

## APV R5 Quad-Drive Series 2 Paraflow PHE

PLC-CONTROLLED OR MANUAL-CLOSING NR5 & R5



As the industry leader in heat transfer equipment, APV raises the standard for process efficiency, and reliability once again with the Quad-Drive Series 2 Heat Exchanger.

SPX FLOW, Inc. (NYSE:FLOW) is a leading manufacturer of innovative flow technologies, many of which help define the industry standard in the market segments they serve. From its headquarters in Charlotte, North Carolina, it operates a sales and support network, centers of manufacturing excellence, and advanced engineering facilities, throughout the world. Its cutting-edge flow components and process equipment portfolio includes a wide range of pumps, valves, heat exchangers, mixers, homogenizers, separators, filters, UHT, and drying technology that meet many application needs. Its expert engineering capability also makes it a premium supplier of customized solutions and complete, turn-key packages to meet the most exacting of installation demands.

Incorporating many leading brands, SPX FLOW has a long history of serving the food and beverage, power and energy, and industrial market sectors. Its designs and engineered solutions help customers drive efficiency and productivity, increase quality and reliability, and meet the latest regulatory demands. In-depth understanding of applications and processes, state-of-the-art Innovation Centers, and advanced pilot/testing technology further assist in optimizing processes and reducing timescales to reliably meet production targets.

To learn more about SPX FLOW capabilities, its latest technology innovations and complete service offerings, please visit [www.spxflow.com](http://www.spxflow.com).

## R5 Quad-Drive Series 2 Process Efficiency, Reliability and Integrity

Super hygienic/sanitary NR5 plates are ideally suited for a wide range of food processing, dairy, beverage, pharmaceutical and cosmetic applications, offering superior performance under the following conditions:

- Where there is a tendency for the product to foul the heated surface
- Where large temperature-induced viscosity changes are likely to occur
- When processing viscous and non-Newtonian processed foods including stabilizers

### FEATURES AND BENEFITS

#### **R5-Style Heat Transfer Area Maintains Operating Efficiency**

The .16" (4 mm) average gap permits long run times. At the same time, the R5 style flow geometry maximizes turbulence, self-cleaning and heat transfer.

#### **Superior Diagonal Flow Protects Product Integrity**

Most vertical flow plates require an expanded inlet design to achieve adequate flow distribution that can compromise process performance. By contrast, NR5's diagonal flow plates help ensure gentler and more uniform heat treatment along the entire product path.

#### **Large Inlet Port Resists Plugging**

NR5 plate's large port entry area easily accommodates products containing small particulates and fibers. Typically 60% to 80% fewer contact points provide superior fiber handling capabilities compared with conventional chevron plates, while facilitating irrigation during Clean-In-Place (CIP) operations.

#### **Exclusive Corner Interlock Enhances Alignment**

NR5 plates feature patented corner interlocks that provide unmatched plate-to-plate alignment. This highly effective, metal-to-metal system is stronger and more resistant to damage than plate designs that simply use gasket or edge alignment.

#### **Easy Clip Gaskets Simplify Refits**

Patented Easy Clip tabs provide fast and secure adhesive-free gasket retention. Simply align the gasket tabs with the plate and snap the gasket into place. With Easy Clip, gaskets can be fitted and removed time after time as needed without the fear of traditional snap-in clip breakage.

#### **Intelligent Frame Design Provides Unmatched Safety and Control**

The patented PLC-controlled powered Quad-Drive Series 2 frame opens and closes at the touch of a button – no tools are required. Intelligent control is flexible and scalable for various applications. For added safety, controls are key protected to limit operator access. Also, a high visibility warning light operates prior to and during follower movement. Should the PLC or screen ever suffer damage, the frame can still be opened hydraulically. In the event of power failure, the frame can be opened and closed manually.



The unit includes a large backlit color LCD touchscreen. The control surface may be ordered on either side of the Paraflow to suit plant layout.

The frame's compact, self-contained design is easy to install and maintain. All plates are easily accessible without removing any components. In addition, automatic closure helps optimize plate and gasket life by eliminating over-compression and uneven compression.

In many cases, an oversize frame may be specified to accommodate future expansion needs if desired. In addition, any frame size may be expanded up to the designed maximum by simply swapping the carry bars and tie bars.

### Manual Closure

Ideally suited to applications where infrequent opening is anticipated, a manual frame with quad geared closure is offered. An operator can effortlessly bring the machine close to pitch and then transfer the supplied wrench to the second drive point and close to the final dimension. With synchronous tie bar movement, the follower stays parallel to the head at all times, eliminating uneven compression.

The manual closure unit can be upgraded later to automatic without interruption to daily processing.

### Suitable Plate Types

Quad-Drive Series 2 frames accept standard R5, the super sanitary NR5 and the wide gap ER5 plates. Plates may be mixed in a frame to suit process requirements and only need a grid or divider plate to separate differing types.

## PRODUCT SPECIFICATIONS

|   |  |
|---|--|
| <b>Heat Transfer Area/Plate</b>                 | 5.86 ft <sup>2</sup> (0.542 m <sup>2</sup> )   |
| <b>Port Diameter</b>                            | 4.00" (102 mm)   |
| <b>Plate Liquid Capacity/<br/>Fluid Channel</b> | 0.54 gal (2.01 L)  |
| <b>Maximum Flow Rate</b>                        | 650 gal/min (147.6 cu. m/h)  |
| <b>Maximum Design Pressure</b>                  | Up to 225 psi (15.5 bar)   |
| <b>Operating Temperature</b>                    | Up to 350°F (177°C) depending on gasket material   |
| <b>Plate Materials</b>                          | Stainless steel 316, Titanium and other corrosion-resistant materials  |
| <b>Gasket Materials</b>                         | Nitrile, EPDM and FKM  |
| <b>Frame Materials</b>                          | All stainless steel 304L cladding around ASME SA 516 grade 70 carbon steel core  |
| <b>Frame Finish</b>                             | #4 polish on head, follower and end support. Glass blasted carrying bars   |
| <b>Frame Sizes</b>                              | Seven sizes up to 1222 plates (NR5 0.6 mm)   |
| <b>Power Pack</b>                               | Includes one 5 hp three-phase motor and hydraulic pump; one hydraulic motor and 20 gallon (76 L) integral oil tank (oil Chevron FM ISO 32) |

## Typical product applications

### Dairy

Milk, Condensed Milk  
Ice Cream  
Cream, Sour Cream  
Yogurt  
Butter  
Cheese



### Food & Beverage

Fat substitutes  
Dressings, Sauces, Syrups  
Fruit/Vegetable Juices  
Purees  
Reduced Fat Products  
Egg Products  
Infant Formulas  
Emulsions  
Non-Newtonian Supplements



### Healthcare/Cosmetics

Ointments  
Hair Products  
Skin Creams  
Lipsticks  
Nail Polishes



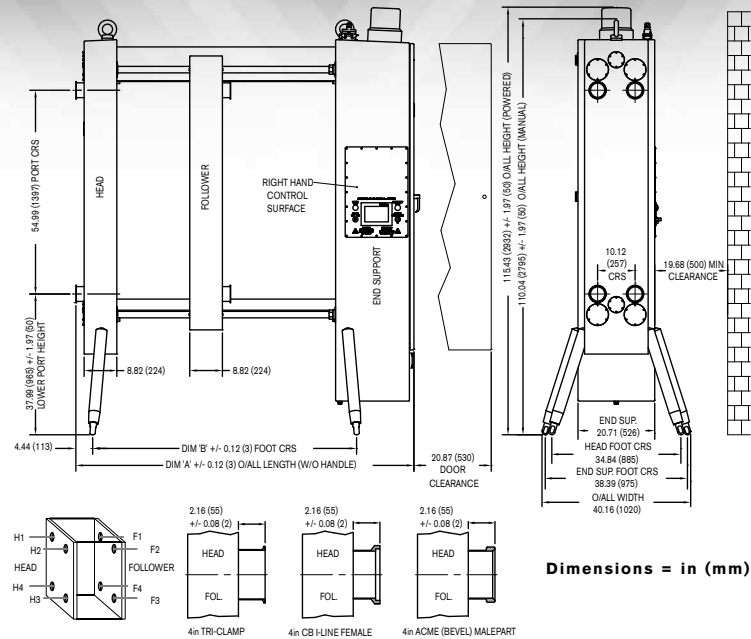
|                             |   |
|-----------------------------|---|
| <b>Power Requirements</b>   | 230 or 460 VAC three-phase, mating connector supplied (other voltages can be special ordered)                                 |
| <b>Control System</b>       | Modular, plug and play, Siemens or Allen Bradley PLC control on left or right hand side of machine                            |
| <b>User Interface</b>       | Large backlit color LCD touchscreen monitor   |
| <b>Tie Bars</b>             | Four chain driven 1.75" (44 mm) ACME tie bars   |
| <b>Connection Positions</b> | Four head, four follower  |
| <b>Connection Types</b>     | 4" Tri-Clamp™, ACME (bevel seat), CB I-line and plain stub end for welding. Industrial 4" L/T lap joint and weld neck flanges |
| <b>Options</b>              | Stainless steel protective plate pack shroud<br>Grids with up to eight liquid connections<br>Solid divider plate              |
| <b>Codes</b>                | Authorized 3-A symbol holder, available as Certified to ASME Sec, VIII, Div. 1  |

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## PRODUCT DIMENSIONS



Dimensions = in (mm)

## R5 QUAD-DRIVE SERIES 2

| FRAME SIZE | TOP BAR LEN<br>in (mm) | DIM 'A'<br>in (mm) | DIM 'B'<br>in (mm) | MAX PLATAGE* |                | FRAME WEIGHT<br>lb (kg) |               |
|------------|------------------------|--------------------|--------------------|--------------|----------------|-------------------------|---------------|
|            |                        |                    |                    | PLATES QTY   | DIM<br>in (mm) | POWERED                 | MANUAL        |
| 1          | 59.06 (1,500)          | 91.18 (2,316)      | 71.22 (1,809)      | 138          | 32.80 (833)    | 4,678 (2,122)           | 4,444 (2,016) |
| 2          | 98.43 (2,500)          | 130.55 (3,316)     | 110.59 (2,809)     | 305          | 72.17 (1,833)  | 4,921 (2,232)           | 4,687 (2,126) |
| 3          | 137.80 (3,500)         | 169.92 (4,316)     | 149.96 (3,809)     | 472          | 111.54 (2,833) | 5,161 (2,341)           | 4,927 (2,235) |
| 4          | 177.17 (4,500)         | 209.29 (5,316)     | 189.33 (4,809)     | 638          | 150.91 (3,833) | 5,575 (2,529)           | 5,342 (2,423) |
| 5          | 216.54 (5,500)         | 248.66 (6,316)     | 228.70 (5,809)     | 805          | 190.28 (4,833) | 5,851 (2,654)           | 5,617 (2,548) |
| 6          | 255.91 (6,500)         | 288.03 (7,316)     | 268.07 (6,809)     | 972          | 229.65 (5,833) | 7,447 (3,378)           | 7,213 (3,272) |
| 7          | 314.96 (8,000)         | 347.09 (8,816)     | 327.13 (8,309)     | 1222         | 288.70 (7,333) | 8,567 (3,886)           | 8,333 (3,780) |

\*Max plate quantity is for 0.024" (0.6mm) NR5 plates

Based in Charlotte, North Carolina, SPX FLOW, Inc. (NYSE: FLOW) is a multi-industry manufacturing leader. For more information, please visit [www.spxflow.com](http://www.spxflow.com)



SPX FLOW 611 Sugar Creek Road Delavan, WI 53115

P: (262) 728-1900 or (800) 252-5200 E: [answers.us@spxflow.com](mailto:answers.us@spxflow.com)

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