagrams on page 4 for details)	
Once Through System: <input type="checkbox"/>	Total Recirculation System: <input type="checkbox"/>

Heat Exchanger (for Total Recirculation System):					
Standard type: Plate and Frame <input type="checkbox"/>		Alternate: Shell and Tube <input type="checkbox"/>			
Materials			Materials		
	Std <input type="checkbox"/>	Other <input type="checkbox"/>		Std <input type="checkbox"/>	Other <input type="checkbox"/>
Plate Material	304 SS		Tube	304 SS	
Gasket Material	Nitrile		Shell Material	Steel	
			Tubesheets	Steel	
			Bonnet/Channel Mtl	Steel	
ASME Code Yes <input type="checkbox"/> No <input type="checkbox"/> If Yes Temperature Pressure					
TEMA Classification (Shell & Tube only): Graham Standard <input type="checkbox"/> TEMA C <input type="checkbox"/> TEMA B <input type="checkbox"/> TEMA R <input type="checkbox"/>					

System Discharge Separator:	
ASME Code Yes <input type="checkbox"/> No <input type="checkbox"/> If yes Temperature Pressure	
Standard Recirculation separators are equipped with a level gauge, overflow connection for high level, and manual drain & fill valves. For other level control / indication options, please contact Graham.	

PIPING, VALVES AND INSTRUMENTATION

Piping:				
Material:	CI / Steel (Standard) <input type="checkbox"/>	Steel <input type="checkbox"/>	316SS <input type="checkbox"/>	Other: _____
Threaded / Butt Welded over 2" (Standard) <input type="checkbox"/>				
Socket Welded / Butt Welded <input type="checkbox"/>				
Instrumentation:				
Threaded (Standard) <input type="checkbox"/> / Flanged <input type="checkbox"/> If flanged – Chemical Seals on pressure indicators <input type="checkbox"/>				
Brass/bronze (Standard) <input type="checkbox"/> / Steel <input type="checkbox"/> / 316SS <input type="checkbox"/> / Other _____				

Once Through – Service Liquid Line (see P&I diagram on page 4):	
<input type="checkbox"/> Standard – shutoff valve, y-strainer, regulating valve, solenoid valve with bypass, pressure gauge	
<input type="checkbox"/> Low flow switch	
For other flow control / indication options, please contact Graham.	

Total Recirculation – Service Liquid Line (see P&I diagram on page 4):	
<input type="checkbox"/> Standard – shutoff valve, pressure gauge	
<input type="checkbox"/> Low flow switch	
For other flow control / indication options, please contact Graham.	



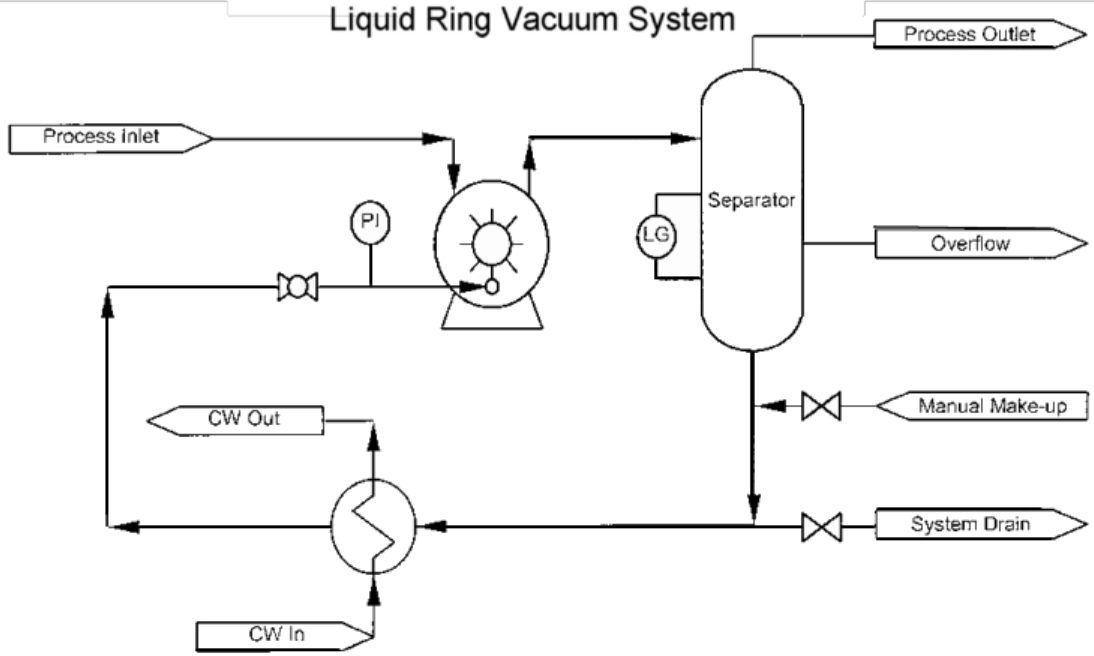
Process Lines – Pump Suction:			
<input type="checkbox"/> Standard – Suction piping supplied by others			
<input type="checkbox"/> Suction piping by Graham			
Temporary inlet Strainer	<input type="checkbox"/>	Check Valve	<input type="checkbox"/>
Isolation Valve	<input type="checkbox"/>	Pressure Indicator	
For other valves / instrumentation, please contact Graham			

Process Lines – System Discharge:			
<input type="checkbox"/> Standard – Piping from LRVP discharge to separator inlet			
Check Valve	<input type="checkbox"/>	Pressure Indicator	<input type="checkbox"/>
Isolation Valve	<input type="checkbox"/>	Temperature Gauge	<input type="checkbox"/>
For other valves / instrumentation, please contact Graham			

REMARKS:

Return this completed form via: Email: applicationengineering@graham-mfg.com or fax or mail to:

**Standard Total Recirculation
Liquid Ring Vacuum System**



**Standard Once Through
Liquid Ring Vacuum System**

