

## TECHNICAL DATA SHEET

### HIGH HEAD FLOW-MATE SERIES

Models 161/4161, 163/4163, 165/4165 Submersible Effluent Pumps

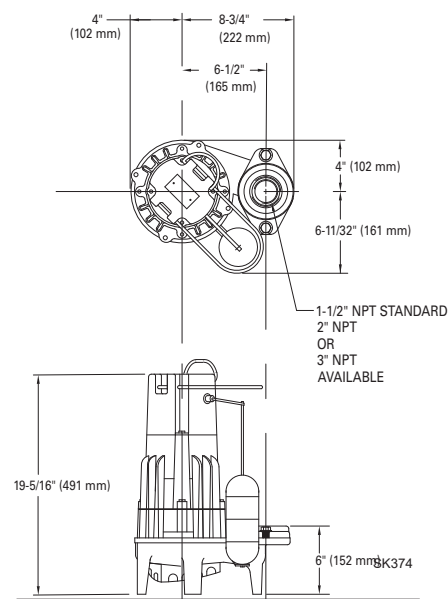
#### PRODUCT SPECIFICATIONS

|                  |                      |                                                                               |
|------------------|----------------------|-------------------------------------------------------------------------------|
| <b>MOTOR</b>     | Horse Power          | 1/2 (161/4161, 163/4163) or 1 (165/4165)                                      |
|                  | Voltage              | 115 - 575                                                                     |
|                  | Phase                | 1 or 3 Ph                                                                     |
|                  | Hertz                | 60 Hz                                                                         |
|                  | RPM                  | 3450                                                                          |
|                  | Type                 | Permanent split capacitor or 3 Ph                                             |
|                  | Insulation           | Class B                                                                       |
|                  | Amps                 | 2.4 - 15.5                                                                    |
| <b>PUMP</b>      | Operation            | Automatic or nonautomatic                                                     |
|                  | Auto On/Off Points   | 15-3/4" (400 mm) / 5-1/4" (133 mm)                                            |
|                  | Discharge Size       | 1-1/2" NPT (optional 2" or 3" flange)                                         |
|                  | Solids Handling      | 3/4" (19 mm) spherical solids                                                 |
|                  | Cord Length          | 20' (6 m) standard                                                            |
|                  | Cord Type            | 1 Ph: UL listed 3-wire neoprene cord and plug<br>or 3 Ph: 4-wire with no plug |
|                  | Max. Head            | 86.5' (26 m)                                                                  |
|                  | Max. Flow Rate       | 100 GPM (379 LPM)                                                             |
|                  | Max. Operating Temp. | 130 °F (54 °C)                                                                |
|                  | Cooling              | Oil filled                                                                    |
|                  | Motor Protection     | Auto reset thermal overload (1 Ph)                                            |
| <b>MATERIALS</b> | Upper Bearing        | Ball bearing                                                                  |
|                  | Lower Bearing        | Ball bearing                                                                  |
|                  | Mechanical Seals     | Carbon and ceramic                                                            |
|                  | Impeller Type        | Non-clogging vortex                                                           |
|                  | Impeller             | Cast iron, optional bronze                                                    |
|                  | Hardware             | Stainless steel                                                               |
|                  | Motor Shaft          | SAE 1117 carbon steel or 416 stainless steel*                                 |
|                  | Gasket               | Neoprene square ring and gasket                                               |

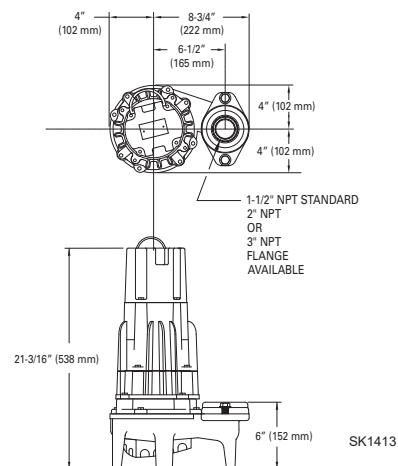
\*Single seal models are built with a carbon steel motor shaft, and double seal models are built with a stainless steel motor shaft.

NOTE: The sizing of effluent systems normally requires variable level float(s) controls and properly sized basins to achieve required pumping cycles or dosing timers with nonautomatic pumps.

#### SINGLE SEAL

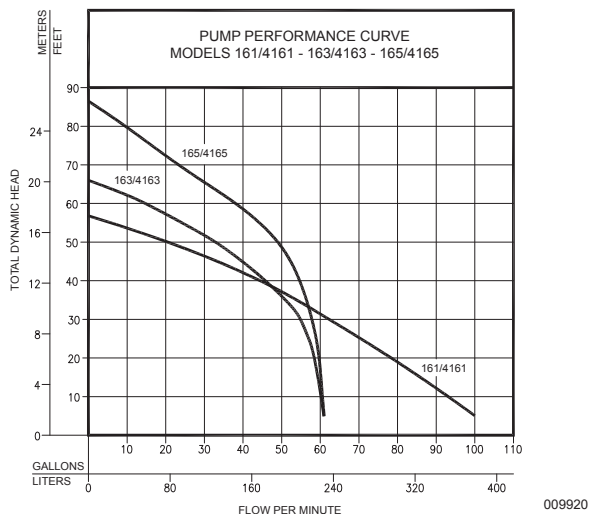


#### DOUBLE SEAL



## TOTAL DYNAMIC HEAD FLOW PER MINUTE

| MODELS         |        | 161/4161        |        | 163/4163        |        | 165/4165          |        |
|----------------|--------|-----------------|--------|-----------------|--------|-------------------|--------|
| Feet           | Meters | Gal.            | Liters | Gal.            | Liters | Gal.              | Liters |
| 5              | 1.5    | 100             | 379    | 61              | 231    | 61                | 231    |
| 10             | 3.0    | 93              | 352    | 60              | 227    | 60.5              | 229    |
| 15             | 4.6    | 86              | 326    | 60              | 227    | 60.3              | 228    |
| 20             | 6.1    | 79              | 299    | 59              | 223    | 60                | 227    |
| 25             | 7.6    | 71              | 267    | 57              | 216    | 59                | 223    |
| 30             | 9.1    | 62              | 235    | 55              | 208    | 58                | 220    |
| 40             | 12.2   | 45              | 170    | 46              | 174    | 55                | 208    |
| 50             | 15.2   | 20              | 76     | 33              | 125    | 50                | 189    |
| 60             | 18.3   | --              | --     | 15              | 57     | 39                | 148    |
| 70             | 21.3   | --              | --     | --              | --     | 22.5              | 85     |
| 80             | 24.4   | --              | --     | --              | --     | 10                | 38     |
| Shut-off Head: |        | 56 ft. (17.1 m) |        | 66 ft. (20.1 m) |        | 86.5 ft. (26.4 m) |        |



| Model          | MODEL COMPARISON |      |       |    |      |     |    |         |         |            |        | CERTIFICATIONS        |
|----------------|------------------|------|-------|----|------|-----|----|---------|---------|------------|--------|-----------------------|
|                | Seal             | Mode | Volts | Ph | Amps | HP  | Hz | Lbs     | Kg      | Simplex    | Duplex |                       |
| M161           | Single           | Auto | 115   | 1  | 15.0 | 1/2 | 60 | 80      | 36      | 1          | ---    | cCSAus <sup>(1)</sup> |
| N161           | Single           | Non  | 115   | 1  | 15.0 | 1/2 | 60 | 80      | 36      | 2 or 3 & 5 | 4 & 5  | CSA <sup>(3)</sup>    |
| N4161          | Double           | Non  | 115   | 1  | 15.5 | 1/2 | 60 | 87      | 39      | 3 & 5      | 4 & 5  | cCSAus <sup>(1)</sup> |
| BN161          | Single           | Auto | 115   | 1  | 15.0 | 1/2 | 60 | 84      | 38      | ---        | ---    | CSA <sup>(2)</sup>    |
| D161           | Single           | Auto | 230   | 1  | 7.5  | 1/2 | 60 | 80      | 36      | 1          | ---    | cCSAus                |
| E161 / E4161   | Single / Double  | Non  | 230   | 1  | 7.5  | 1/2 | 60 | 80 / 87 | 36 / 39 | 2 or 3 & 5 | 4 & 5  | cCSAus                |
| * H161         | Single           | Auto | 200   | 1  | 8.8  | 1/2 | 60 | 80      | 36      | 1          | ---    | cCSAus                |
| * I161 / I4161 | Single / Double  | Non  | 200   | 1  | 8.8  | 1/2 | 60 | 80 / 87 | 36 / 39 | 2 or 3 & 5 | 4 & 5  | cCSAus                |
| * J161 / J4161 | Single / Double  | Non  | 200   | 3  | 6.4  | 1/2 | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * F161 / F4161 | Single / Double  | Non  | 230   | 3  | 5.2  | 1/2 | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * G161 / G4161 | Single / Double  | Non  | 460   | 3  | 2.9  | 1/2 | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * BA161/BA4161 | Single / Double  | Non  | 575   | 3  | 2.4  | 1/2 | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| BE161          | Single           | Auto | 230   | 1  | 7.5  | 1/2 | 60 | 84      | 38      | ---        | ---    | cCSAus                |
| M163           | Single           | Auto | 115   | 1  | 15.0 | 1/2 | 60 | 80      | 36      | 1          | ---    | cCSAus <sup>(1)</sup> |
| N163 / N4163   | Single / Double  | Non  | 115   | 1  | 15.0 | 1/2 | 60 | 80 / 87 | 36 / 39 | 2 or 3 & 5 | 4 & 5  | CSA <sup>(2)</sup>    |
| BN163          | Single           | Auto | 115   | 1  | 15.0 | 1/2 | 60 | 84      | 38      | ---        | ---    | CSA <sup>(2)</sup>    |
| D163           | Single           | Auto | 230   | 1  | 7.5  | 1/2 | 60 | 80      | 36      | 1          | ---    | cCSAus                |
| E163 / E4163   | Single / Double  | Non  | 230   | 1  | 7.5  | 1/2 | 60 | 80 / 87 | 36 / 39 | 2 or 3 & 5 | 4 & 5  | cCSAus                |
| * H163         | Single           | Auto | 200   | 1  | 8.5  | 1/2 | 60 | 80      | 36      | 1          | ---    | cCSAus                |
| * I163 / I4163 | Single / Double  | Non  | 200   | 1  | 8.5  | 1/2 | 60 | 80 / 87 | 36 / 39 | 2 or 3 & 5 | 4 & 5  | cCSAus                |
| * J163 / J4163 | Single / Double  | Non  | 200   | 3  | 6.0  | 1/2 | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * F163 / F4163 | Single / Double  | Non  | 230   | 3  | 4.8  | 1/2 | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * G163 / G4163 | Single / Double  | Non  | 460   | 3  | 2.9  | 1/2 | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * BA163/BA4163 | Single / Double  | Non  | 575   | 3  | 2.4  | 1/2 | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| BE163          | Single           | Auto | 230   | 1  | 7.5  | 1/2 | 60 | 84      | 38      | ---        | ---    | cCSAus                |
| D165           | Single           | Auto | 230   | 1  | 10.2 | 1   | 60 | 80      | 36      | 1          | ---    | cCSAus                |
| E165 / E4165   | Single / Double  | Non  | 230   | 1  | 10.2 | 1   | 60 | 80 / 87 | 36 / 39 | 2 or 3 & 5 | 4 & 5  | cCSAus                |
| * H165         | Single           | Auto | 200   | 1  | 12.6 | 1   | 60 | 80      | 36      | 1          | ---    | cCSAus                |
| * I165 / I4165 | Single / Double  | Non  | 200   | 1  | 12.6 | 1   | 60 | 80 / 87 | 36 / 39 | 2 or 3 & 5 | 4 & 5  | cCSAus                |
| * J165 / J4165 | Single / Double  | Non  | 200   | 3  | 7.5  | 1   | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * F165 / F4165 | Single / Double  | Non  | 230   | 3  | 7.4  | 1   | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * G165 / G4165 | Single / Double  | Non  | 460   | 3  | 3.7  | 1   | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| * BA165/BA4165 | Single / Double  | Non  | 575   | 3  | 3.0  | 1   | 60 | 80 / 87 | 36 / 39 | 3 & 5      | 4 & 5  | cCSAus                |
| BE165          | Single           | Auto | 230   | 1  | 10.2 | 1   | 60 | 84      | 38      | ---        | ---    | cCSAus                |

\* no molded plug (1) cCSAus approved unit available with 20 Amp plug. (2) CSA approved unit with 15 Amp plug.

Additional cords lengths are available in 25' (8 m), 35' (11 m), and 50' (15 m).

## SELECTION GUIDE

1. Integral float operated mechanical switch, no external control required.
2. For automatic use single piggyback variable level float switch or double piggyback variable level float switch. Refer to FM0477.
3. See FM1228 for correct model of simplex control panel.
4. See FM0712 for correct model of duplex control panel.
5. Variable level control switch 10-0743 used as a control activator, specify simplex (3) float or duplex (4) float system. Refer to FM0526.



All installation of controls, protection devices and wiring should be done by a qualified licensed electrician. All electrical and safety codes should be followed including the most recent National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

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502-778-2731 | 800-928-7867 | 3649 Cane Run Road | Louisville, KY 40211-1961 | zoellerpumps.com