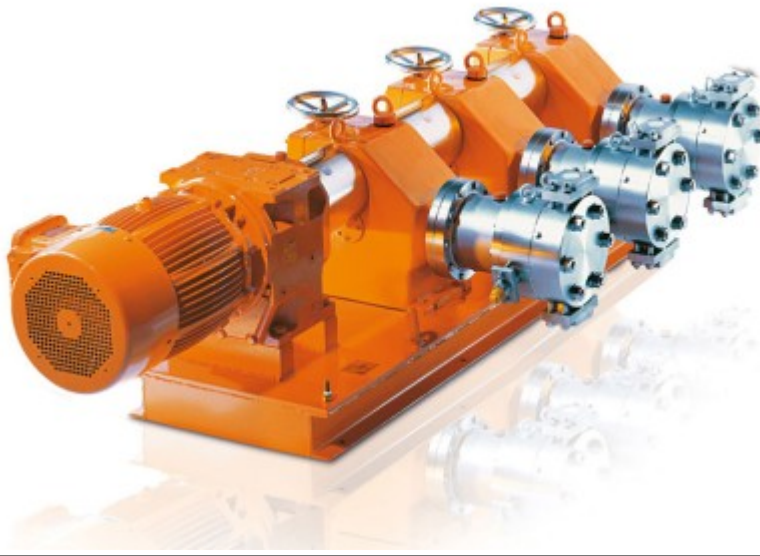


# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure



## Capacity range of single head pump: 0 – 13,000 l/h; 700 – 6 bar

ORLITA® MF hydraulic diaphragm metering pumps (MFS 18 to MFS 1400) with a stroke length of 15 to 60 mm provide a capacity ranging from 0 to 13,000 l/h at 700 – 6 bar. A wide range of drive versions is available, including some for use in Zone 1 or Zone 2 areas at risk from explosion with ATEX

certification. The Orlita® MF product range is designed to comply with API 675. Its modular construction permits the free combination of drives, power ends and dosing heads, producing a pump for a range of different feed rates and media operating at different working pressures.

## Your benefits

Excellent process safety and reliability:

- PTFE double diaphragm with integrated diaphragm rupture warning system ensures precise and low-wear operation despite high pressures
- The product chamber is hermetically separated from the hydraulic part
- Integrated hydraulic relief valve and automatic bleed valve for the hydraulic chamber
- Wear-free, valveless enforced anti-cavitation of the hydraulic leakage guarantees optimum dosing precision

- Cone valves for use as suction and/or discharge valves with minimal wear, good self-cleaning and low pressure loss (NPSHR)

Excellent flexibility:

- The modular construction allows a wide range of uses. In multiple pump systems it is possible to combine up to 6 metering units, even with different pump capacities. In single pumps the drive arrangement may be either vertical or horizontal.

## Field of application

- Oil/ gas production (onshore/offshore)
- Refineries
- Chemical/Petrochemical industry
- Pharmaceuticals & cosmetics
- Food production
- Packaging industry (bottling pumps)

# Hydraulic Diaphragm Metering Pump Orlita® MF

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## Technical Data

### Triplex Metering Pumps

With triplex metering pumps, the pressure stroke of each liquid end occurs through 120° of crank travel. This results in a metering flow free of pulsation without the use of elaborate pulsation dampers. This design of process diaphragm pump is preferred in the chemical and petrochemical industries.

### Multiplexed Metering Pumps

The Orlita® MF range's modular construction permits a variable combination of drives, motors and liquid ends e.g. quadruple MF metering pumps with central drive.

### Actuation of ORLITA® MF, MH, PS, DR

**Control drive** consisting of an actuator with servo motor and integral servo controller for stroke length adjustment via a standard signal. Standard signal current input 0/4 – 20 mA, corresponds to stroke length 0 – 100%, switch for manual/automatic operation; key switch for stroke adjustment in manual mode, mechanical status display of actual stroke length value output 0/4 – 20 mA for remote display. Control drives can also be designed with bus systems, like HART, PROFIBUS, Fieldbus Foundation ...

### Variable speed motors with integrated frequency converter (identity code specification V)

Power supply 1 ph 230 V, 50/60 Hz (up to 3 kW). Externally controllable with 0/4 - 20 mA.

The following functions are integrated in the terminal box cover:

- Start/stop switch
- Switch for manual/external operation
- Potentiometer for speed control in manual mode

### Speed controllers with frequency converter (identity code specification Z)

The frequency converter is accommodated in an IP 55 rated protective housing with integral control unit and main switch, suitable for max. 0.37/0.75 kW motor capacity.

Externally controllable with 0/4 - 20 mA or 0 - 10 V corresponding to 0 - 50 (60) Hz output frequency.

Integrated control unit with versatile functions, such as switching between external/internal control; frequency input using arrow keys with internal control, multilingual fault message display etc. and motor temperature monitoring (thermistor protection).

The speed controller assembly consists of a frequency converter and a variable speed motor.

When ordering a multiplexed pump, the main and/or all externally mounted pumps require a separate Identity code.

For example a triplex pumpe (1.): MF\_aH3.....MF\_aAR.....MF\_aAR.....

### Materials in Contact With the Medium

|           | Liquid end | Suction/discharge valve housing | Valve seals | Valve     | Valve seat | Range |
|-----------|------------|---------------------------------|-------------|-----------|------------|-------|
| S1 (DIN)  | 1.4404     | None                            | 1.4571      | Ceramic   | 1.4404     | DN 3  |
| S1 (ANSI) | A 316 L    | N/A                             | A 316 Ti    | Ceramic   | A 316 L    |       |
| S1 (DIN)  | 1.4404     | 1.4404                          | 1.4571      | 1.4462    | 1.4462     | ≥ DN6 |
| S1 (ANSI) | A 316 L    | A 316 L                         | A 316 Ti    | Duplex SS | Duplex SS  |       |
| S2 (DIN)  | 1.4462     | 1.4462                          | 1.4571      | 1.4462    | 1.4462     | ≥ DN6 |
| S2 (ANSI) | Duplex SS  | Duplex SS                       | A 316 Ti    | Duplex SS | Duplex SS  |       |
| S3 (DIN)  | 1.4539     | 1.4539                          | 2.4610      | 1.4539    | 1.4539     | ≥ DN6 |
| S3 (ANSI) | A904L      | A904L                           | Hastelloy C | A904L     | A904L      |       |

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Motor Data

|                    |       |                 |             |                 |
|--------------------|-------|-----------------|-------------|-----------------|
| A                  | 50 Hz | 3 ph. 230/400 V | 3 ph. 500 V | 3 ph. 380/660 V |
|                    |       | 3 ph. 400/690 V | 3 ph. 415 V |                 |
| B (adjustable 1:5) | 50 Hz | 3 ph. 230/400 V | 3 ph. 500 V | 3 ph. 380/660 V |
|                    |       | 3 ph. 400/690 V | 3 ph. 415 V |                 |
| H                  | 60 Hz | 3 ph. 220/380 V | 3 ph. 400 V |                 |
| K (adjustable 1:5) | 60 Hz | 3 ph. 220/380 V | 3 ph. 400 V |                 |

## Technical data for MFS 18 single head pump 50 Hz

| Plunger<br>Ø | Theor.<br>stroke<br>volume | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity<br>code characteristic 3 to 9]: |        |        |        |         |         |         | Max.<br>pressure | Efficiency<br>at | Efficiency<br>at | Standard<br>type of<br>valve |
|--------------|----------------------------|--|--------|--------|--------|---------|---------|---------|------------------|------------------|------------------|------------------------------|
|              |                            | 45 [3]   | 58 [4] | 73 [5] | 91 [6] | 112 [7] | 145 [8] | 207 [9] |                  |                  |                  |                              |
| mm           | ml/stroke                  | l/h  | l/h    | l/h    | l/h    | l/h     | l/h     | l/h     | bar              | 100%<br>pressure | 50%<br>pressure  |                              |
| 7            | 0.58                       | 1.5  | 2.0    | 2.5    | 3.1    | 3.8     | 5.0     | 7.1     | 400              | 0.50             | 0.70             | DK DN 3                      |
| 8            | 0.75                       | 2.0  | 2.6    | 3.2    | 4.1    | 5.0     | 6.5     | 9.3     | 348              | 0.55             | 0.72             | DK DN 3                      |
| 10           | 1.18                       | 3.2  | 4.1    | 5.1    | 6.4    | 7.8     | 10.2    | 14.6    | 222              | 0.67             | 0.79             | Ke DN 6                      |
| 11           | 1.43                       | 3.8  | 4.9    | 6.2    | 7.7    | 9.5     | 12.4    | 17.7    | 184              | 0.67             | 0.79             | Ke DN 6                      |
| 12           | 1.70                       | 4.6  | 5.9    | 7.3    | 9.2    | 11.3    | 14.7    | 21.0    | 154              | 0.84             | 0.88             | Ke DN 6                      |
| 14           | 2.31                       | 6.2  | 8.0    | 10.0   | 12.5   | 15.4    | 20.0    | 28.7    | 113              | 0.85             | 0.88             | Ke DN 6                      |
| 16           | 3.02                       | 8.2  | 10.5   | 13.1   | 16.4   | 20.1    | 26.2    | 37.4    | 87               | 0.86             | 0.88             | Ke DN 6                      |
| 18           | 3.82                       | 10.3   | 13.2   | 16.6   | 20.7   | 25.5    | 33.2    | 47.4    | 68               | 0.87             | 0.88             | Ke DN 6                      |
| 20           | 4.71                       | 12.8   | 16.4   | 20.5   | 25.6   | 31.5    | 41.0    | 58.5    | 55               | 0.88             | 0.89             | Ke DN 6                      |
| 22           | 5.70                       | 15.5   | 19.8   | 24.8   | 31.0   | 38.1    | 49.6    | 70.8    | 46               | 0.88             | 0.89             | Ke DN 10/6                   |
| 25           | 7.36                       | 20.0   | 25.6   | 32.0   | 40.0   | 49.2    | 64.0    | 91.5    | 35               | 0.89             | 0.89             | Ke DN 10                     |
| 27           | 8.59                       | 23.3   | 29.8   | 37.3   | 46.7   | 57.4    | 74.7    | 106.7   | 30               | 0.89             | 0.89             | Ke DN 10                     |
| 29           | 9.91                       | 26.9   | 34.4   | 43.1   | 53.8   | 66.3    | 86.2    | 123.1   | 26               | 0.89             | 0.89             | Ke DN 10                     |
| 30           | 10.60                      | 28.8   | 36.9   | 46.1   | 57.6   | 70.9    | 92.2    | 131.7   | 24               | 0.89             | 0.89             | Ke DN 10                     |
| 36           | 15.27                      | 41.5   | 53.1   | 66.4   | 83.0   | 102.1   | 132.8   | 189.7   | 17               | 0.89             | 0.89             | Ke DN 16                     |
| 40           | 18.85                      | 51.2   | 65.6   | 82.0   | 102.4  | 126.1   | 163.9   | 234.2   | 13               | 0.89             | 0.89             | Ke DN 16                     |
| 44           | 22.81                      | 62.0   | 79.3   | 99.2   | 124.0  | 152.6   | 198.4   | 283.4   | 11               | 0.89             | 0.90             | Ke DN 16                     |
| 50           | 29.45                      | 80.0   | 102.4  | 128.1  | 160.1  | 197.1   | 256.2   | 366.0   | 8                | 0.89             | 0.90             | Ke DN 16                     |

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 18 single head pump 60 Hz

| Plunger<br>Ø | Theor.<br>stroke<br>volume | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity<br>code characteristic 2 to 8]: |        |        |        |         |         |         | Max.<br>pressure | Efficiency<br>at | Efficiency<br>at | Standard<br>type of<br>valve |
|--------------|----------------------------|--|--------|--------|--------|---------|---------|---------|------------------|------------------|------------------|------------------------------|
|              |                            | 44 [2]   | 55 [3] | 70 [4] | 88 [5] | 110 [6] | 135 [7] | 176 [8] |                  |                  |                  |                              |
| mm           | ml/stroke                  | l/h  | l/h    | l/h    | l/h    | l/h     | l/h     | l/h     | bar              | 100%<br>pressure | 50%<br>pressure  |                              |
| 7            | 0.58                       | 1.5  | 1.9    | 2.4    | 3.0    | 3.8     | 4.6     | 6.1     | 400              | 0.50             | 0.70             | DK DN 3                      |
| 8            | 0.75                       | 1.9  | 2.4    | 3.1    | 3.9    | 4.9     | 6.1     | 7.9     | 348              | 0.55             | 0.72             | DK DN 3                      |
| 10           | 1.18                       | 3.1  | 3.8    | 4.9    | 6.2    | 7.7     | 9.5     | 12.4    | 222              | 0.67             | 0.79             | Ke DN 6                      |
| 11           | 1.43                       | 3.7  | 4.7    | 6.0    | 7.5    | 9.4     | 11.5    | 15.0    | 184              | 0.67             | 0.79             | Ke DN 6                      |
| 12           | 1.70                       | 4.4  | 5.6    | 7.1    | 8.9    | 11.2    | 13.7    | 17.9    | 154              | 0.84             | 0.88             | Ke DN 6                      |
| 14           | 2.31                       | 6.1  | 7.6    | 9.7    | 12.1   | 15.2    | 18.7    | 24.3    | 113              | 0.85             | 0.88             | Ke DN 6                      |
| 16           | 3.02                       | 7.9  | 9.9    | 12.7   | 15.9   | 19.9    | 24.5    | 31.8    | 87               | 0.86             | 0.88             | Ke DN 6                      |
| 18           | 3.82                       | 10.0   | 12.6   | 16.1   | 20.1   | 25.1    | 31.0    | 40.3    | 68               | 0.87             | 0.88             | Ke DN 6                      |
| 20           | 4.71                       | 12.4   | 15.5   | 19.9   | 24.8   | 31.1    | 38.2    | 49.7    | 55               | 0.88             | 0.89             | Ke DN 6                      |
| 22           | 5.70                       | 15.0   | 18.8   | 24.0   | 30.1   | 37.6    | 46.3    | 60.2    | 46               | 0.88             | 0.89             | Ke DN 10/6                   |
| 25           | 7.36                       | 19.4   | 24.3   | 31.1   | 38.8   | 48.6    | 59.8    | 77.7    | 35               | 0.89             | 0.89             | Ke DN 10                     |
| 27           | 8.59                       | 22.6   | 28.3   | 36.2   | 45.3   | 56.6    | 69.7    | 90.6    | 30               | 0.89             | 0.89             | Ke DN 10                     |
| 29           | 9.91                       | 26.1   | 32.7   | 41.8   | 52.3   | 65.3    | 80.4    | 104.6   | 26               | 0.89             | 0.89             | Ke DN 10                     |
| 30           | 10.60                      | 27.9   | 34.9   | 44.7   | 55.9   | 69.9    | 86.1    | 111.9   | 24               | 0.89             | 0.89             | Ke DN 10                     |
| 36           | 15.27                      | 40.3   | 50.3   | 64.4   | 80.6   | 100.7   | 124.0   | 161.2   | 17               | 0.89             | 0.89             | Ke DN 16                     |
| 40           | 18.85                      | 49.7   | 62.2   | 79.6   | 99.5   | 124.4   | 153.1   | 199.0   | 13               | 0.89             | 0.89             | Ke DN 16                     |
| 44           | 22.81                      | 60.2   | 75.2   | 96.3   | 120.1  | 150.5   | 185.2   | 240.8   | 11               | 0.89             | 0.90             | Ke DN 16                     |
| 50           | 29.45                      | 77.7   | 97.1   | 124.4  | 155.5  | 194.3   | 239.2   | 311.0   | 8                | 0.89             | 0.90             | Ke DN 16                     |

DK Double ball valve, Ke Conical valve

- Important note:**
- Abridged presentation of our complete product range. Other types on request
  - Allow for a minimum 10% power reserve when designing in accordance with API
  - All hydraulic performance data is based on water at 20 °C

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 35 single head pump 50 Hz

| Plunger Ø<br>mm | Theor.<br>stroke<br>volume<br>ml/stroke | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity code characteristic 3 to 9]: |        |        |        |         |         |         | Max.<br>pressure<br>bar | Efficiency<br>at<br>100%<br>pressure | Efficiency<br>at<br>50%<br>pressure | Standard<br>type of<br>valve |
|-----------------|---|---|--------|--------|--------|---------|---------|---------|-------------------------|--------------------------------------|-------------------------------------|------------------------------|
|                 |   | 45 [3]  | 58 [4] | 73 [5] | 91 [6] | 112 [7] | 145 [8] | 207 [9] |                         |                                      |                                     |                              |
| 7               | 0.77                                    | 2.0   | 2.6    | 3.3    | 4.1    | 5.1     | 6.7     | 9.5     | 400                     | 0.50                                 | 0.70                                | DK DN 3                      |
| 8               | 1.01                                    | 2.7   | 3.5    | 4.3    | 5.4    | 6.7     | 8.7     | 12.4    | 400                     | 0.50                                 | 0.70                                | DK DN 3                      |
| 10              | 1.57                                    | 4.2   | 5.4    | 6.8    | 8.5    | 10.5    | 13.6    | 19.5    | 400                     | 0.50                                 | 0.70                                | Ke DN 6                      |
| 11              | 1.90                                    | 5.1   | 6.6    | 8.2    | 10.3   | 12.7    | 16.5    | 23.6    | 368                     | 0.79                                 | 0.85                                | Ke DN 6                      |
| 12              | 2.26                                    | 6.1   | 7.8    | 9.8    | 12.3   | 15.1    | 19.6    | 28.1    | 309                     | 0.79                                 | 0.85                                | Ke DN 6                      |
| 14              | 3.08                                    | 8.3   | 10.7   | 13.3   | 16.7   | 20.6    | 26.7    | 38.2    | 227                     | 0.81                                 | 0.85                                | Ke DN 6                      |
| 16              | 4.02                                    | 10.9  | 13.9   | 17.4   | 21.8   | 26.9    | 34.9    | 49.9    | 174                     | 0.83                                 | 0.86                                | Ke DN 6                      |
| 18              | 5.09                                    | 13.8  | 17.7   | 22.1   | 27.6   | 34.0    | 44.2    | 63.2    | 137                     | 0.84                                 | 0.87                                | Ke DN 6                      |
| 20              | 6.28                                    | 17.0  | 21.8   | 27.3   | 34.1   | 42.0    | 54.6    | 78.0    | 111                     | 0.86                                 | 0.88                                | Ke DN 6                      |
| 22              | 7.60                                    | 20.6  | 26.4   | 33.0   | 41.3   | 50.8    | 66.1    | 94.4    | 92                      | 0.86                                 | 0.88                                | Ke DN 10/6                   |
| 25              | 9.82                                    | 26.6  | 34.1   | 42.7   | 53.3   | 65.7    | 85.4    | 122.0   | 71                      | 0.87                                 | 0.88                                | Ke DN 10                     |
| 27              | 11.45                                   | 31.1  | 39.8   | 49.8   | 62.2   | 76.6    | 99.6    | 142.3   | 61                      | 0.87                                 | 0.88                                | Ke DN 10                     |
| 30              | 14.14                                   | 38.4  | 49.2   | 61.5   | 76.8   | 94.6    | 122.9   | 175.7   | 49                      | 0.88                                 | 0.89                                | Ke DN 10                     |
| 36              | 20.36                                   | 55.3  | 70.8   | 88.5   | 110.6  | 136.2   | 177.1   | 253.0   | 34                      | 0.88                                 | 0.89                                | Ke DN 16                     |
| 40              | 25.13                                   | 68.3  | 87.4   | 109.3  | 136.6  | 168.2   | 218.6   | 312.3   | 27                      | 0.89                                 | 0.89                                | Ke DN 16                     |
| 44              | 30.41                                   | 82.6  | 105.8  | 132.2  | 165.3  | 203.5   | 264.5   | 377.9   | 23                      | 0.89                                 | 0.89                                | Ke DN 16                     |
| 50              | 39.27                                   | 106.7   | 136.6  | 170.8  | 213.5  | 262.8   | 341.6   | 488.0   | 17                      | 0.89                                 | 0.89                                | Ke DN 16                     |
| 60              | 56.55                                   | 153.7   | 196.7  | 245.9  | 307.4  | 378.4   | 491.9   | 702.8   | 12                      | 0.89                                 | 0.90                                | Ke DN 16/25                  |
| 65              | 66.37                                   | 180.4   | 230.9  | 288.6  | 360.8  | 444.1   | 577.3   | 824.8   | 10                      | 0.89                                 | 0.90                                | Ke DN 16/25                  |
| 80              | 100.53                                  | 273.3   | 349.8  | 437.3  | 546.6  | 672.7   | 874.6   | 1,249.4 | 6                       | 0.89                                 | 0.90                                | Ke DN 25                     |

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 35 single head pump 60 Hz

| Plunger Ø<br>mm | Theor.<br>stroke<br>volume<br>ml/stroke | Pump capacity Q <sub>th</sub> in l/h per pump head at H/min [Identity<br>code characteristic 2 to 8]: |        |        |        |         |         |         | Max.<br>pressure<br>bar | Efficiency<br>at<br>100%<br>pressure | Efficiency<br>at<br>50%<br>pressure | Standard<br>type of<br>valve |
|-----------------|---|---|--------|--------|--------|---------|---------|---------|-------------------------|--------------------------------------|-------------------------------------|------------------------------|
|                 |   | 44 [2]  | 55 [3] | 70 [4] | 88 [5] | 110 [6] | 135 [7] | 176 [8] |                         |                                      |                                     |                              |
| 7               | 0.77                                    | 2.0   | 2.5    | 3.2    | 4.0    | 5.0     | 6.2     | 8.1     | 400                     | 0.50                                 | 0.70                                | DK DN 3                      |
| 8               | 1.01                                    | 2.6   | 3.3    | 4.2    | 5.3    | 6.6     | 8.1     | 10.6    | 400                     | 0.50                                 | 0.70                                | DK DN 3                      |
| 10              | 1.57                                    | 4.1   | 5.1    | 6.6    | 8.2    | 10.3    | 12.7    | 16.5    | 400                     | 0.50                                 | 0.70                                | Ke DN 6                      |
| 11              | 1.90                                    | 5.0   | 6.2    | 8.0    | 10.0   | 12.5    | 15.4    | 20.0    | 368                     | 0.79                                 | 0.85                                | Ke DN 6                      |
| 12              | 2.26                                    | 5.9   | 7.4    | 9.5    | 11.9   | 14.9    | 18.3    | 23.8    | 309                     | 0.79                                 | 0.85                                | Ke DN 6                      |
| 14              | 3.08                                    | 8.1   | 10.1   | 13.0   | 16.2   | 20.3    | 25.0    | 32.5    | 227                     | 0.81                                 | 0.85                                | Ke DN 6                      |
| 16              | 4.02                                    | 10.6  | 13.2   | 16.9   | 21.2   | 26.5    | 32.6    | 42.4    | 174                     | 0.83                                 | 0.86                                | Ke DN 6                      |
| 18              | 5.09                                    | 13.4  | 16.7   | 21.5   | 26.8   | 33.5    | 41.3    | 53.7    | 137                     | 0.84                                 | 0.87                                | Ke DN 6                      |
| 20              | 6.28                                    | 16.5  | 20.7   | 26.5   | 33.1   | 41.4    | 51.0    | 66.3    | 111                     | 0.86                                 | 0.88                                | Ke DN 6                      |
| 22              | 7.60                                    | 20.0  | 25.0   | 32.1   | 40.1   | 50.1    | 61.7    | 80.2    | 92                      | 0.86                                 | 0.88                                | Ke DN 10/6                   |
| 25              | 9.82                                    | 25.9  | 32.4   | 41.4   | 51.8   | 64.8    | 79.7    | 103.6   | 71                      | 0.87                                 | 0.88                                | Ke DN 10                     |
| 27              | 11.45                                   | 30.2  | 37.7   | 48.3   | 60.4   | 75.5    | 93.0    | 120.9   | 61                      | 0.87                                 | 0.88                                | Ke DN 10                     |
| 30              | 14.14                                   | 37.3  | 46.6   | 59.7   | 74.6   | 93.3    | 114.8   | 149.2   | 49                      | 0.88                                 | 0.89                                | Ke DN 10                     |
| 36              | 20.36                                   | 53.7  | 67.1   | 85.9   | 107.4  | 134.3   | 165.3   | 214.9   | 34                      | 0.88                                 | 0.89                                | Ke DN 16                     |
| 40              | 25.13                                   | 66.3  | 82.9   | 106.1  | 132.7  | 165.8   | 204.1   | 265.4   | 27                      | 0.89                                 | 0.89                                | Ke DN 16                     |
| 44              | 30.41                                   | 80.2  | 100.3  | 128.4  | 160.5  | 200.7   | 247.0   | 321.1   | 23                      | 0.89                                 | 0.89                                | Ke DN 16                     |
| 50              | 39.27                                   | 103.6   | 129.5  | 165.8  | 207.3  | 259.1   | 318.9   | 414.6   | 17                      | 0.89                                 | 0.89                                | Ke DN 16                     |
| 60              | 56.55                                   | 149.2   | 186.6  | 238.8  | 298.5  | 373.2   | 459.3   | 597.1   | 12                      | 0.89                                 | 0.90                                | Ke DN 16/25                  |
| 65              | 66.37                                   | 175.2   | 219.0  | 280.3  | 350.4  | 438.0   | 539.1   | 700.8   | 10                      | 0.89                                 | 0.90                                | Ke DN 16/25                  |
| 80              | 100.53                                  | 265.4   | 331.7  | 424.6  | 530.8  | 663.5   | 816.6   | 1,061.6 | 6                       | 0.89                                 | 0.90                                | Ke DN 25                     |

DK Double ball valve, Ke Conical valve

- Important note:**
- Abridged presentation of our complete product range. Other types on request
  - Allow for a minimum 10% power reserve when designing in accordance with API
  - All hydraulic performance data is based on water at 20 °C

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 80 single head pump 50 Hz

| Plunger Ø | Theor. stroke volume | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity code characteristic 4 to 9; F]: |         |         |         |         |         |         | Max. pressure | Efficiency at | Efficiency at | Standard type of valve |
|-----------|----------------------|--|---------|---------|---------|---------|---------|---------|---------------|---------------|---------------|------------------------|
|           |                      | 104 [4]  | 122 [5] | 134 [6] | 155 [7] | 160 [8] | 182 [9] | 193 [F] |               |               |               |                        |
| mm        | ml/stroke            | l/h  | l/h     | l/h     | l/h     | l/h     | l/h     | l/h     | bar           | 100% pressure | 50% pressure  |                        |
| 16        | 4.02                 | 25   | 29      | 32      | 37      | 38      | 43      | 46      | 400           | 0.75          | 0.83          | Ke DN 6                |
| 20        | 6.28                 | 39   | 46      | 50      | 58      | 60      | 68      | 72      | 400           | 0.75          | 0.83          | Ke DN 6                |
| 22        | 7.60                 | 47   | 55      | 61      | 70      | 73      | 82      | 87      | 360           | 0.79          | 0.80          | Ke DN 10/6             |
| 25        | 9.82                 | 61   | 71      | 79      | 91      | 94      | 107     | 113     | 285           | 0.79          | 0.85          | Ke DN 10               |
| 27        | 11.45                | 71   | 83      | 92      | 106     | 109     | 125     | 132     | 244           | 0.81          | 0.85          | Ke DN 10               |
| 29        | 13.21                | 82   | 96      | 106     | 122     | 126     | 144     | 152     | 211           | 0.82          | 0.85          | Ke DN 10               |
| 30        | 14.14                | 88   | 103     | 113     | 131     | 135     | 154     | 163     | 198           | 0.83          | 0.86          | Ke DN 10               |
| 36        | 20.36                | 126  | 149     | 164     | 189     | 195     | 222     | 235     | 137           | 0.85          | 0.87          | Ke DN 16               |
| 40        | 25.13                | 156  | 184     | 202     | 233     | 241     | 274     | 290     | 111           | 0.86          | 0.88          | Ke DN 16               |
| 44        | 30.41                | 189  | 222     | 245     | 282     | 292     | 331     | 351     | 98            | 0.86          | 0.88          | Ke DN 16               |
| 46        | 33.24                | 207  | 243     | 268     | 309     | 319     | 362     | 384     | 84            | 0.86          | 0.88          | Ke DN 16               |
| 50        | 39.27                | 244  | 287     | 316     | 365     | 377     | 428     | 453     | 71            | 0.87          | 0.88          | Ke DN 16               |
| 60        | 56.55                | 352  | 414     | 455     | 526     | 543     | 617     | 653     | 50            | 0.88          | 0.89          | Ke DN 16/25            |
| 65        | 66.37                | 413  | 486     | 535     | 617     | 637     | 724     | 766     | 40            | 0.88          | 0.89          | Ke DN 16/25            |
| 80        | 100.53               | 626  | 736     | 810     | 935     | 965     | 1,097   | 1,161   | 25            | 0.89          | 0.89          | Ke DN 25               |
| 100       | 157.08               | 979  | 1,150   | 1,266   | 1,461   | 1,508   | 1,714   | 1,814   | 17            | 0.89          | 0.89          | Ke DN 32               |

## Technical data for MFS 80 single head pump 60 Hz

| Plunger Ø | Theor. stroke volume | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity code characteristic 3 to 9]: |         |         |         |         |         |         | Max. pressure | Efficiency at | Efficiency at | Standard type of valve |
|-----------|----------------------|---|---------|---------|---------|---------|---------|---------|---------------|---------------|---------------|------------------------|
|           |                      | 119 [3]   | 126 [4] | 148 [5] | 163 [6] | 188 [7] | 194 [8] | 221 [9] |               |               |               |                        |
| mm        | ml/stroke            | l/h   | l/h     | l/h     | l/h     | l/h     | l/h     | l/h     | bar           | 100% pressure | 50% pressure  |                        |
| 16        | 4.02                 | 28  | 30      | 35      | 39      | 45      | 46      | 53      | 400           | 0.75          | 0.83          | Ke DN 6                |
| 20        | 6.28                 | 44  | 47      | 55      | 61      | 70      | 73      | 83      | 400           | 0.75          | 0.83          | Ke DN 6                |
| 22        | 7.60                 | 54  | 57      | 67      | 74      | 85      | 88      | 100     | 360           | 0.79          | 0.80          | Ke DN 10/6             |
| 25        | 9.82                 | 70  | 74      | 87      | 96      | 110     | 114     | 130     | 285           | 0.79          | 0.85          | Ke DN 10               |
| 27        | 11.45                | 81  | 86      | 101     | 112     | 129     | 133     | 151     | 244           | 0.81          | 0.85          | Ke DN 10               |
| 29        | 13.21                | 94  | 100     | 117     | 129     | 149     | 153     | 175     | 211           | 0.82          | 0.85          | Ke DN 10               |
| 30        | 14.14                | 101   | 107     | 125     | 138     | 159     | 164     | 187     | 198           | 0.83          | 0.86          | Ke DN 10               |
| 36        | 20.36                | 145   | 154     | 180     | 199     | 229     | 237     | 269     | 137           | 0.85          | 0.87          | Ke DN 16               |
| 40        | 25.13                | 179   | 190     | 223     | 245     | 283     | 292     | 333     | 111           | 0.86          | 0.88          | Ke DN 16               |
| 44        | 30.41                | 217   | 230     | 270     | 297     | 343     | 354     | 402     | 98            | 0.86          | 0.88          | Ke DN 16               |
| 46        | 33.24                | 237   | 251     | 295     | 325     | 375     | 387     | 440     | 84            | 0.86          | 0.88          | Ke DN 16               |
| 50        | 39.27                | 280   | 297     | 349     | 384     | 443     | 457     | 520     | 71            | 0.87          | 0.88          | Ke DN 16               |
| 60        | 56.55                | 404   | 428     | 502     | 553     | 638     | 659     | 749     | 50            | 0.88          | 0.89          | Ke DN 16/25            |
| 65        | 66.37                | 474   | 502     | 589     | 649     | 749     | 773     | 879     | 40            | 0.88          | 0.89          | Ke DN 16/25            |
| 80        | 100.53               | 718   | 761     | 893     | 983     | 1,134   | 1,171   | 1,332   | 25            | 0.89          | 0.89          | Ke DN 25               |
| 100       | 157.08               | 1,123   | 1,189   | 1,396   | 1,537   | 1,774   | 1,830   | 2,081   | 17            | 0.89          | 0.89          | Ke DN 32               |

Ke Conical valve

# Hydraulic Diaphragm Metering Pump Orlita® MF

## Reliable capacity even at high pressure

- Important note:**
- Abridged presentation of our complete product range. Other types on request
  - Allow for a minimum 10% power reserve when designing in accordance with API
  - All hydraulic performance data is based on water at 20 °C

### Technical data for MFS 180 single head pump 50 Hz

| Plunger<br>Ø | Theor.<br>stroke<br>volume | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity<br>code characteristic 4 to 9; F]: |         |         |         |         |         |         | Max.<br>pressure | Efficiency<br>at | Efficiency<br>at | Standard<br>type of<br>valve |
|--------------|----------------------------|---|---------|---------|---------|---------|---------|---------|------------------|------------------|------------------|------------------------------|
|              |                            | 92 [4]  | 107 [5] | 117 [6] | 134 [7] | 152 [8] | 171 [9] | 200 [F] |                  |                  |                  |                              |
| mm           | ml/stroke                  | l/h   | l/h     | l/h     | l/h     | l/h     | l/h     | l/h     | bar              | 100%<br>pressure | 50%<br>pressure  |                              |
| 25           | 19.63                      | 107   | 126     | 138     | 157     | 178     | 201     | 235     | 366              | 0.77             | 0.83             | Ke DN 16                     |
| 30           | 28.27                      | 155   | 181     | 199     | 226     | 257     | 290     | 339     | 254              | 0.81             | 0.85             | Ke DN 16                     |
| 36           | 40.72                      | 223   | 262     | 286     | 326     | 370     | 417     | 489     | 176              | 0.83             | 0.86             | Ke DN 16                     |
| 40           | 50.27                      | 276   | 323     | 353     | 403     | 457     | 515     | 604     | 143              | 0.85             | 0.87             | Ke DN 25                     |
| 44           | 60.82                      | 334   | 391     | 428     | 488     | 553     | 623     | 730     | 118              | 0.85             | 0.87             | Ke DN 25                     |
| 50           | 78.54                      | 431   | 505     | 552     | 630     | 714     | 805     | 943     | 91               | 0.86             | 0.88             | Ke DN 25                     |
| 55           | 95.03                      | 521   | 611     | 668     | 762     | 864     | 974     | 1,141   | 75               | 0.87             | 0.88             | Ke DN 32                     |
| 60           | 113.10                     | 621   | 727     | 796     | 907     | 1,029   | 1,160   | 1,359   | 63               | 0.87             | 0.89             | Ke DN 32                     |
| 65           | 132.73                     | 729   | 854     | 934     | 1,065   | 1,207   | 1,361   | 1,594   | 54               | 0.88             | 0.89             | Ke DN 32                     |
| 70           | 153.94                     | 845   | 990     | 1,083   | 1,235   | 1,400   | 1,579   | 1,849   | 46               | 0.88             | 0.89             | Ke DN 40                     |
| 75           | 176.71                     | 970   | 1,137   | 1,243   | 1,418   | 1,608   | 1,812   | 2,123   | 40               | 0.88             | 0.89             | Ke DN 40                     |
| 80           | 201.06                     | 1,104   | 1,293   | 1,415   | 1,613   | 1,829   | 2,062   | 2,416   | 35               | 0.88             | 0.89             | Ke DN 40                     |
| 85           | 226.98                     | 1,246   | 1,460   | 1,597   | 1,821   | 2,065   | 2,328   | 2,727   | 31               | 0.88             | 0.89             | Ke DN 40                     |
| 90           | 254.47                     | 1,397   | 1,637   | 1,791   | 2,042   | 2,315   | 2,610   | 3,057   | 28               | 0.89             | 0.89             | Ke DN 40                     |
| 95           | 283.53                     | 1,557   | 1,824   | 1,995   | 2,275   | 2,590   | 2,908   | 3,407   | 25               | 0.89             | 0.89             | Pt DN 50                     |
| 100          | 314.16                     | 1,725   | 2,021   | 2,211   | 2,521   | 2,858   | 3,223   | 3,775   | 22               | 0.89             | 0.89             | Pt DN 50                     |
| 115          | 415.48                     | 2,281   | 2,673   | 2,924   | 3,334   | 3,781   | 4,262   | 4,992   | 17               | 0.89             | 0.89             | Pt DN 65                     |
| 125          | 490.87                     | 2,696   | 3,158   | 3,455   | 3,939   | 4,467   | 5,036   | –       | 14               | 0.89             | 0.90             | Pt DN 65                     |
| 135          | 572.56                     | 3,144   | 3,684   | 4,030   | 4,595   | 5,210   | 5,874   | 6,880   | 12               | 0.89             | 0.90             | Pt DN 65                     |
| 142          | 633.47                     | 3,479   | 4,076   | 4,458   | 5,084   | 5,764   | 6,499   | 7,612   | 11               | 0.89             | 0.90             | Pt DN 65                     |



# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 180 single head pump 60 Hz

| Plunger<br>Ø | Theor.<br>stroke<br>volume | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity<br>code characteristic 3 to 9]: |         |         |         |         |         |         | Max.<br>pressure | Efficiency<br>at | Efficiency<br>at | Standard<br>type of<br>valve |
|--------------|----------------------------|--|---------|---------|---------|---------|---------|---------|------------------|------------------|------------------|------------------------------|
|              |                            | 98 [3]   | 111 [4] | 130 [5] | 142 [6] | 162 [7] | 184 [8] | 208 [9] |                  |                  |                  |                              |
| mm           | ml/stroke                  | l/h  | l/h     | l/h     | l/h     | l/h     | l/h     | l/h     | bar              | 100%<br>pressure | 50%<br>pressure  |                              |
| 25           | 19.63                      | 116  | 130     | 153     | 167     | 216     | 244     | 244     | 352              | 0.77             | 0.83             | Ke DN 16                     |
| 30           | 28.27                      | 167  | 188     | 220     | 241     | 275     | 312     | 352     | 254              | 0.81             | 0.85             | Ke DN 16                     |
| 36           | 40.72                      | 240  | 271     | 318     | 347     | 396     | 449     | 507     | 176              | 0.83             | 0.86             | Ke DN 16                     |
| 40           | 50.27                      | 297  | 335     | 392     | 429     | 489     | 555     | 625     | 143              | 0.85             | 0.87             | Ke DN 25                     |
| 44           | 60.82                      | 359  | 405     | 475     | 519     | 592     | 671     | 757     | 118              | 0.85             | 0.87             | Ke DN 25                     |
| 50           | 78.54                      | 464  | 523     | 613     | 671     | 765     | 867     | 978     | 91               | 0.86             | 0.88             | Ke DN 25                     |
| 55           | 95.03                      | 561  | 633     | 742     | 811     | 925     | 1,049   | 1,183   | 75               | 0.87             | 0.88             | Ke DN 32                     |
| 60           | 113.10                     | 668  | 753     | 883     | 966     | 1,101   | 1,249   | 1,408   | 63               | 0.87             | 0.89             | Ke DN 32                     |
| 65           | 132.73                     | 784  | 884     | 1,036   | 1,134   | 1,293   | 1,466   | 1,652   | 54               | 0.88             | 0.89             | Ke DN 32                     |
| 70           | 153.94                     | 909  | 1,026   | 1,202   | 1,315   | 1,499   | 1,700   | 1,916   | 46               | 0.88             | 0.89             | Ke DN 40                     |
| 75           | 176.71                     | 1,044  | 1,178   | 1,380   | 1,509   | 1,721   | 1,951   | 2,200   | 40               | 0.88             | 0.89             | Ke DN 40                     |
| 80           | 201.06                     | 1,188  | 1,340   | 1,570   | 1,717   | 1,958   | 2,220   | 2,503   | 35               | 0.88             | 0.89             | Ke DN 40                     |
| 85           | 226.98                     | 1,341  | 1,513   | 1,772   | 1,939   | 2,211   | 2,507   | 2,826   | 31               | 0.88             | 0.89             | Ke DN 40                     |
| 90           | 254.47                     | 1,503  | 1,696   | 1,987   | 2,174   | 2,478   | 2,810   | 3,168   | 28               | 0.89             | 0.89             | Ke DN 40                     |
| 95           | 283.53                     | 1,675  | 1,890   | 2,214   | 2,422   | 2,762   | 3,131   | 3,530   | 25               | 0.89             | 0.89             | Pt DN 50                     |
| 100          | 314.16                     | 1,856  | 2,094   | 2,453   | 2,684   | 3,060   | 3,470   | 3,912   | 22               | 0.89             | 0.89             | Pt DN 50                     |
| 115          | 415.48                     | 2,455  | 2,769   | 3,245   | 3,549   | 4,047   | 4,589   | 5,173   | 17               | 0.89             | 0.89             | Pt DN 65                     |
| 125          | 490.87                     | 2,900  | 3,272   | 3,834   | 4,193   | 4,781   | 5,422   | –       | 14               | 0.89             | 0.90             | Pt DN 65                     |
| 135          | 572.56                     | 3,383  | 3,817   | 4,472   | 4,891   | 5,577   | 6,324   | –       | 11               | 0.89             | 0.90             | Pt DN 65                     |
| 142          | 633.47                     | 3,743  | 4,223   | 4,947   | 5,412   | 6,171   | 6,997   | –       | 11               | 0.89             | 0.90             | Pt DN 65                     |

DK Double ball valve, Pt Plate valve

### Important note:

- Abridged presentation of our complete product range. Other types on request
- Allow for a minimum 10% power reserve when designing in accordance with API
- All hydraulic performance data is based on water at 20 °C

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 600 single head pump 50 Hz

| Plunger<br>Ø | Theor.<br>stroke<br>volume | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity<br>code characteristic 4 to 9; F]: |        |         |         |         |         |         | Max.<br>pressure | Efficiency<br>at | Efficiency<br>at | Standard<br>type of<br>valve |
|--------------|----------------------------|---|--------|---------|---------|---------|---------|---------|------------------|------------------|------------------|------------------------------|
|              |                            | 90 [4]  | 99 [5] | 117 [6] | 134 [7] | 156 [8] | 173 [9] | 204 [F] |                  |                  |                  |                              |
| mm           | ml/stroke                  | l/h   | l/h    | l/h     | l/h     | l/h     | l/h     | l/h     | bar              | 100%<br>pressure | 50%<br>pressure  |                              |
| 36           | 40.72                      | 219   | 242    | 285     | 327     | 381     | 422     | 497     | 392              | 0.76             | 0.83             | Ke DN 16                     |
| 38           | 45.36                      | 244   | 269    | 318     | 364     | 424     | 470     | 554     | 352              | 0.77             | 0.83             | Ke DN 16                     |
| 40           | 50.27                      | 270   | 299    | 352     | 404     | 470     | 521     | 614     | 318              | 0.78             | 0.84             | Ke DN 16                     |
| 44           | 60.82                      | 327   | 361    | 427     | 488     | 569     | 630     | 743     | 263              | 0.80             | 0.85             | Ke DN 25                     |
| 46           | 66.48                      | 357   | 395    | 466     | 534     | 622     | 689     | 812     | 240              | 0.81             | 0.85             | Ke DN 25                     |
| 50           | 78.54                      | 422   | 467    | 551     | 631     | 735     | 814     | 959     | 221              | 0.83             | 0.86             | Ke DN 25                     |
| 55           | 95.03                      | 511   | 565    | 667     | 764     | 889     | 985     | 1,161   | 168              | 0.84             | 0.87             | Ke DN 25                     |
| 60           | 113.10                     | 608   | 673    | 794     | 909     | 1,059   | 1,172   | 1,381   | 141              | 0.85             | 0.87             | Ke DN 25                     |
| 65           | 132.73                     | 714   | 789    | 932     | 1,067   | 1,243   | 1,376   | 1,621   | 120              | 0.85             | 0.87             | Ke DN 32                     |
| 70           | 153.94                     | 828   | 916    | 1,080   | 1,237   | 1,441   | 1,596   | 1,880   | 100              | 0.90             | 0.88             | Ke DN 32                     |
| 75           | 176.71                     | 950   | 1,051  | 1,240   | 1,420   | 1,654   | 1,832   | 2,159   | 90               | 0.86             | 0.88             | Ke DN 32                     |
| 80           | 201.06                     | 1,081   | 1,196  | 1,411   | 1,616   | 1,882   | 2,084   | 2,456   | 79               | 0.87             | 0.88             | Ke DN 40                     |
| 85           | 226.98                     | 1,221   | 1,350  | 1,593   | 1,825   | 2,125   | 2,353   | 2,773   | 70               | 0.87             | 0.88             | Ke DN 40                     |
| 90           | 254.47                     | 1,369   | 1,514  | 1,786   | 2,046   | 2,383   | 2,638   | 3,109   | 62               | 0.87             | 0.88             | Ke DN 40                     |
| 95           | 283.53                     | 1,525   | 1,687  | 1,990   | 2,279   | 2,655   | 2,940   | 3,464   | 56               | 0.87             | 0.88             | Ke DN 50                     |
| 100          | 314.16                     | 1,690   | 1,869  | 2,205   | 2,526   | 2,942   | 3,257   | 3,838   | 50               | 0.88             | 0.89             | Ke DN 50                     |
| 115          | 415.48                     | 2,235   | 2,472  | 2,917   | 3,340   | 3,890   | 4,308   | 5,076   | 38               | 0.88             | 0.89             | Ke DN 65                     |
| 125          | 490.87                     | 2,641   | 2,921  | 3,446   | 3,946   | 4,596   | 5,090   | 5,998   | 32               | 0.89             | 0.89             | Ke DN 65                     |
| 135          | 572.56                     | 3,080   | 3,407  | 4,020   | 4,603   | 5,361   | 5,937   | 6,996   | 26               | 0.89             | 0.89             | Ke DN 65                     |
| 142          | 633.47                     | 3,408   | 3,769  | 4,448   | 5,093   | 5,932   | 6,568   | 7,740   | 20               | 0.89             | 0.89             | Ke DN 65                     |

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 600 single head pump 60 Hz

| Plunger<br>Ø | Theor.<br>stroke<br>volume | Pump capacity Q <sub>th</sub> in l/h per pump head at H/min [Identity<br>code characteristic 3 to 9]: |         |         |         |         |         |         | Max.<br>pressure | Efficiency<br>at | Efficiency<br>at | Standard<br>type of<br>valve |
|--------------|----------------------------|---|---------|---------|---------|---------|---------|---------|------------------|------------------|------------------|------------------------------|
|              |                            | 96 [3]  | 109 [4] | 120 [5] | 142 [6] | 163 [7] | 189 [8] | 210 [9] |                  |                  |                  |                              |
| mm           | ml/stroke                  | l/h   | l/h     | l/h     | l/h     | l/h     | l/h     | l/h     | bar              | 100%<br>pressure | 50%<br>pressure  |                              |
| 36           | 40.72                      | 235   | 265     | 294     | 347     | 397     | 462     | 512     | 392              | 0.76             | 0.83             | Ke DN 16                     |
| 38           | 45.36                      | 262   | 296     | 327     | 386     | 442     | 515     | 570     | 352              | 0.77             | 0.83             | Ke DN 16                     |
| 40           | 50.27                      | 291   | 328     | 363     | 428     | 490     | 571     | 632     | 318              | 0.78             | 0.84             | Ke DN 16                     |
| 44           | 60.82                      | 352   | 397     | 439     | 518     | 593     | 691     | 765     | 263              | 0.80             | 0.85             | Ke DN 25                     |
| 46           | 66.48                      | 384   | 434     | 480     | 566     | 648     | 755     | 836     | 240              | 0.81             | 0.85             | Ke DN 25                     |
| 50           | 78.54                      | 454   | 512     | 567     | 669     | 765     | 892     | 988     | 200              | 0.83             | 0.86             | Ke DN 25                     |
| 55           | 95.03                      | 550   | 620     | 686     | 809     | 926     | 1,080   | 1,196   | 168              | 0.84             | 0.87             | Ke DN 25                     |
| 60           | 113.10                     | 654   | 738     | 816     | 963     | 1,102   | 1,285   | 1,423   | 141              | 0.85             | 0.87             | Ke DN 25                     |
| 65           | 132.73                     | 768   | 866     | 958     | 1,131   | 1,294   | 1,508   | 1,670   | 120              | 0.85             | 0.87             | Ke DN 40                     |
| 70           | 153.94                     | 891   | 1,005   | 1,111   | 1,312   | 1,501   | 1,749   | 1,937   | 100              | 0.90             | 0.88             | Ke DN 32                     |
| 75           | 176.71                     | 1,023   | 1,154   | 1,276   | 1,506   | 1,723   | 2,008   | 2,224   | 90               | 0.86             | 0.88             | Ke DN 32                     |
| 80           | 201.06                     | 1,164   | 1,313   | 1,452   | 1,713   | 1,960   | 2,285   | 2,530   | 79               | 0.87             | 0.88             | Ke DN 40                     |
| 85           | 226.98                     | 1,314   | 1,482   | 1,639   | 1,934   | 2,213   | 2,580   | 2,856   | 70               | 0.87             | 0.88             | Ke DN 40                     |
| 90           | 254.47                     | 1,473   | 1,661   | 1,838   | 2,168   | 2,481   | 2,892   | 3,202   | 62               | 0.87             | 0.88             | Ke DN 40                     |
| 95           | 283.53                     | 1,641   | 1,851   | 2,047   | 2,416   | 2,767   | 3,222   | 3,568   | 56               | 0.87             | 0.88             | Ke DN 50                     |
| 100          | 314.16                     | 1,818   | 2,051   | 2,269   | 2,677   | 3,063   | 3,571   | 3,954   | 50               | 0.88             | 0.89             | Ke DN 50                     |
| 115          | 415.48                     | 2,405   | 2,713   | 3,000   | 3,541   | 4,051   | 4,722   | 5,229   | 38               | 0.88             | 0.89             | Ke DN 65                     |
| 125          | 490.87                     | 2,841   | 3,205   | 3,545   | 4,183   | 4,786   | 5,579   | –       | 32               | 0.89             | 0.89             | Ke DN 65                     |
| 135          | 572.56                     | 3,314   | 3,739   | 4,135   | 4,879   | 5,587   | 6,508   | 7,206   | 26               | 0.89             | 0.89             | Ke DN 65                     |
| 142          | 633.47                     | 3,667   | 4,136   | 4,575   | 5,399   | 6,182   | 7,200   | 7,973   | 20               | 0.89             | 0.89             | Ke DN 65                     |

DK Double ball valve, Ke Conical valve

- Important note:**
- Abridged presentation of our complete product range. Other types on request
  - Allow for a minimum 10% power reserve when designing in accordance with API
  - All hydraulic performance data is based on water at 20 °C

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 1400 single head pump 50 Hz

| Plunger<br>Ø | Theor.<br>stroke<br>volume | Pump capacity $Q_{th}$ in l/h per pump head at H/min [Identity<br>code characteristic 4 to 9; F]: |        |         |         |         |         |         | Max.<br>pressure | Efficiency<br>at | Efficiency<br>at | Standard<br>type of<br>valve |
|--------------|----------------------------|---|--------|---------|---------|---------|---------|---------|------------------|------------------|------------------|------------------------------|
|              |                            | 80 [4]  | 93 [5] | 106 [6] | 125 [7] | 143 [8] | 169 [9] | 191 [F] |                  |                  |                  |                              |
| mm           | ml/stroke                  | l/h   | l/h    | l/h     | l/h     | l/h     | l/h     | l/h     | bar              | 100%<br>pressure | 50%<br>pressure  |                              |
| 30           | 42.41                      | 202   | 235    | 270     | 318     | 364     | 431     | 486     | 630              | 0.67             | 0.78             | Ke DN 16                     |
| 40           | 75.40                      | 360   | 419    | 480     | 565     | 647     | 766     | 864     | 435              | 0.75             | 0.83             | Ke DN 25                     |
| 42           | 83.13                      | 397   | 462    | 529     | 623     | 713     | 844     | 952     | 435              | 0.76             | 0.83             | Ke DN 25                     |
| 44           | 91.23                      | 435   | 507    | 581     | 684     | 783     | 927     | 1,045   | 394              | 0.76             | 0.83             | Ke DN 25                     |
| 46           | 99.71                      | 476   | 554    | 635     | 748     | 856     | 1,013   | 1,142   | 361              | 0.77             | 0.83             | Ke DN 25                     |
| 50           | 117.81                     | 562   | 654    | 750     | 884     | 1,011   | 1,197   | 1,350   | 305              | 0.79             | 0.84             | Ke DN 25                     |
| 53           | 132.37                     | 632   | 735    | 843     | 993     | 1,136   | 1,345   | 1,517   | 271              | 0.79             | 0.84             | Ke DN 32                     |
| 55           | 142.55                     | 681   | 792    | 907     | 1,070   | 1,224   | 1,448   | 1,633   | 250              | 0.81             | 0.85             | Ke DN 25                     |
| 57           | 153.11                     | 731   | 851    | 975     | 1,149   | 1,314   | 1,556   | 1,754   | 235              | 0.81             | 0.85             | Ke DN 32                     |
| 60           | 169.65                     | 810   | 943    | 1,080   | 1,273   | 1,456   | 1,724   | 1,944   | 212              | 0.82             | 0.86             | Ke DN 25                     |
| 65           | 199.10                     | 951   | 1,106  | 1,268   | 1,494   | 1,709   | 2,023   | 2,282   | 180              | 0.83             | 0.87             | Ke DN 32                     |
| 70           | 230.91                     | 1,103   | 1,283  | 1,470   | 1,733   | 1,983   | 2,346   | 2,646   | 155              | 0.84             | 0.87             | Ke DN 40                     |
| 75           | 265.07                     | 1,266   | 1,473  | 1,688   | 1,989   | 2,276   | 2,694   | 3,038   | 135              | 0.85             | 0.87             | Ke DN 40                     |
| 80           | 301.59                     | 1,440   | 1,676  | 1,920   | 2,263   | 2,590   | 3,065   | 3,456   | 119              | 0.85             | 0.87             | Ke DN 40                     |
| 90           | 381.70                     | 1,823   | 2,121  | 2,431   | 2,865   | 3,278   | 3,879   | 4,375   | 94               | 0.90             | 0.90             | Ke DN 50                     |
| 100          | 471.24                     | 2,251   | 2,619  | 3,001   | 3,537   | 4,047   | 4,789   | 5,401   | 76               | 0.87             | 0.88             | Ke DN 65                     |
| 120          | 678.58                     | 3,242   | 3,772  | 4,321   | 5,093   | 5,827   | 6,896   | 7,778   | 53               | 0.88             | 0.89             | Ke DN 65                     |
| 140          | 923.63                     | 4,412   | 5,134  | 5,882   | 6,933   | 7,932   | 9,387   | 10,587  | 38               | 0.88             | 0.89             | Ke DN 80                     |
| 160          | 1,206.37                   | 5,763   | 6,706  | 7,683   | 9,055   | 10,360  | 12,261  | 13,827  | 29               | 0.89             | 0.89             | Ke DN 80                     |

# Hydraulic Diaphragm Metering Pump Orlita® MF

Reliable capacity even at high pressure

## Technical data for MFS 1400 single head pump 60 Hz

| Plunger<br>Ø | Theor.<br>stroke<br>volume | Pump capacity Q <sub>th</sub> in l/h per pump head at H/min [Identity<br>code characteristic 3 to 9]: |        |         |         |         |         |         | Max.<br>pressure | Efficiency<br>at | Efficiency<br>at | Standard<br>type of<br>valve |
|--------------|----------------------------|---|--------|---------|---------|---------|---------|---------|------------------|------------------|------------------|------------------------------|
|              |                            | 88 [3]  | 97 [4] | 112 [5] | 129 [6] | 152 [7] | 174 [8] | 206 [9] |                  |                  |                  |                              |
| mm           | ml/stroke                  | l/h   | l/h    | l/h     | l/h     | l/h     | l/h     | l/h     | bar              | 100%<br>pressure | 50%<br>pressure  |                              |
| 30           | 42.41                      | 223   | 245    | 286     | 327     | 386     | 442     | 523     | 630              | 0.67             | 0.78             | Ke DN 16                     |
| 40           | 75.40                      | 396   | 437    | 508     | 582     | 686     | 785     | 930     | 435              | 0.75             | 0.83             | Ke DN 25                     |
| 42           | 83.13                      | 437   | 482    | 560     | 642     | 757     | 866     | 1,025   | 435              | 0.76             | 0.83             | Ke DN 25                     |
| 44           | 91.23                      | 480   | 529    | 615     | 705     | 831     | 951     | 1,125   | 394              | 0.76             | 0.83             | Ke DN 25                     |
| 46           | 99.71                      | 524   | 578    | 672     | 770     | 908     | 1,039   | 1,230   | 361              | 0.77             | 0.83             | Ke DN 25                     |
| 50           | 117.81                     | 619   | 683    | 794     | 910     | 1,073   | 1,228   | 1,453   | 305              | 0.79             | 0.84             | Ke DN 25                     |
| 53           | 132.37                     | 696   | 767    | 893     | 1,023   | 1,206   | 1,379   | 1,632   | 271              | 0.79             | 0.84             | Ke DN 32                     |
| 55           | 142.55                     | 750   | 826    | 961     | 1,102   | 1,298   | 1,486   | 1,758   | 250              | 0.81             | 0.85             | Ke DN 25                     |
| 57           | 153.11                     | 805   | 887    | 1,033   | 1,183   | 1,394   | 1,596   | 1,888   | 235              | 0.81             | 0.85             | Ke DN 32                     |
| 60           | 169.65                     | 892   | 983    | 1,144   | 1,311   | 1,545   | 1,768   | 2,092   | 212              | 0.82             | 0.86             | Ke DN 25                     |
| 65           | 199.10                     | 1,047   | 1,154  | 1,343   | 1,539   | 1,814   | 2,075   | 2,456   | 180              | 0.83             | 0.87             | Ke DN 32                     |
| 70           | 230.91                     | 1,214   | 1,339  | 1,558   | 1,785   | 2,103   | 2,407   | 2,848   | 155              | 0.84             | 0.87             | Ke DN 40                     |
| 75           | 265.07                     | 1,394   | 1,537  | 1,788   | 2,049   | 2,415   | 2,763   | 3,270   | 135              | 0.85             | 0.87             | Ke DN 40                     |
| 80           | 301.59                     | 1,586   | 1,748  | 2,035   | 2,331   | 2,747   | 3,143   | 3,720   | 119              | 0.85             | 0.87             | Ke DN 40                     |
| 90           | 381.70                     | 2,008   | 2,213  | 2,575   | 2,950   | 3,477   | 3,979   | 4,200   | 94               | 0.90             | 0.90             | Ke DN 50                     |
| 100          | 471.24                     | 2,479   | 2,732  | 3,179   | 3,642   | 4,293   | 4,912   | 4,708   | 76               | 0.87             | 0.88             | Ke DN 65                     |
| 120          | 678.58                     | 3,570   | 3,935  | 4,578   | 5,245   | 6,182   | 7,073   | 8,371   | 53               | 0.88             | 0.89             | Ke DN 65                     |
| 140          | 923.21                     | 4,859   | 5,356  | 6,232   | 7,140   | 8,415   | 9,628   | –       | 38               | 0.88             | 0.89             | Ke DN 80                     |
| 160          | 1,206.37                   | 6,347   | 6,995  | 8,140   | 9,325   | 10,991  | 12,575  | –       | 29               | 0.89             | 0.89             | Ke DN 80                     |

DK Double ball valve

Ke Conical valve

- Important note:**
- Abridged presentation of our complete product range. Other types on request
  - Allow for a minimum 10% power reserve when designing in accordance with API
  - All hydraulic performance data is based on water at 20 °C