



# MPS

## CHILLER PACKAGE



Featuring:  
**PLATE & SHELL  
HEAT EXCHANGER  
TECHNOLOGY**

**MEMBER** **iiar** International  
Institute of  
Ammonia Refrigeration

**IARW** International Association of  
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*Technology for the Future, Available Today!*



# MPS Chiller Package

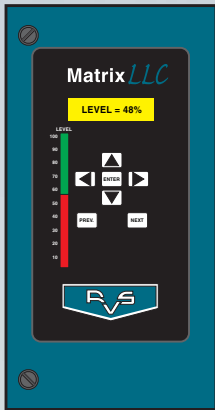
The MPS Chiller Package incorporates plate and shell heat exchanger technology with a split-flow surge drum and state of the art liquid level controls into a complete package which reduces installation time and cost when compared to field fabricated units. The MPS Chiller Package ships complete with an oil management system and proportional liquid feed assembly requiring only two refrigerant connections in the field.

## Typical Applications

- Chilled water and glycol solutions for use in process cooling and air conditioning
- NH3/CO2 Cascade Condenser
- NH3 Sub-cooler

## Advantages

- Factory packaged and wired for easy installation
- High heat transfer rate and low refrigerant charge
- Low profile allows one piece package shipment



## Matrix LLC Control

- Reads 4-20mA signal from level probe and provides visual readout in digital and color bar graph form on panel.
- Adjustable high and low level alarms and cut outs.
- Door-mounted (7) button keypad. No need to open enclosure to change settings.
- Communications via industry standard protocol MODBUS-RTU over RS-485.
- Factory mounted and wired requiring only a single power connection in the field.

### Liquid Level Column

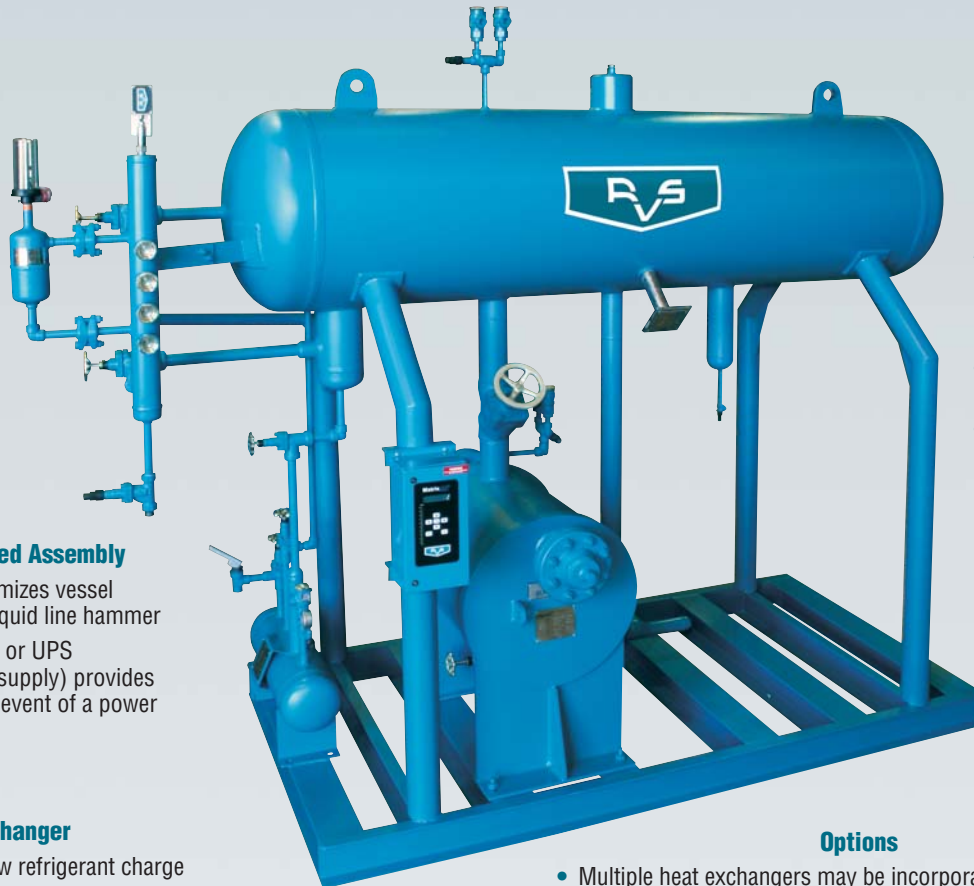
- Level indicating column with RVS electronic level probe
- High level shutdown float switch for compressor protection

### Proportional Liquid Feed Assembly

- Modulating valve minimizes vessel pressure surges and liquid line hammer
- Backup solenoid valve or UPS (uninterrupted power supply) provides positive shutoff in the event of a power failure

### Plate & Shell Heat Exchanger

- High efficiency with low refrigerant charge
- Elimination of gaskets means
  - No gasket leaks
  - No expensive gasket maintenance
  - No elastomer incompatibility problems with process fluid
  - No gasket limitation of pressure or temperature



### ASME 250 psig Horizontal Surge Drum with Dual Relief Assembly

- Split-flow design to reduce overall size
- Stainless steel nameplate bracket and standoff to prevent corrosion

### Options

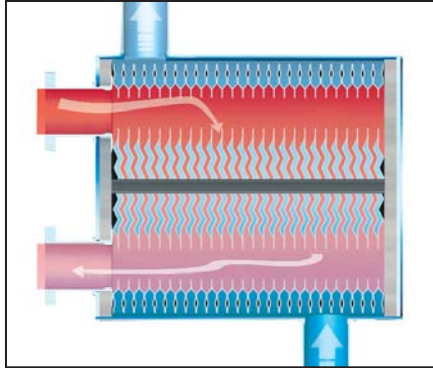
- Multiple heat exchangers may be incorporated into a single package for higher process fluid flow rates and capacity
- Package may be designed with connections and space for additional heat exchanger to handle future expansion
- Conventional on/off solenoid and hand expansion valve liquid feed assemblies (single or dual)
- Temperature controlled suction pressure regulator
- Seismic design
- Post weld heat treatment



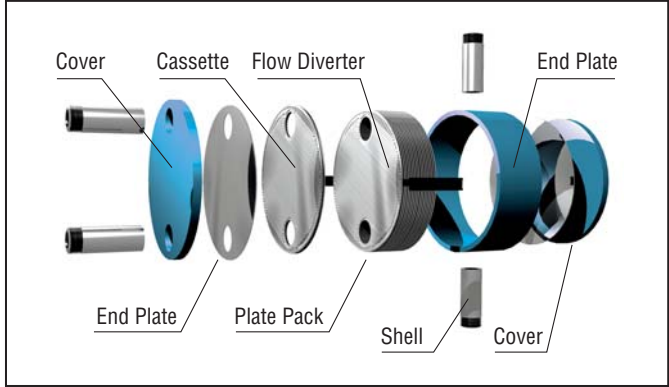
# Plate & Shell Heat Exchanger (PSHX) Design Features



▲ The MPS Plate & Shell Heat Exchanger combines the thermal efficiency of plate type heat exchangers with the durability of shell & tube heat exchangers.



▲ In a typical chiller application, the warm water or glycol solution flowing through the plate side is cooled by refrigerant circulated through the shell side in a gravity loop from the surge drum.



▲ The chevron-type plate pairs are fabricated into a cassette by an electrical seam weld. Cassettes are then placed together and perimeter welded to each other, producing an accordion-like core which is highly tolerant to thermal expansion. The plate pack is then inserted in a cylindrical shell with special baffles and diverters to ensure proper flow through the unit. End plates, nozzles and covers are welded to the shell to form a high integrity ASME pressure vessel.

# Plate & Shell Heat Exchanger (PSHX) Sizes

MODEL NUMBER	SHELL DIAMETER	PLATESIDE CONNECTION	SHELLSIDE CONNECTION	SHELL LENGTH	MAXIMUM SURFACE AREA
PSHX12	12-3/4"	2"	2" - 6"	19 to 48"	235 sq. ft.
PSHX24	24"	4"	2" - 12"	25 to 57"	706 sq. ft.
PSHX36	36"	6"	2" - 16"	38 to 74"	1733 sq. ft.

**Technical Specifications:**

- ASME 250 psig @ -20 to 300°F
- Shell Material: Carbon steel
- Plate Material: 316L Stainless Steel
- Nozzles: 316 Stainless Steel

**OPTIONAL:**

- Design Pressure: Up to 1000 psig
- Shell Material: 304/304L or 316/316L Stainless Steel
- Plate Material: Titanium
- Removable Plate Pack



### SELECTION PROCEDURE

**STEP 1:** Contact your sales representative or the factory to select PSHX Plate & Shell Heat Exchanger based on; process fluid type, flow rate and allowable pressure drop, inlet temperature, outlet temperature, refrigerant type and refrigerant suction temperature.

**STEP 2:** Select MPS package model from Table 1 with capacity equal to or greater than the required chiller capacity at the appropriate suction temperature.

**STEP 3:** From Table 2 or 3, select the liquid feed assembly based on MPS Chiller Package capacity in TR.

(Proportional motorized valve or Solenoid/Hand expansion)

### WHEN ORDERING PLEASE SPECIFY:

Process fluid being cooled, flow rate and allowable pressure drop.

Process fluid inlet and outlet temperature.

Capacity in TR and operating temperature.

Liquid Feed Assembly model number.

Required design pressure.

**Table 1 MPS CHILLER PACKAGE CAPACITIES**

MODEL NO.	TONS OF REFRIGERATION R-717						
	HIGH STAGE SUCTION TEMPERATURE (°F)						
	+40°F	+33°F	+30°F	+20°F	+10°F	0°F	-10°F
MPS-20	132	120	122	111	101	91	70
MPS-24	186	180	172	157	143	128	110
MPS-30	307	290	284	260	235	211	180
MPS-36	458	430	422	386	345	325	270
MPS-42	630	600	580	530	475	420	370
MPS-48	830	790	770	700	630	560	490

Ratings based on 96°F condensing temperature.

**Table 2 SINGLE FEED ASSEMBLY - MOTORIZED VALVE**

MODEL NO.	VALVE SIZE	LINE SIZE	CAPACITY (TR)
PLF075	3/4"	1"	165
PLF100	1"	1-1/4"	290
PLF125	1-1/4"	1-1/2"	415
PLF150	1-1/2"	2"	910
PLF200	2"	2-1/2"	1210

Sealed motor Liquid Feed Assembly (assembled) including motorized proportional feed valve, solenoid valve (120 Volt) with strainer and flanges, two globe isolation valves, and one angle bypass valve.

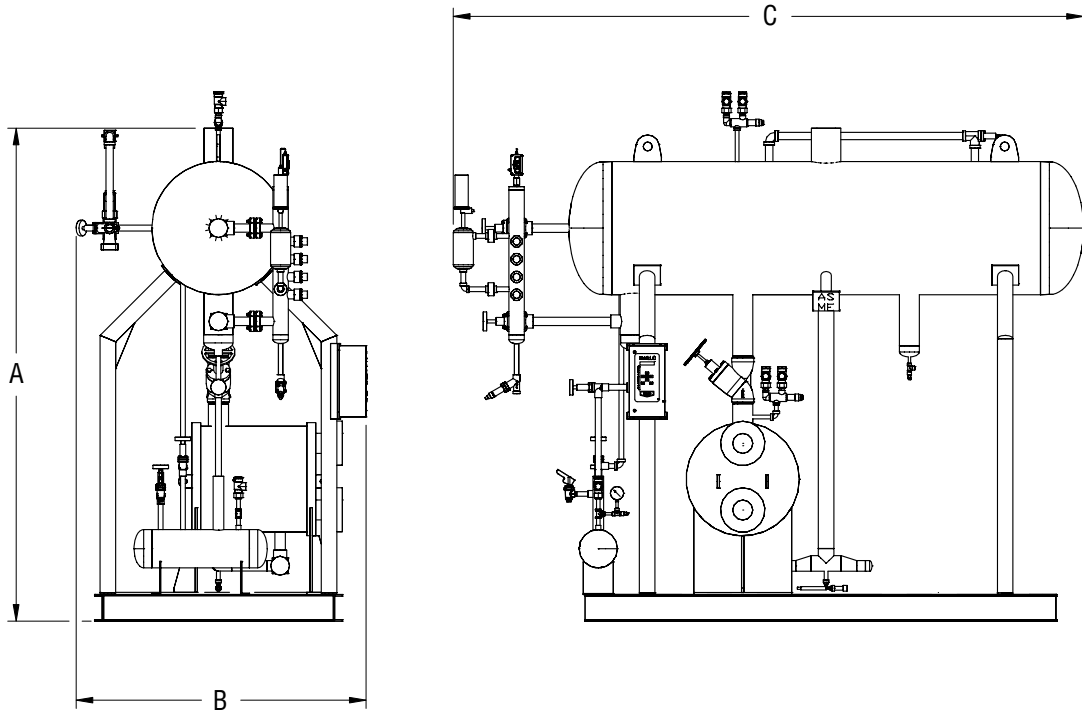
**Table 3 SINGLE FEED ASSEMBLY - HAND EXPANSION**

MODEL NO.	SIZE	CAPACITY (TR)
6LF075	3/4"	60
6LF100	1"	105
6LF125	1-1/4"	225
6LF150	1-1/2"	350
6LF200	2"	800
6LF250	2-1/2"	1200

Liquid Feed Assembly (assembled) including solenoid valve, (120 Volt) with strainer and flanges, one globe hand expansion valve, two globe shut-off valves, and one angle bypass valve.



## MPS CHILLER PACKAGE



MODEL	VESSEL DIAMETER	VESSEL LENGTH	PACKAGE DIMENSIONS			SUCTION OUTLET	LIQUID INLET	PACKAGE WEIGHT*
			HEIGHT (A)	WIDTH (B)	LENGTH (C)			
MPS-20	20"	96"	102"	56"	120"	4"	1-1/4"	2000
MPS-24	24"	96"	106"	56"	120"	5"	1-1/4"	2100
MPS-30	30"	96"	112"	56"	120"	6"	1-1/2"	2300
MPS-36	36"	96"	118"	66"	120"	6"	2"	2800
MPS-42	42"	96"	124"	72"	120"	8"	2"	3300
MPS-48	48"	120"	130"	78"	144"	8"	2"	4000

\* Package weight less plate heat exchanger.

Dimensions are approximate and will vary with heat exchanger selection.



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MPC Plate Chiller Package

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