



# MOTORS

**Technical Information**

*Flow Dividers*



*together in motion*

White is a leading global provider of motor and steering solutions that power the evolution of mobile and industrial applications around the world.



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# Chapter 1

## General Information

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### Topics:

- *Overview*
- *Series descriptions*
- *Features / Benefits*
- *Typical Applications*
- *Pressure Drop*
- *2-way Flow Divider*
- *3-way Flow Divider*
- *4-way Flow Divider*

## Overview

The flow dividers represent an ingenious use of the patented Roller Stator® gerotor assembly. These highly effective devices use a common housing to supply the input flow to two gerotor assemblies linked by a common drive link. By linking the two gerotor assemblies together, accurate splitting of the flow is assured. These flow dividers use no bearings or rotating seals, eliminating the typical failures in other designs. By using the highly efficient Roller Stator® gerotor elements, high efficiencies are maintained, even at low flows. Because these flow dividers work at much lower RPMs than most gear dividers, they are noticeably quieter. These flow dividers are an excellent way to synchronize cylinders or motors. Because they tolerate higher output pressure differentials than other designs, they may also be used for pressure intensification by connecting one output to tank. The maximum pressure for the flow divider is 207 bar [3000 psi]. The maximum pressure differential between the output ports is 172 bar [2500 psi].

## Series descriptions

### 950- Hydraulic Flow Divider

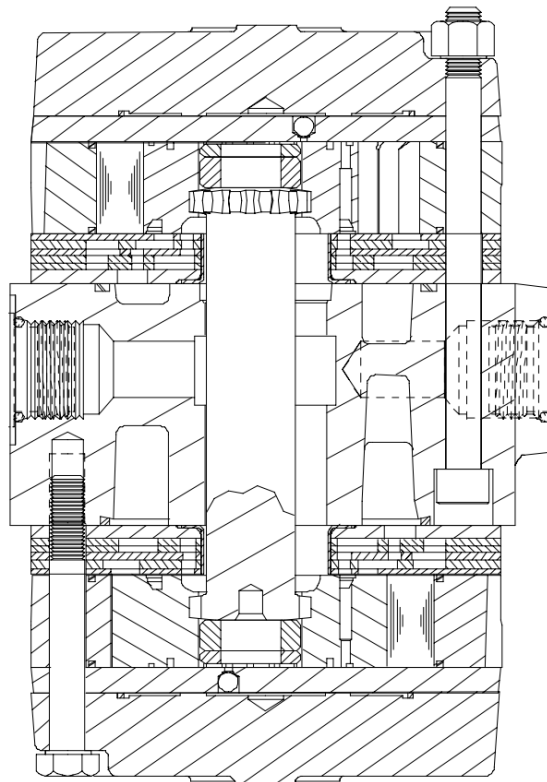


Figure 1 Hydraulic flow divider

## Features / Benefits

- Most accurate flow divider on the market.
- Patented Roller Stator® design reduces internal leakage and friction.
- High Efficiency with accurate output flows.
- Quiet operation.

## Typical Applications

Cylinder synchronization, parallel motor circuits, pressure intensification, and more

## Pressure Drop

Flow dividers are not available with internal relief protection. In-line relief protection for the output lines should be provided due to the possibility of encountering pressure intensification if pressure in one outlet line drops dramatically.

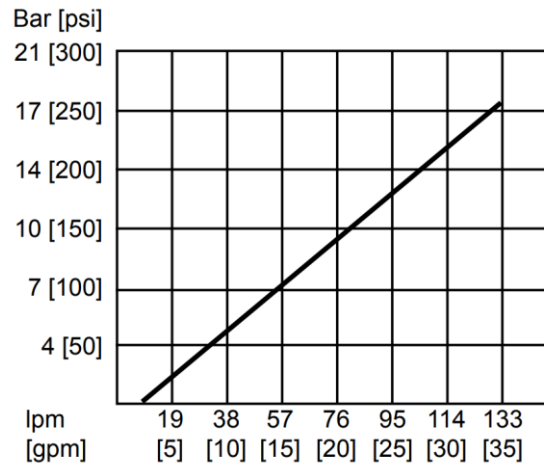


Figure 2 Pressure drop

## 2-way Flow Divider

### Order codes

950320M8699AAAAA

950600M8699AAAAA

950750M8699AAAAA

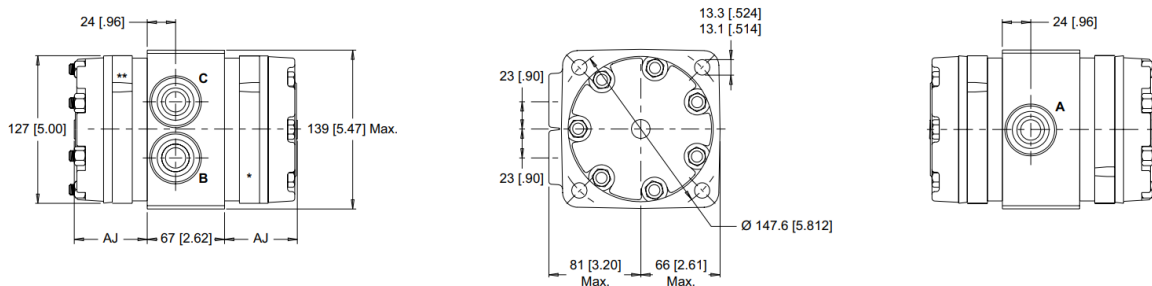


Figure 3 Flow Dividers dimensions

Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

\* This displacement affects Output Port B. \*\* This displacement affects Output Port C. For the 950320M8699AAAAA - dimension AJ equals 59 [2.32], the flow rate range is 8-38 lpm [2-10 gpm] and has a weight of 15.4 kg [34 lb]. For the 950600M8699AAAAA - dimension AJ equals 71 [2.78], the flow rate range is 38-114 lpm [10-30 gpm] and has a weight of 17.0 kg [37 lb]. For the 950750M8699AAAAA - dimension AJ equals 77 [3.03], the flow rate range is 114-151 lpm [30-40 gpm] and has a weight of 18.0 kg [40 lb]. 950 Series weights vary  $\pm 0.9$  kg [2 lb] based on model configuration. By changing the first A in the model code to a Z, the unit will be unpainted instead of the standard black paint. Ports A, B & C are 1 1/16-12 UN.

## 2-way flow divider performance

Inlet Port A lpm [gpm]	Outlet Port B lpm [gpm]	Outlet Port C lpm [gpm]	Outlet Port D lpm [gpm]	Outlet Port E lpm [gpm]	Inlet Port A bar [psi]	Outlet Port B bar [psi]	Outlet Port C bar [psi]	Outlet Port D bar [psi]	Outlet Port E bar [psi]
30 [8]	17.0 [4.49]	13.5 [3.56]	N/A	N/A	76 [1099]	2 [24]	138 [2003]	N/A	N/A
38 [10]	20.8 [5.49]	17.3 [4.58]	N/A	N/A	77 [1109]	2 [32]	139 [2013]	N/A	N/A
57 [15]	29.9 [7.89]	27.1 [7.15]	N/A	N/A	79 [1145]	4 [58]	138 [2007]	N/A	N/A
76 [20]	39.6 [10.46]	36.1 [9.54]	N/A	N/A	82 [1194]	6 [87]	139 [2009]	N/A	N/A
95 [25]	49.0 [12.94]	45.4 [11.99]	N/A	N/A	87 [1263]	9 [123]	139 [2008]	N/A	N/A
114 [30]	58.3 [15.41]	54.4 [14.38]	N/A	N/A	93 [1341]	11 [163]	138 [2007]	N/A	N/A
30 [8]	17.7 [4.68]	12.6 [3.32]	N/A	N/A	120 [1744]	21 [297]	206 [2991]	N/A	N/A
38 [10]	21.7 [5.73]	16.3 [4.31]	N/A	N/A	121 [1756]	21 [300]	207 [3006]	N/A	N/A
57 [15]	31.3 [8.27]	25.5 [6.74]	N/A	N/A	123 [1783]	21 [306]	207 [2996]	N/A	N/A
76 [20]	40.6 [10.72]	34.8 [9.20]	N/A	N/A	126 [1820]	21 [308]	206 [2993]	N/A	N/A
95 [25]	49.9 [13.18]	44.0 [11.64]	N/A	N/A	129 [1875]	21 [305]	207 [3001]	N/A	N/A
114 [30]	59.2 [15.63]	53.2 [14.05]	N/A	N/A	134 [1938]	21 [300]	208 [3011]	N/A	N/A
30 [8]	17.1 [4.52]	13.2 [3.50]	N/A	N/A	107 [1545]	69 [1003]	138 [2005]	N/A	N/A
38 [10]	20.7 [5.48]	17.2 [4.54]	N/A	N/A	107 [1553]	69 [1001]	138 [2001]	N/A	N/A
57 [15]	30.1 [7.94]	26.6 [7.02]	N/A	N/A	109 [1584]	69 [1007]	137 [1994]	N/A	N/A
76 [20]	39.4 [10.42]	35.9 [9.48]	N/A	N/A	112 [1623]	69 [1001]	138 [2001]	N/A	N/A
95 [25]	48.6 [12.85]	45.2 [11.95]	N/A	N/A	116 [1679]	69 [1003]	138 [2005]	N/A	N/A
114 [30]	58.0 [15.33]	54.3 [14.36]	N/A	N/A	120 [1742]	69 [1003]	138 [2007]	N/A	N/A
30 [8]	15.2 [4.03]	15.0 [3.97]	N/A	N/A	140 [2030]	139 [2008]	138 [2003]	N/A	N/A
38 [10]	19.1 [5.03]	18.8 [4.97]	N/A	N/A	140 [2035]	138 [1999]	138 [1996]	N/A	N/A
57 [15]	28.5 [7.52]	28.1 [7.41]	N/A	N/A	143 [2075]	138 [2003]	138 [2007]	N/A	N/A
76 [20]	37.8 [9.99]	37.5 [9.90]	N/A	N/A	146 [2112]	138 [2005]	138 [1995]	N/A	N/A
95 [25]	47.1 [12.45]	46.5 [12.29]	N/A	N/A	150 [2171]	138 [2007]	138 [2003]	N/A	N/A
114 [30]	56.5 [14.91]	55.7 [14.72]	N/A	N/A	154 [2232]	138 [2006]	138 [2000]	N/A	N/A

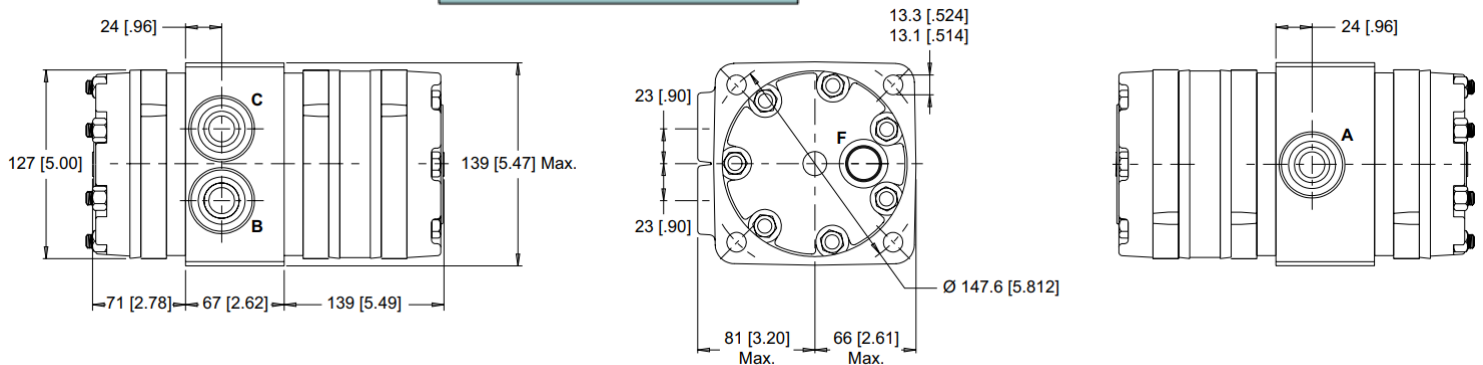
Table 1 2-way Flow Divider performance

Performance data is typical. Performance of production units varies slightly from one motor to another. The above data reflects the equal split ratio model 950600M8699AAAAA. Unequal split ratios are also available on the 2-way flow divider. For more information please contact your company representative. Performance data was averaged using 3 test units.

## 3-way Flow Divider

### Order codes

**950900M8699AAAAA**



Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

The flow rate range is 15-141 lpm [4-40 gpm] and has a weight of 24.1 kg [53 lb]. 950 Series weights vary  $\pm 0.9$  kg [2 lb] based on model configuration. By changing the first A in the model code to a Z, the unit will be unpainted instead of the standard black paint. Ports A, B & C are 1 1/16-12 UN. Port F is 7/18-14 UNF.

### 3-way flow divider performance

Inlet Port A lpm [gpm]	Outlet Port B lpm [gpm]	Outlet Port C lpm [gpm]	Outlet Port F lpm [gpm]	Outlet Port lpm [gpm]	Inlet Port A bar [psi]	Outlet Port B bar [psi]	Outlet Port C bar [psi]	Outlet Port F bar [psi]	Outlet Port bar [psi]
15 [4]	4.0 [1.06]	5.0 [1.32]	4.3 [1.14]	N/A	100 [1452]	0 [5]	139 [2016]	138 [2002]	N/A
38 [10]	14.1 [3.71]	12.9 [3.41]	11.2 [2.97]	N/A	102 [1481]	1 [20]	140 [2033]	138 [2007]	N/A
57 [15]	20.6 [5.44]	19.2 [5.08]	17.2 [4.45]	N/A	103 [1491]	2 [32]	138 [2006]	139 [2017]	N/A
76 [20]	27.0 [7.13]	25.5 [6.72]	23.5 [6.20]	N/A	105 [1522]	3 [48]	139 [2009]	138 [2000]	N/A
95 [25]	33.4 [8.83]	31.8 [8.39]	29.6 [7.81]	N/A	108 [1562]	5 [67]	138 [2004]	140 [2029]	N/A
114 [30]	39.7 [10.49]	37.9 [10.02]	35.7 [9.43]	N/A	110 [1597]	6 [89]	139 [2015]	137 [1992]	N/A
133 [35]	46.0 [12.16]	44.1 [11.66]	41.7 [11.01]	N/A	114 [1650]	8 [113]	138 [2003]	139 [2014]	N/A
151 [40]	52.2 [13.79]	50.2 [13.27]	47.7 [12.61]	N/A	118 [1707]	9 [136]	138 [1999]	138 [2007]	N/A
15 [4]	6.9 [1.83]	5.2 [1.37]	3.1 [0.82]	N/A	155 [2249]	21 [303]	205 [2980]	208 [3018]	N/A
38 [10]	15.0 [3.96]	12.6 [3.32]	10.6 [2.80]	N/A	155 [2251]	21 [301]	207 [2996]	207 [3003]	N/A
57 [15]	21.5 [5.69]	18.9 [4.99]	16.6 [4.39]	N/A	156 [2267]	21 [303]	207 [2997]	206 [2989]	N/A
76 [20]	28.1 [7.42]	25.1 [6.64]	22.7 [6.00]	N/A	158 [2299]	21 [303]	206 [2995]	207 [2997]	N/A
95 [25]	34.6 [9.14]	31.4 [8.29]	28.8 [7.60]	N/A	161 [2332]	21 [300]	207 [2997]	206 [2991]	N/A
114 [30]	41.0 [10.84]	37.5 [9.91]	34.7 [9.18]	N/A	164 [2379]	21 [301]	207 [3008]	207 [2999]	N/A
133 [35]	47.4 [12.52]	43.6 [11.53]	40.6 [10.73]	N/A	167 [2418]	21 [299]	205 [2975]	205 [2978]	N/A
151 [40]	53.6 [14.16]	49.5 [13.08]	46.9 [12.40]	N/A	176 [2550]	20 [295]	207 [2998]	206 [2992]	N/A
15 [4]	5.8 [1.52]	5.2 [1.38]	4.2 [1.11]	N/A	119 [1722]	69 [1000]	138 [2004]	139 [2016]	N/A
38 [10]	13.4 [3.54]	12.8 [3.37]	11.9 [3.15]	N/A	119 [1728]	69 [994]	138 [2002]	138 [1995]	N/A
57 [15]	19.7 [5.21]	19.0 [5.03]	18.1 [4.78]	N/A	121 [1753]	69 [1004]	138 [2007]	138 [1994]	N/A
76 [20]	26.2 [6.91]	25.4 [6.70]	24.3 [6.41]	N/A	123 [1780]	69 [1004]	137 [1990]	138 [1999]	N/A
95 [25]	32.5 [8.59]	31.6 [8.36]	30.4 [8.03]	N/A	125 [1816]	69 [1002]	138 [2003]	138 [1998]	N/A
114 [30]	38.8 [10.26]	37.8 [9.99]	36.5 [9.63]	N/A	128 [1853]	69 [1003]	138 [1999]	138 [1998]	N/A
133 [35]	45.1 [11.90]	44.0 [11.62]	42.5 [11.22]	N/A	131 [1896]	69 [1003]	138 [1996]	138 [2002]	N/A
151 [40]	51.3 [13.55]	50.1 [13.24]	48.6 [12.83]	N/A	134 [1943]	69 [1005]	138 [1997]	138 [1998]	N/A
15 [4]	5.0 [1.33]	5.0 [1.32]	5.1 [1.36]	N/A	140 [2026]	139 [2010]	138 [2001]	138 [1995]	N/A
38 [10]	12.7 [3.35]	12.6 [3.32]	12.8 [3.37]	N/A	141 [2051]	139 [2011]	138 [2006]	138 [2008]	N/A
57 [15]	19.0 [5.02]	18.8 [4.98]	19.0 [5.02]	N/A	142 [2063]	138 [1997]	138 [2001]	138 [1994]	N/A
76 [20]	25.4 [6.70]	25.2 [6.65]	25.3 [6.67]	N/A	144 [2095]	138 [2000]	138 [2000]	138 [2002]	N/A
95 [25]	31.6 [8.36]	31.4 [8.31]	31.4 [8.31]	N/A	147 [2128]	138 [2004]	138 [1996]	138 [1996]	N/A
114 [30]	37.9 [10.02]	37.7 [9.96]	37.6 [9.93]	N/A	149 [2167]	138 [2001]	138 [2003]	138 [2001]	N/A
133 [35]	44.1 [11.64]	43.8 [11.57]	43.6 [11.52]	N/A	152 [2207]	138 [1999]	138 [1999]	138 [1994]	N/A
151 [40]	50.2 [13.26]	50.0 [13.21]	49.6 [13.11]	N/A	155 [2252]	138 [1995]	137 [1994]	138 [1998]	N/A

Table 2 3-way Flow Divider performance

Performance data is typical. Performance of production units varies slightly from one motor to another. Performance data was averaged using 3 test units.

### 4-way Flow Divider

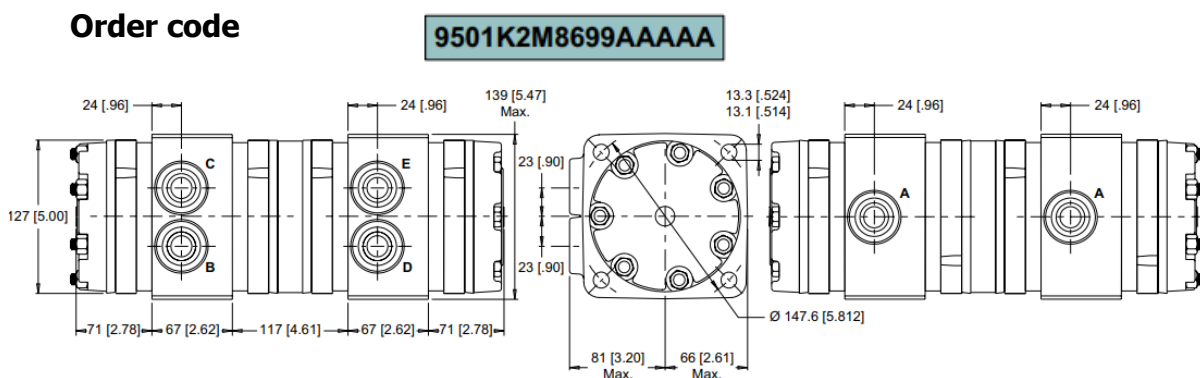


Table 3 4-way Flow Divider dimensions

Dimensions shown are without paint. Paint thickness can be up to 0.13 [.005].

The flow rate range is 19-189 lpm [5-50 gpm] and has a weight of 34.9 kg [77 lb]. 950 Series weights vary  $\pm 0.9$  kg [2 lb] based on model configuration. By changing the first A in the model code to a Z, the unit will be unpainted instead of the standard black paint. Ports A, B, C, D & E are 1 1/16-12 UN



### 4-way flow divider performance

Inlet Port A lpm [gpm]	Outlet Port B lpm [gpm]	Outlet Port C lpm [gpm]	Outlet Port F lpm [gpm]	Outlet Port lpm [gpm]	Inlet Port A bar [psi]	Outlet Port B bar [psi]	Outlet Port C bar [psi]	Outlet Port F bar [psi]	Outlet Port bar [psi]
15 [4]	4.7 [1.25]	3.2 [0.86]	3.7 [0.97]	3.6 [0.95]	113 [1636]	0 [3]	137 [1990]	137 [1989]	138 [2002]
38 [10]	11.2 [2.95]	8.8 [2.33]	9.2 [2.43]	9.0 [2.39]	112 [1622]	1 [7]	138 [1996]	138 [2002]	139 [2014]
57 [15]	15.8 [4.17]	13.5 [3.57]	13.9 [3.67]	13.8 [3.65]	112 [1620]	1 [18]	138 [2005]	138 [1996]	138 [2001]
76 [20]	20.6 [5.45]	18.0 [4.76]	18.6 [4.91]	18.6 [4.91]	114 [1648]	2 [28]	140 [2024]	138 [2002]	137 [1993]
95 [25]	25.4 [6.72]	22.7 [6.01]	23.2 [6.12]	23.3 [6.15]	115 [1671]	3 [39]	137 [1994]	139 [2011]	138 [2009]
114 [30]	30.2 [7.98]	27.3 [7.22]	27.7 [7.33]	27.9 [7.38]	118 [1708]	4 [53]	138 [1997]	138 [2000]	138 [2005]
133 [35]	35.0 [9.25]	31.9 [8.44]	32.2 [8.52]	32.5 [8.58]	120 [1744]	4 [65]	138 [2001]	138 [2000]	138 [2008]
151 [40]	39.8 [10.51]	36.5 [9.66]	36.7 [9.71]	37.1 [9.79]	123 [1784]	6 [81]	138 [1999]	137 [1990]	138 [2001]
15 [4]	5.4 [1.42]	3.1 [0.81]	3.7 [0.98]	3.2 [0.83]	171 [2483]	21 [309]	206 [2993]	207 [2995]	207 [3002]
38 [10]	12.0 [3.16]	8.4 [2.22]	9.3 [2.46]	8.5 [2.24]	170 [2470]	21 [299]	207 [3000]	207 [3002]	207 [2998]
57 [15]	17.2 [4.54]	12.8 [3.39]	13.9 [3.67]	13.1 [3.47]	171 [2481]	21 [304]	207 [3004]	207 [3003]	206 [2994]
76 [20]	22.4 [5.92]	17.1 [4.52]	18.6 [4.90]	17.8 [4.70]	172 [2501]	21 [302]	207 [3002]	207 [3009]	207 [2998]
95 [25]	27.5 [7.25]	21.6 [5.71]	23.1 [6.10]	22.4 [5.92]	174 [2525]	21 [304]	206 [2994]	207 [3001]	207 [3006]
114 [30]	32.5 [8.58]	26.2 [6.93]	27.6 [7.30]	26.9 [7.12]	176 [2557]	21 [302]	207 [3002]	207 [3008]	207 [2999]
133 [35]	37.4 [9.88]	30.6 [8.09]	32.2 [8.51]	31.6 [8.34]	179 [2595]	21 [302]	207 [3007]	207 [2998]	207 [3002]
151 [40]	42.5 [11.22]	35.1 [9.28]	36.6 [9.68]	36.0 [9.51]	182 [2636]	21 [299]	207 [3008]	207 [3002]	208 [3011]
15 [4]	4.7 [1.23]	3.4 [0.91]	3.7 [0.96]	3.5 [0.92]	124 [1797]	69 [997]	138 [2006]	138 [2007]	137 [1990]
38 [10]	10.3 [2.73]	9.1 [2.40]	9.5 [2.51]	9.2 [2.44]	124 [1798]	69 [1005]	137 [1993]	137 [1994]	137 [1992]
57 [15]	15.1 [3.99]	13.8 [3.63]	14.1 [3.72]	14.0 [3.69]	125 [1814]	69 [996]	137 [1989]	138 [2001]	137 [1992]
76 [20]	20.0 [5.29]	18.4 [4.85]	18.7 [4.94]	18.6 [4.92]	127 [1841]	69 [1007]	138 [2006]	138 [1999]	138 [2001]
95 [25]	24.9 [6.58]	23.0 [6.09]	23.3 [6.15]	23.3 [6.16]	129 [1864]	69 [1001]	138 [2002]	138 [2002]	137 [1992]
114 [30]	29.6 [7.83]	27.7 [7.33]	27.8 [7.36]	27.9 [7.37]	131 [1899]	69 [1007]	138 [2000]	138 [2004]	138 [2000]
133 [35]	34.3 [9.08]	32.4 [8.57]	32.4 [8.56]	32.5 [8.59]	133 [1932]	69 [1004]	138 [1996]	138 [2002]	138 [1999]
151 [40]	39.0 [10.32]	37.1 [9.79]	36.9 [9.75]	37.1 [9.81]	136 [1966]	69 [996]	137 [1994]	137 [1993]	138 [1997]
15 [4]	3.8 [1.01]	3.8 [0.99]	3.8 [1.01]	3.8 [1.00]	140 [2025]	139 [2010]	139 [2011]	139 [2009]	138 [2007]
38 [10]	9.6 [2.53]	9.4 [2.49]	9.6 [2.53]	9.5 [2.51]	140 [2033]	138 [1997]	138 [1999]	138 [1999]	138 [2002]
57 [15]	14.3 [3.78]	14.2 [3.74]	14.2 [3.76]	14.2 [3.75]	142 [2054]	138 [2001]	138 [1997]	138 [2002]	138 [2000]
76 [20]	19.1 [5.04]	18.9 [4.99]	18.8 [4.98]	18.9 [5.00]	143 [2076]	138 [1995]	137 [1993]	138 [2002]	138 [1996]
95 [25]	23.8 [6.30]	23.6 [6.24]	23.5 [6.20]	23.6 [6.25]	145 [2108]	138 [2002]	138 [1999]	138 [2004]	138 [1999]
114 [30]	28.6 [7.55]	28.3 [7.48]	28.0 [7.40]	28.3 [7.47]	148 [2140]	138 [2002]	138 [1999]	138 [2002]	138 [2000]
133 [35]	33.3 [8.79]	33.0 [8.71]	32.5 [8.60]	32.9 [8.69]	150 [2175]	138 [2002]	138 [2005]	138 [1998]	138 [2000]
151 [40]	38.0 [10.03]	37.6 [9.94]	37.0 [9.77]	37.4 [9.89]	153 [2218]	138 [1997]	138 [2008]	138 [2002]	138 [2005]

Table 4 4-way Flow Divider performance

Performance data is typical. Performance of production units varies slightly from one motor to another. Performance data was averaged using 3 test units



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