



## Construction

Submersible borehole pumps for 4" wells (DN 100 mm), and 6" (DN 150 mm), with external jacket in stainless steel AISI 304 and stages in polycarbonate for 4SD pumps and in noryl for 4SDF, 6SD, 6SDN pumps.

### Impellers

|                           |                             |
|---------------------------|-----------------------------|
| radial floating impellers | 4SDF 16, 22, 36, 46, 54     |
| radial impellers          | 4SD 31, - 6SDN 12, 16, 21   |
| mixed flow impellers      | 4SD 10, 15 - 6SD 18, 19, 20 |

**Connection:** screwed connection ISO 228.  
Delivery casing with built-in non-return valve.

## Applications

For water supply.  
For civil and industrial applications.  
For fire fighting applications.  
For irrigation.

## Operating conditions

Liquid temperature: - up to a 35 °C for 4" motors  
- up to a 25 °C for 6-8-10" motors.

Max. sand quantity into the water: 150 g/m<sup>3</sup> (300 g/m<sup>3</sup> high percentage of solids and sand).  
Continuous duty.

## Rewindable motor CS series

2-pole induction motor, 50 Hz (n ≈ 2900 rpm).  
Sized for connection to the pumps according to NEMA Standards.  
Standard voltages:

- single-phase 230 V up to 2,2 kW for 4" motors.
- three-phase 230 V; 400 V, for 4" motors.
- three-phase 400 V; 400/690 V, for 6" motors.

Voltage tolerance : +6% / -10%.

In order to limit both current and torque at each starting, for rated motor powers equal to or higher than 7.5 kW, one of the following types of starting is necessary: star/delta, soft starter, stator impedance or autotransformer.

## Operating conditions motor

| Motor | Max. Liquid temperature | Cooling: minimum flow velocity | Max. starts per hour | Motor P2  |
|-------|-------------------------|--------------------------------|----------------------|-----------|
| 4CS   | 35 °C                   | 0,08 m/s                       | 20                   | all types |
| 6CS-R | 30 °C                   | 0,1 m/s                        | 15                   | 4÷11 kW   |
|       |                         | 0,2 m/s                        | 15                   | 13÷15 kW  |
|       | 25 °C                   | 0,2 m/s                        | 15                   | 18,5 kW   |
|       |                         | 0,2 m/s                        | 13                   | 22÷30 kW  |

Insulation class F for 4" motors, class E for 6" motors.  
Motor suitable operation with frequency converter .  
Protection IP 68.

## Special features on request

- Other voltages.
- 60 Hz frequency.
- Other temperatures.
- Encapsulated motor **FK series**.

## Designation

4 SD M 31 / 26

Ø of the well in inches \_\_\_\_\_

Series \_\_\_\_\_

Single-phase motor (up to max. 2,2 kW) \_\_\_\_\_

Stage identification \_\_\_\_\_

Number of stages \_\_\_\_\_

The electropumps 4SD31, 4SDF series comply with the European Regulation no. 547/2012.

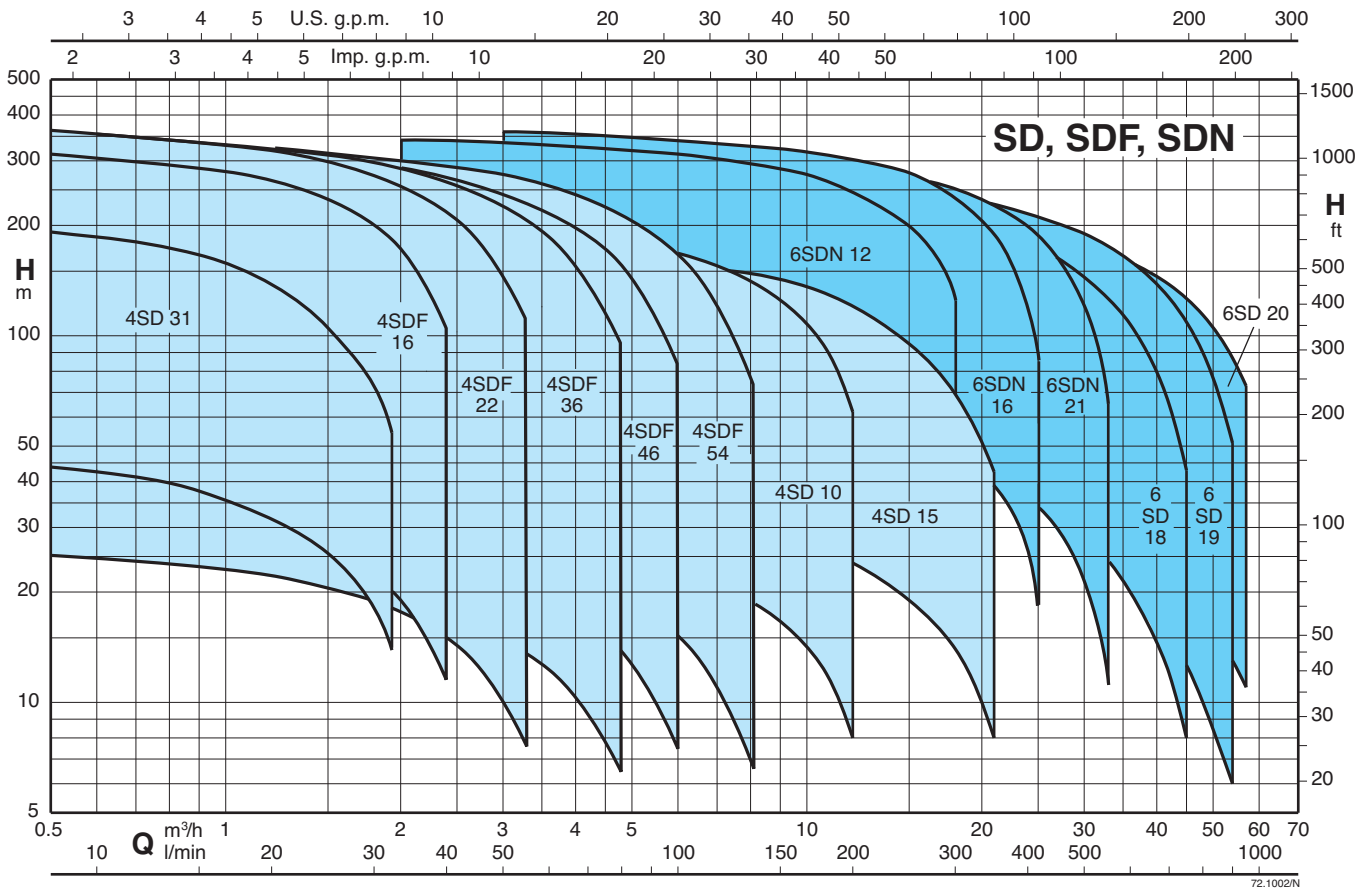
## Materials

| Components           | Part Nr.    | 4SD, 4SDF                   | 6SD, 6SDN                |
|----------------------|-------------|-----------------------------|--------------------------|
| External jacket      | 14.02       | Cr-Ni steel                 | AISI 304                 |
| Stage casing (4SDF)  | 25.02       | Cr-Ni steel                 | AISI 304                 |
| Stage casing (4,6SD) | 25.02       | Polycarbonate (Lexan 141 R) | GFN2V* (NORYL®) for 4SDF |
| Diffuser             | 26.00       |                             | GFN2V* (NORYL®)          |
| Impeller             | 28.00       |                             |                          |
| Wear ring            |             | Cr-Ni steel                 | AISI 304                 |
| Shaft                | 64.00       | Cr steel                    | AISI 430 F               |
| Delivery casing      | 12.01       | Cr-Ni steel                 | Bronze                   |
| Suction lantern      | 32.02       | AISI 304                    | G-Cu Sn 10 EN 1982       |
| Bearing bush         | 12.03-12.30 | Thermoplastic               | Rubber                   |
| Strainer             | 15.50       | Cr-Ni steel                 | AISI 430                 |
| Screws               |             | Cr-Ni steel                 | AISI 304                 |

\* Trademark of General Electric

| Components     | 4CS                                    | 6CS-R                |
|----------------|--|----------------------|
| External frame | Cr-Ni steel                            | AISI 304             |
| Shaft          | Cr-Ni-Mo steel<br>AISI 316 (shaft end) | Cr steel<br>AISI 431 |
| Thrust bearing | Oil wetted ball type                   | Oscillation pads     |
| Bearing bush   | Oil wetted ball type                   | Graphite             |

Coverage chart  $n \approx 2900$  rpm



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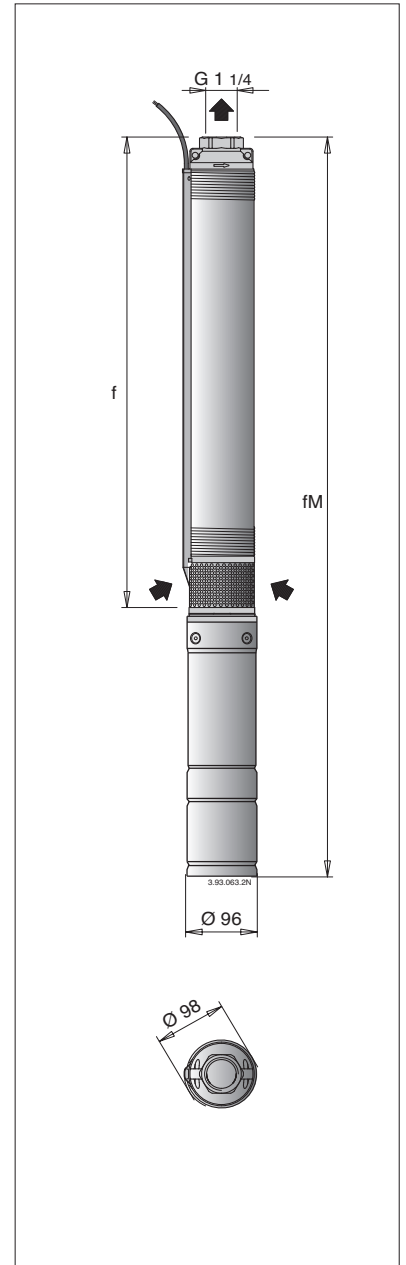
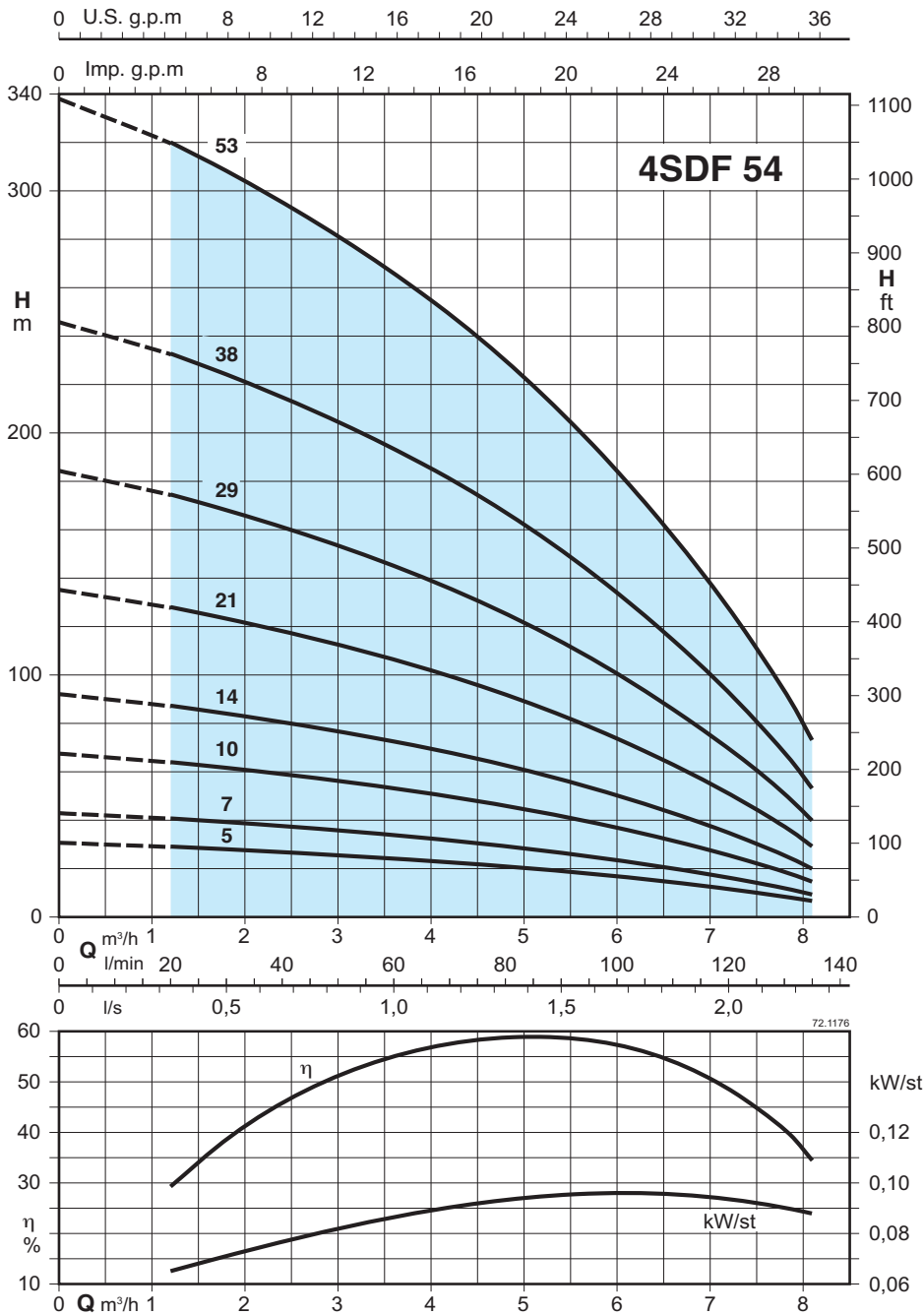


# 4SDF 54

Submersible borehole pumps for 4" wells



## Characteristic curves, performance $n \approx 2900$ rpm, dimensions and weights



|              | 400 V<br>(380-415)<br>50 Hz |               | 230V* Capacitor P1 |    |      |      | P2   |              | Q<br>m³/h<br>l/min | n ≈ 2900 rpm |      |      |      |      |      |      |      |      |  |  |  |  |  |  |
|--------------|-----------------------------|---------------|--------------------|----|------|------|------|--------------|--------------------|--------------|------|------|------|------|------|------|------|------|--|--|--|--|--|--|
|              | 3~<br>A                     | 1~<br>A       | 450 Vc             |    | kW   | kW   | HP   | n ≈ 2900 rpm |                    |              |      |      |      |      |      |      |      |      |  |  |  |  |  |  |
|              |                             |               | A                  | µF |      |      |      | 0            |                    | 1,2          | 1,8  | 2,4  | 3    | 3,6  | 4,8  | 6    | 7,2  | 8,1  |  |  |  |  |  |  |
| 4SDF 54/5EC  | 1,5                         | 4SDFM 54/5EC  | 4                  | 25 | 0,89 | 0,55 | 0,75 | H m          | 30,8               | 29,1         | 28   | 26,8 | 25,6 | 24,2 | 20,9 | 16,8 | 11,6 | 6,6  |  |  |  |  |  |  |
| 4SDF 54/7EC  | 2                           | 4SDFM 54/7EC  | 5,6                | 35 | 1,22 | 0,75 | 1    |              | 43,1               | 40,7         | 39,2 | 37,6 | 35,8 | 33,8 | 29,3 | 23,5 | 16,3 | 9,3  |  |  |  |  |  |  |
| 4SDF 54/10EC | 2,9                         | 4SDFM 54/10EC | 8,4                | 40 | 1,82 | 1,1  | 1,5  |              | 67,7               | 64           | 61,6 | 59,1 | 56,3 | 53,2 | 46   | 36,9 | 25,6 | 14,6 |  |  |  |  |  |  |
| 4SDF 54/14EC | 4,2                         | 4SDFM 54/14EC | 11,2               | 60 | 2,33 | 1,5  | 2    |              | 92,3               | 87,3         | 84,1 | 80,5 | 76,7 | 72,5 | 62,7 | 50,3 | 34,8 | 19,9 |  |  |  |  |  |  |
| 4SDF 54/21EC | 5,5                         | 4SDFM 54/21EC | 14,7               | 70 | 3,27 | 2,2  | 3    |              | 135                | 128          | 123  | 118  | 113  | 106  | 92   | 73,7 | 51,1 | 29,2 |  |  |  |  |  |  |
| 4SDF 54/29EC | 7,4                         |               |                    |    |      | 3    | 4    |              | 185                | 175          | 168  | 161  | 153  | 145  | 125  | 101  | 69,7 | 39,9 |  |  |  |  |  |  |
| 4SDF 54/38EC | 9,4                         |               |                    |    |      | 4    | 5,5  |              | 246                | 233          | 224  | 215  | 205  | 193  | 167  | 134  | 92,9 | 53,1 |  |  |  |  |  |  |
| 4SDF 54/53EC | 13                          |               |                    |    |      | 5,5  | 7,5  |              | 338                | 320          | 308  | 295  | 281  | 266  | 230  | 184  | 128  | 73,1 |  |  |  |  |  |  |

| f    | 4SDF     |      |          | 4SDFM |  |
|------|----------|------|----------|-------|--|
|      | fM<br>mm | kg   | fM<br>mm | kg    |  |
| 340  | 687      | 9,9  | 702      | 12,6  |  |
| 400  | 762      | 11,2 | 802      | 14,4  |  |
| 490  | 892      | 13   | 937      | 16,8  |  |
| 610  | 1057     | 15,4 | 1077     | 18,9  |  |
| 820  | 1222     | 25,4 | 1337     | 22,8  |  |
| 1060 | 1541     | 28,8 |          |       |  |
| 1380 | 1926     | 35,6 |          |       |  |
| 1830 | 2476     | 41,8 |          |       |  |

P1: Max. power input P2: Rated motor power output \* Only for single-phase motor 230 V - 50 Hz (on request)

Tolerances according to UNI EN ISO 9906:2012