

▼ De izquierda a derecha: RR10013, RR1502, RR20013, RR1010, RR7513



- Las roscas del collarín y del émbolo, así como los orificios de montaje en la base, facilitan la fijación (en la mayoría de los modelos)
- Acabado de esmaltado al horno para mayor resistencia a la corrosión
- Silletas templadas desmontables protegen el vástago durante el funcionamiento
- Válvula de seguridad incorporada previene la sobrepresión accidental
- Racores CR400 y guardapolvos incluidos
- Rascador que reduce la contaminación y prolonga la vida útil del cilindro.

▼ Para deslizar el nuevo puente en su posición se utilizó un método de deslizamiento lateral del puente. Para empujar el puente en posición sobre los elementos deslizantes de PTFE se utilizaron dos cilindros hidráulicos de doble efecto de la serie RR con bombas eléctricas de la serie ZU4.



## Cilindros serie RR; Los cilindros de rendimiento más versátil

Suficientemente resistentes para utilizarse en las aplicaciones más rigurosas y diseñados con precisión para los usos industriales de ciclos frecuentes.



## Silletas

Los cilindros de la serie RR tienen orificios de montaje en el vástago para la instalación de silletas inclinables de la serie CATS.

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## Rendimiento óptimo

La gama de bombas eléctricas de la Z-Class de Enerpac, equipadas con válvulas de 4 vías manuales o electroválvulas, permite combinaciones óptimas con cilindros de la serie RR.

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▼ Los cilindros RR garantizan fuerza y precisión en una prensa hidráulica especial.



# Cilindros de carrera larga de doble acción



## Selección de bombas

Un cilindro de doble efecto se debe accionar mediante una bomba con una válvula de 4 vías.

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## ▼ TABLA DE SELECCION RAPIDA

Para información técnica completa, vea la página siguiente.

| Capacidad del cilindro ton. (máx.) | Carrera (pulg) | Número de modelo | Area efectiva del cilindro (pulg <sup>2</sup> ) |          | Capacidad de aceite (pulg <sup>3</sup> ) |          | Altura retraído (pulg) |
|------------------------------------|----------------|------------------|-------------------------------------------------|----------|------------------------------------------|----------|------------------------|
|                                    |                |                  | Empuje                                          | Tracción | Empuje                                   | Tracción |                        |
| <b>10</b><br>(11.1)                | 10.00          | <b>RR1010</b>    | 2.23                                            | 0.80     | 22.33                                    | 8.00     | 16.13                  |
|                                    | 12.00          | <b>RR1012</b>    | 2.23                                            | 0.80     | 26.80                                    | 9.00     | 18.00                  |
| <b>30</b><br>(33.5)                | 8.25           | <b>RR308</b>     | 6.51                                            | 3.00     | 53.67                                    | 25.00    | 15.50                  |
|                                    | 14.50          | <b>RR3014</b>    | 6.51                                            | 3.00     | 92.70                                    | 43.00    | 21.63                  |
| <b>50</b><br>(55.3)                | 6.13           | <b>RR506</b>     | 11.06                                           | 3.40     | 67.77                                    | 21.00    | 13.06                  |
|                                    | 13.13          | <b>RR5013</b>    | 11.06                                           | 3.40     | 145.17                                   | 44.00    | 20.06                  |
|                                    | 20.13          | <b>RR5020</b>    | 11.06                                           | 3.40     | 222.56                                   | 68.00    | 28.88                  |
| <b>75</b><br>(79.6)                | 6.13           | <b>RR756</b>     | 15.92                                           | 4.90     | 97.58                                    | 29.00    | 13.69                  |
|                                    | 13.13          | <b>RR7513</b>    | 15.92                                           | 4.90     | 209.00                                   | 64.00    | 20.69                  |
| <b>100</b><br>(103.2)              | 6.63           | <b>RR1006</b>    | 20.65                                           | 9.60     | 136.93                                   | 63.00    | 14.06                  |
|                                    | 13.13          | <b>RR10013</b>   | 20.65                                           | 9.60     | 271.17                                   | 126.00   | 20.63                  |
|                                    | 18.13          | <b>RR10018</b>   | 20.65                                           | 9.60     | 374.44                                   | 174.00   | 27.06                  |
| <b>150</b><br>(153.5)              | 2.25           | <b>RR1502</b>    | 30.71                                           | 14.80    | 69.11                                    | 33.00    | 7.19                   |
|                                    | 6.13           | <b>RR1506</b>    | 30.71                                           | 14.80    | 188.28                                   | 91.00    | 15.19                  |
|                                    | 13.13          | <b>RR15013</b>   | 30.71                                           | 14.80    | 403.27                                   | 194.00   | 22.20                  |
|                                    | 32.13          | <b>RR15032</b>   | 30.71                                           | 14.80    | 986.84                                   | 475.00   | 43.94                  |
| <b>200</b><br>(221.0)              | 6.00           | <b>RR2006</b>    | 44.21                                           | 22.50    | 265.28                                   | 135.00   | 16.94                  |
|                                    | 13.00          | <b>RR20013</b>   | 44.21                                           | 22.50    | 574.78                                   | 293.00   | 23.94                  |
|                                    | 18.00          | <b>RR20018</b>   | 44.21                                           | 22.50    | 795.85                                   | 396.00   | 30.13                  |
|                                    | 24.00          | <b>RR20024</b>   | 44.21                                           | 22.50    | 1,061                                    | 528.00   | 36.13                  |
|                                    | 36.00          | <b>RR20036</b>   | 44.21                                           | 22.50    | 1,592                                    | 792.00   | 48.13                  |
|                                    | 48.00          | <b>RR20048</b>   | 44.21                                           | 22.50    | 2,122                                    | 1,056    | 60.13                  |
| <b>300</b><br>(354.6)              | 6.00           | <b>RR3006</b>    | 70.93                                           | 38.00    | 425.56                                   | 228.00   | 19.13                  |
|                                    | 12.00          | <b>RR30012</b>   | 70.93                                           | 38.00    | 851.12                                   | 456.00   | 25.13                  |
|                                    | 18.00          | <b>RR30018</b>   | 70.93                                           | 38.00    | 1,277                                    | 684.00   | 31.13                  |
|                                    | 24.00          | <b>RR30024</b>   | 70.93                                           | 38.00    | 1,702                                    | 912.00   | 37.13                  |
|                                    | 36.00          | <b>RR30036</b>   | 70.93                                           | 38.00    | 2,553                                    | 1,368    | 49.13                  |
|                                    | 48.00          | <b>RR30048</b>   | 70.93                                           | 38.00    | 3,405                                    | 1,824    | 61.13                  |
| <b>400</b><br>(475.4)              | 6.00           | <b>RR4006</b>    | 95.09                                           | 51.00    | 570.51                                   | 306.00   | 21.19                  |
|                                    | 12.00          | <b>RR40012</b>   | 95.09                                           | 51.00    | 1,141                                    | 612.00   | 27.19                  |
|                                    | 18.00          | <b>RR40018</b>   | 95.09                                           | 51.00    | 1,712                                    | 918.00   | 33.19                  |
|                                    | 24.00          | <b>RR40024</b>   | 95.09                                           | 51.00    | 2,282                                    | 1,224    | 39.19                  |
|                                    | 36.00          | <b>RR40036</b>   | 95.09                                           | 51.00    | 3,423                                    | 1,836    | 51.19                  |
|                                    | 48.00          | <b>RR40048</b>   | 95.09                                           | 51.00    | 4,564                                    | 2,448    | 63.19                  |
| <b>500</b><br>(565.7)              | 6.00           | <b>RR5006</b>    | 113.15                                          | 63.00    | 678                                      | 378.00   | 22.75                  |
|                                    | 12.00          | <b>RR50012</b>   | 113.15                                          | 63.00    | 1,358                                    | 756.00   | 28.75                  |
|                                    | 18.00          | <b>RR50018</b>   | 113.15                                          | 63.00    | 2,037                                    | 1,134    | 34.75                  |
|                                    | 24.00          | <b>RR50024</b>   | 113.15                                          | 63.00    | 2,716                                    | 1,512    | 40.75                  |
|                                    | 36.00          | <b>RR50036</b>   | 113.15                                          | 63.00    | 4,074                                    | 2,264    | 52.75                  |
|                                    | 48.00          | <b>RR50048</b>   | 113.15                                          | 63.00    | 5,431                                    | 3,024    | 64.75                  |

## Serie RR



Capacidad:

**10 - 500 toneladas**

Carrera:

**2.25 - 48.00 pulgadas**

Presión máxima de trabajo:

**10,000 psi**



## Cilindros de serie HCR

Si su aplicación no requiere alta precisión los cilindros de la serie HCR de Enerpac pueden ser la alternativa correcta.

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## Tablas de velocidad

Vea las Tablas de los cilindros de Enerpac en nuestras Páginas Amarillas para determinar la velocidad aproximada de su cilindro.

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## Silletas opcionales

Silletas a presión opcionales para los cilindros de doble efecto de la serie RR:

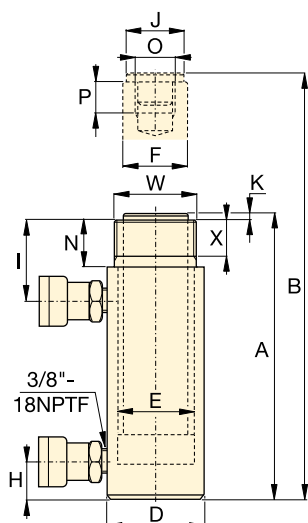
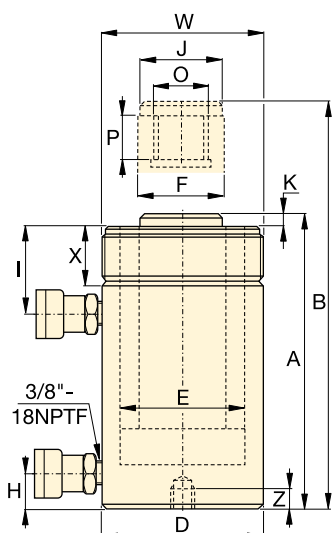
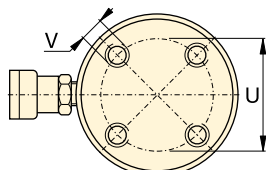
| Tipo silleta | Modelo del cilindro | Modelo de la silleta |
|--------------|---------------------|----------------------|
| Plana        | RR10                | <b>A102F</b>         |
|              | RR10                | <b>CATS12</b>        |
| Inclinable   | RR30                | <b>CATS52</b>        |
|              | RR50                | <b>CATS100</b>       |
|              | RR75                | <b>CATS100</b>       |

## Silletas estándar:

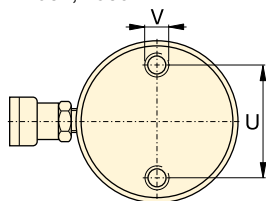
|          |      |              |
|----------|------|--------------|
| Ranurada | RR10 | <b>A102G</b> |
|          | RR30 | <b>A252G</b> |

Para información adicional en cuanto a las silletas:

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**RR1010 - RR3014**

**RR506 - RR50048**

**RR1006 - RR30048**

No dispone de orificios de  
RR506, 5013  
RR756, 7513  
RR1502, 15032


**RR4006 - RR50048**

La ubicación de los orificios de  
montaje en la base es únicamente  
como referencia, ya que se ve  
afectada por el ensamblado.



La fuerza de retracción de algunos cilindros  
serie RR es inferior a los valores teóricos, a  
causa de las válvulas de seguridad:

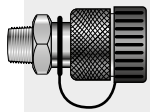
RR308/3014: 4000 psi  
RR506/5013/5020: 6950 psi  
RR756/7513: 7200 psi

◀ Vea las características completas en la página anterior.

| Capacidad<br>del<br>cilindro | Carrera | Número<br>de modelo | Fuerza máx.<br>del cilindro |        | Area efectiva<br>del cilindro |        | Capacidad<br>de aceite |        | Altura<br>retraído | Altura<br>exten-<br>dido | Diám.<br>exterior |
|------------------------------|---------|---------------------|-----------------------------|--------|-------------------------------|--------|------------------------|--------|--------------------|--------------------------|-------------------|
|                              |         |                     | (ton.)                      |        | (pulg <sup>2</sup> )          |        | (pulg <sup>3</sup> )   |        | A<br>(pulg)        | B<br>(pulg)              |                   |
| ton.                         | (pulg)  |                     | Empuje                      | Tracc. | Empuje                        | Tracc. | Empuje                 | Tracc. |                    |                          | D<br>(pulg)       |
| <b>10</b>                    | 10.00   | <b>RR1010 *</b>     | 11.1                        | 4.0    | 2.23                          | 0.80   | 22.33                  | 8.00   | 16.13              | 26.13                    | 2.88              |
|                              | 12.00   | <b>RR1012 *</b>     | 11.1                        | 4.0    | 2.23                          | 0.80   | 26.80                  | 9.00   | 18.00              | 30.00                    | 2.88              |
| <b>30</b>                    | 8.25    | <b>RR308 *</b>      | 32.5                        | 6.0    | 6.51                          | 3.00   | 53.67                  | 25.00  | 15.50              | 23.75                    | 4.00              |
|                              | 14.50   | <b>RR3014 *</b>     | 32.5                        | 6.0    | 6.51                          | 3.00   | 92.70                  | 43.00  | 21.63              | 36.13                    | 4.00              |
| <b>50</b>                    | 6.13    | <b>RR506</b>        | 55.3                        | 11.8   | 11.06                         | 3.40   | 67.77                  | 21.00  | 13.06              | 19.19                    | 5.00              |
|                              | 13.13   | <b>RR5013</b>       | 55.3                        | 11.8   | 11.06                         | 3.40   | 145.17                 | 44.00  | 20.06              | 33.19                    | 5.00              |
|                              | 20.13   | <b>RR5020</b>       | 55.3                        | 11.8   | 11.06                         | 3.40   | 222.56                 | 68.00  | 28.88              | 49.00                    | 5.00              |
| <b>75</b>                    | 6.13    | <b>RR756</b>        | 79.6                        | 17.6   | 15.92                         | 4.90   | 97.58                  | 29.00  | 13.69              | 19.81                    | 5.75              |
|                              | 13.13   | <b>RR7513</b>       | 79.6                        | 17.6   | 15.92                         | 4.90   | 209.00                 | 64.00  | 20.69              | 33.81                    | 5.75              |
| <b>100</b>                   | 6.63    | <b>RR1006</b>       | 103.2                       | 48.0   | 20.65                         | 9.60   | 136.93                 | 63.00  | 14.06              | 20.69                    | 7.00              |
|                              | 13.13   | <b>RR10013</b>      | 103.2                       | 48.0   | 20.65                         | 9.60   | 271.17                 | 126.00 | 20.63              | 33.75                    | 7.00              |
|                              | 18.13   | <b>RR10018</b>      | 103.2                       | 48.0   | 20.65                         | 9.60   | 374.44                 | 174.00 | 27.06              | 45.19                    | 7.00              |
| <b>150</b>                   | 2.25    | <b>RR1502</b>       | 153.5                       | 74.0   | 30.71                         | 14.80  | 69.11                  | 33.00  | 7.19               | 9.44                     | 8.00              |
|                              | 6.13    | <b>RR1506</b>       | 153.5                       | 74.0   | 30.71                         | 14.80  | 188.28                 | 91.00  | 15.19              | 21.31                    | 8.00              |
|                              | 13.13   | <b>RR15013</b>      | 153.5                       | 74.0   | 30.71                         | 14.80  | 403.27                 | 194.00 | 22.20              | 35.31                    | 8.00              |
|                              | 32.13   | <b>RR15032</b>      | 153.5                       | 74.0   | 30.71                         | 14.80  | 986.84                 | 475.00 | 43.94              | 76.06                    | 8.00              |
| <b>200</b>                   | 6.00    | <b>RR2006</b>       | 221.0                       | 112.5  | 44.21                         | 22.50  | 265.28                 | 135.00 | 16.94              | 22.94                    | 9.75              |
|                              | 13.00   | <b>RR20013</b>      | 221.0                       | 112.5  | 44.21                         | 22.50  | 574.78                 | 293.00 | 23.94              | 36.94                    | 9.75              |
|                              | 18.00   | <b>RR20018</b>      | 221.0                       | 112.5  | 44.21                         | 22.50  | 795.85                 | 396.00 | 30.13              | 48.13                    | 9.75              |
|                              | 24.00   | <b>RR20024</b>      | 221.0                       | 112.5  | 44.21                         | 22.50  | 1,061                  | 528.00 | 36.13              | 60.13                    | 9.75              |
|                              | 36.00   | <b>RR20036</b>      | 221.0                       | 112.5  | 44.21                         | 22.50  | 1,592                  | 792.00 | 48.13              | 84.13                    | 9.75              |
|                              | 48.00   | <b>RR20048</b>      | 221.0                       | 112.5  | 44.21                         | 22.50  | 2,122                  | 1,056  | 60.13              | 108.13                   | 9.75              |
| <b>300</b>                   | 6.00    | <b>RR3006</b>       | 354.6                       | 190.0  | 70.93                         | 38.00  | 425.56                 | 228.00 | 19.13              | 25.13                    | 12.25             |
|                              | 12.00   | <b>RR30012</b>      | 354.6                       | 190.0  | 70.93                         | 38.00  | 851.12                 | 456.00 | 25.13              | 37.13                    | 12.25             |
|                              | 18.00   | <b>RR30018</b>      | 354.6                       | 190.0  | 70.93                         | 38.00  | 1,277                  | 684.00 | 31.13              | 49.13                    | 12.25             |
|                              | 24.00   | <b>RR30024</b>      | 354.6                       | 190.0  | 70.93                         | 38.00  | 1,702                  | 912.00 | 37.13              | 61.13                    | 12.25             |
|                              | 36.00   | <b>RR30036</b>      | 354.6                       | 190.0  | 70.93                         | 38.00  | 2,553                  | 1368   | 49.13              | 85.13                    | 12.25             |
|                              | 48.00   | <b>RR30048</b>      | 354.6                       | 190.0  | 70.93                         | 38.00  | 3,405                  | 1824   | 61.13              | 109.13                   | 12.25             |
| <b>400</b>                   | 6.00    | <b>RR4006</b>       | 475.4                       | 255.0  | 95.09                         | 51.00  | 570.51                 | 306.00 | 21.19              | 27.19                    | 14.13             |
|                              | 12.00   | <b>RR40012</b>      | 475.4                       | 255.0  | 95.09                         | 51.00  | 1,141                  | 612.00 | 27.19              | 39.19                    | 14.13             |
|                              | 18.00   | <b>RR40018</b>      | 475.4                       | 255.0  | 95.09                         | 51.00  | 1,712                  | 918.00 | 33.19              | 51.19                    | 14.13             |
|                              | 24.00   | <b>RR40024</b>      | 475.4                       | 255.0  | 95.09                         | 51.00  | 2,282                  | 1224   | 39.19              | 63.19                    | 14.13             |
|                              | 36.00   | <b>RR40036</b>      | 475.4                       | 255.0  | 95.09                         | 51.00  | 3,423                  | 1836   | 51.19              | 87.19                    | 14.13             |
|                              | 48.00   | <b>RR40048</b>      | 475.4                       | 255.0  | 95.09                         | 51.00  | 4,564                  | 2448   | 63.19              | 111.19                   | 14.13             |
| <b>500</b>                   | 6.00    | <b>RR5006</b>       | 565.7                       | 315.0  | 113.15                        | 63.00  | 678.92                 | 378.00 | 22.75              | 28.75                    | 15.63             |
|                              | 12.00   | <b>RR50012</b>      | 565.7                       | 315.0  | 113.15                        | 63.00  | 1,358                  | 756.00 | 28.75              | 40.75                    | 15.63             |
|                              | 18.00   | <b>RR50018</b>      | 565.7                       | 315.0  | 113.15                        | 63.00  | 2,037                  | 1134   | 34.75              | 52.75                    | 15.63             |
|                              | 24.00   | <b>RR50024</b>      | 565.7                       | 315.0  | 113.15                        | 63.00  | 2,716                  | 1512   | 40.75              | 64.75                    | 15.63             |
|                              | 36.00   | <b>RR50036</b>      | 565.7                       | 315.0  | 113.15                        | 63.00  | 4,074                  | 2268   | 52.75              | 88.75                    | 15.63             |
|                              | 48.00   | <b>RR50048</b>      | 565.7                       | 315.0  | 113.15                        | 63.00  | 5,431                  | 3024   | 64.75              | 112.75                   | 15.63             |

\* N: Para los modelos RR1010 y RR1012: N = 1.26 pulg.; para RR308 y RR3014: N = 2.20 pulg.

# Cilindros de doble efecto con carrera larga



## ¡Racores incluidos!

Se han incluido racores CR400 en todos los modelos. Apropriados para cualquier manguera de la serie HC.

Capacidad:

**10 - 500 toneladas**

Carrera:

**2.25 - 48.00 pulgadas**

Presión máxima de trabajo:

**10,000 psi**

**Serie  
RR**



| Diám. interior<br>E<br>(pulg) | Diám. del vástago<br>F<br>(pulg) | Base a con. de avance<br>H<br>(pulg) | Parte sup. a conex. retracc.<br>I<br>(pulg) | Diám. de la silleta<br>J<br>(pulg) | Saliente de la silleta<br>K<br>(pulg) | Rosca interna del vástago<br>O<br>(pulg) | Long. de rosca del vástago<br>P<br>(pulg) | Rosca de montaje en la base |                      |                                  | Rosca del collarín<br>W<br>(pulg) | Long. rosca collarín<br>X<br>(pulg) | (libras) | Número de modelo |
|-------------------------------|----------------------------------|--------------------------------------|---------------------------------------------|------------------------------------|---------------------------------------|------------------------------------------|-------------------------------------------|-----------------------------|----------------------|----------------------------------|-----------------------------------|-------------------------------------|----------|------------------|
|                               |                                  |                                      |                                             |                                    |                                       |                                          |                                           | Diám círculo<br>U<br>(pulg) | Rosca<br>V<br>(pulg) | Prof. de la rosca<br>Z<br>(pulg) |                                   |                                     |          |                  |
| 1.69                          | 1.38                             | 1.44                                 | 2.25                                        | 1.38                               | 0.24                                  | 1" - 8                                   | 1.00                                      | -                           | -                    | -                                | 2 1/4" - 14                       | 1.06                                | 28       | RR1010*          |
| 1.69                          | 1.38                             | 1.44                                 | 2.25                                        | 1.38                               | 0.24                                  | 1" - 8                                   | 1.00                                      | -                           | -                    | -                                | 2 1/4" - 14                       | 1.06                                | 31       | RR1012*          |
| 2.88                          | 2.13                             | 1.44                                 | 3.19                                        | 2.00                               | 0.41                                  | 1 1/2" - 16                              | 1.00                                      | -                           | -                    | -                                | 3 5/16" - 12                      | 1.94                                | 40       | RR308*           |
| 2.88                          | 2.13                             | 1.56                                 | 3.19                                        | 2.00                               | 0.41                                  | 1 1/2" - 16                              | 1.00                                      | -                           | -                    | -                                | 3 5/16" - 12                      | 1.94                                | 64       | RR3014*          |
| 3.75                          | 3.13                             | 1.13                                 | 3.00                                        | 2.81                               | 0.11                                  | 1" - 12                                  | 1.00                                      | -                           | -                    | -                                | 5" - 12                           | 2.00                                | 67       | RR506            |
| 3.75                          | 3.13                             | 1.13                                 | 3.00                                        | 2.81                               | 0.11                                  | 1" - 12                                  | 1.00                                      | -                           | -                    | -                                | 5" - 12                           | 2.00                                | 115      | RR5013           |
| 3.75                          | 3.13                             | 2.25                                 | 3.00                                        | 2.81                               | 0.11                                  | 1" - 12                                  | 1.00                                      | 3.00                        | 1/2" - 13            | -                                | 5" - 12                           | 2.00                                | 150      | RR5020           |
| 4.50                          | 3.75                             | 1.19                                 | 3.00                                        | 2.81                               | 0.25                                  | 1" - 12                                  | 1.10                                      | -                           | -                    | -                                | 5 3/4" - 12                       | 1.97                                | 92       | RR756            |
| 4.50                          | 3.75                             | 1.19                                 | 3.19                                        | 2.81                               | 0.25                                  | 1" - 12                                  | 1.10                                      | -                           | -                    | -                                | 5 3/4" - 12                       | 1.97                                | 150      | RR7513           |
| 5.13                          | 3.75                             | 1.50                                 | 2.81                                        | 3.00                               | 0.13                                  | 1 3/4" - 12                              | 1.38                                      | 5.50                        | 3/4" - 10            | 1.00                             | 6 7/8" - 12                       | 2.00                                | 135      | RR1006           |
| 5.13                          | 3.75                             | 1.50                                 | 2.81                                        | 3.00                               | 0.13                                  | 1 3/4" - 12                              | 1.38                                      | 5.50                        | 3/4" - 10            | 1.00                             | 6 7/8" - 12                       | 2.00                                | 205      | RR10013          |
| 5.13                          | 3.75                             | 1.63                                 | 3.63                                        | 3.00                               | 0.13                                  | 1 3/4" - 12                              | 1.38                                      | 5.50                        | 3/4" - 10            | 1.00                             | 6 7/8" - 12                       | 2.00                                | 260      | RR10018          |
| 6.25                          | 4.50                             | 0.88                                 | 2.63                                        | 3.67                               | 0.06                                  | -                                        | -                                         | -                           | -                    | -                                | -                                 | -                                   | 110      | RR1502           |
| 6.25                          | 4.50                             | 1.94                                 | 3.31                                        | 4.49                               | 0.75                                  | 3 3/8" - 16                              | 1.38                                      | 6.25                        | 3/4" - 16            | 1.00                             | 8" - 12                           | 2.36                                | 205      | RR1506           |
| 6.25                          | 4.50                             | 1.94                                 | 3.31                                        | 4.49                               | 0.75                                  | 3 3/8" - 16                              | 1.38                                      | 6.25                        | 3/4" - 16            | 1.00                             | 8" - 12                           | 2.36                                | 275      | RR15013          |
| 6.25                          | 4.50                             | 3.31                                 | 3.31                                        | 4.49                               | 0.75                                  | 3 3/8" - 16                              | 1.38                                      | -                           | -                    | -                                | 8" - 12                           | 2.36                                | 525      | RR15032          |
| 7.50                          | 5.25                             | 2.25                                 | 3.81                                        | 5.25                               | 0.88                                  | -                                        | -                                         | 5.00                        | 1" - 8               | 1.00                             | -                                 | -                                   | 325      | RR2006           |
| 7.50                          | 5.25                             | 2.25                                 | 3.81                                        | 5.25                               | 0.88                                  | 2 1/2" - 12                              | 2.50                                      | 5.00                        | 1" - 8               | 1.00                             | 9 3/4" - 12                       | 2.13                                | 440      | RR20013          |
| 7.50                          | 5.25                             | 3.38                                 | 4.00                                        | 5.25                               | 0.88                                  | 2 1/2" - 12                              | 2.50                                      | 5.00                        | 1" - 8               | 1.00                             | 9 3/4" - 12                       | 2.13                                | 450      | RR20018          |
| 7.50                          | 5.25                             | 3.38                                 | 4.00                                        | 5.25                               | 0.88                                  | 2 1/2" - 12                              | 2.50                                      | 5.00                        | 1" - 8               | 1.00                             | 9 3/4" - 12                       | 2.13                                | 616      | RR20024          |
| 7.50                          | 5.25                             | 3.38                                 | 4.00                                        | 5.25                               | 0.88                                  | 2 1/2" - 12                              | 2.50                                      | 5.00                        | 1" - 8               | 1.00                             | 9 3/4" - 12                       | 2.13                                | 845      | RR20036          |
| 7.50                          | 5.25                             | 3.38                                 | 4.00                                        | 5.25                               | 0.88                                  | 2 1/2" - 12                              | 2.50                                      | 5.00                        | 1" - 8               | 1.00                             | 9 3/4" - 12                       | 2.13                                | 1065     | RR20048          |
| 9.50                          | 6.50                             | 3.50                                 | 4.50                                        | 6.50                               | 1.13                                  | 2 1/2" - 12                              | 3.25                                      | 6.25                        | 1 1/4" - 7           | 1.75                             | 12 1/4" - 12                      | 2.31                                | 441      | RR3006           |
| 9.50                          | 6.50                             | 3.50                                 | 4.50                                        | 6.50                               | 1.13                                  | 2 1/2" - 12                              | 3.25                                      | 6.25                        | 1 1/4" - 7           | 1.75                             | 12 1/4" - 12                      | 2.31                                | 608      | RR30012          |
| 9.50                          | 6.50                             | 3.50                                 | 4.50                                        | 6.50                               | 1.13                                  | 2 1/2" - 12                              | 3.25                                      | 6.25                        | 1 1/4" - 7           | 1.75                             | 12 1/4" - 12                      | 2.31                                | 776      | RR30018          |
| 9.50                          | 6.50                             | 3.50                                 | 4.50                                        | 6.50                               | 1.13                                  | 2 1/2" - 12                              | 3.25                                      | 6.25                        | 1 1/4" - 7           | 1.75                             | 12 1/4" - 12                      | 2.31                                | 1034     | RR30024          |
| 9.50                          | 6.50                             | 3.50                                 | 4.50                                        | 6.50                               | 1.13                                  | 2 1/2" - 12                              | 3.25                                      | 6.25                        | 1 1/4" - 7           | 1.75                             | 12 1/4" - 12                      | 2.31                                | 1385     | RR30036          |
| 9.50                          | 6.50                             | 3.50                                 | 4.50                                        | 6.50                               | 1.13                                  | 2 1/2" - 12                              | 3.25                                      | 6.25                        | 1 1/4" - 7           | 1.75                             | 12 1/4" - 12                      | 2.31                                | 1720     | RR30048          |
| 11.00                         | 7.50                             | 4.25                                 | 5.25                                        | 7.50                               | 1.13                                  | 3" - 12                                  | 3.75                                      | 8.00                        | 1 1/2" - 6           | 2.00                             | 14 1/8" - 8                       | 2.56                                | 670      | RR4006           |
| 11.00                         | 7.50                             | 4.25                                 | 5.25                                        | 7.50                               | 1.13                                  | 3" - 12                                  | 3.75                                      | 8.00                        | 1 1/2" - 6           | 2.00                             | 14 1/8" - 8                       | 2.56                                | 880      | RR40012          |
| 11.00                         | 7.50                             | 4.25                                 | 5.25                                        | 7.50                               | 1.13                                  | 3" - 12                                  | 3.75                                      | 8.00                        | 1 1/2" - 6           | 2.00                             | 14 1/8" - 8                       | 2.56                                | 1000     | RR40018          |
| 11.00                         | 7.50                             | 4.25                                 | 5.25                                        | 7.50                               | 1.13                                  | 3" - 12                                  | 3.75                                      | 8.00                        | 1 1/2" - 6           | 2.00                             | 14 1/8" - 8                       | 2.56                                | 1317     | RR40024          |
| 11.00                         | 7.50                             | 4.25                                 | 5.25                                        | 7.50                               | 1.13                                  | 3" - 12                                  | 3.75                                      | 8.00                        | 1 1/2" - 6           | 2.00                             | 14 1/8" - 8                       | 2.56                                | 1746     | RR40036          |
| 11.00                         | 7.50                             | 4.25                                 | 5.25                                        | 7.50                               | 1.13                                  | 3" - 12                                  | 3.75                                      | 8.00                        | 1 1/2" - 6           | 2.00                             | 14 1/8" - 8                       | 2.56                                | 2162     | RR40048          |
| 12.00                         | 8.00                             | 4.75                                 | 6.00                                        | 8.00                               | 1.13                                  | 3 1/4" - 12                              | 4.25                                      | 8.00                        | 1 3/4" - 5           | 2.12                             | 15 5/8" - 8                       | 3.13                                | 953      | RR5006           |
| 12.00                         | 8.00                             | 4.75                                 | 6.00                                        | 8.00                               | 1.13                                  | 3 1/4" - 12                              | 4.25                                      | 8.00                        | 1 3/4" - 5           | 2.12                             | 15 5/8" - 8                       | 3.13                                | 1300     | RR50012          |
| 12.00                         | 8.00                             | 4.75                                 | 6.00                                        | 8.00                               | 1.13                                  | 3 1/4" - 12                              | 4.25                                      | 8.00                        | 1 3/4" - 5           | 2.12                             | 15 5/8" - 8                       | 3.13                                | 1500     | RR50018          |
| 12.00                         | 8.00                             | 4.75                                 | 6.00                                        | 8.00                               | 1.13                                  | 3 1/4" - 12                              | 4.25                                      | 8.00                        | 1 3/4" - 5           | 2.12                             | 15 5/8" - 8                       | 3.13                                | 1800     | RR50024          |
| 12.00                         | 8.00                             | 4.75                                 | 6.00                                        | 8.00                               | 1.13                                  | 3 1/4" - 12                              | 4.25                                      | 8.00                        | 1 3/4" - 5           | 2.12                             | 15 5/8" - 8                       | 3.13                                | 2210     | RR50036          |
| 12.00                         | 8.00                             | 4.75                                 | 6.00                                        | 8.00                               | 1.13                                  | 3 1/4" - 12                              | 4.25                                      | 8.00                        | 1 3/4" - 5           | 2.12                             | 15 5/8" - 8                       | 3.13                                | 2700     | RR50048          |