

# Single Phase 3-Wire, 1/2-5 HP Motors

60 HZ, 3450 RPM – GENERATION II - 2011 AND 2015

## Residential Water Systems

**FEATURES**

- 304 SS casing and end bells for corrosion resistance
- Kingsbury type, 3 shoe, thrust bearing, see chart for ratings.
- Stainless steel, 17-4 PH splined shaft
- Removable, replaceable 48" motor lead on ½ - 2 HP, 100" on 3 and 5 HP
- Water lubricated with filter/check valve to maintain fluid fill
- Surge arrestors built-in
- Automatic reset, on-winding thermal overload protection on 3-wire up to 1 HP, 1½ - 5 HP have overloads in control box.
- CSA Certified
- NEMA Mounting Dimensions
- Tested to ANSI/NSF 61
- Quick disconnect control boxes with voltage relays for motors up to 1 HP.
- CSCR control boxes available for ½ - 5 HP motors.
- MC (magnetic contactor) control boxes available for 1Ø, 4" motors from 1½ - 5 HP.

**AGENCY LISTINGS**

Tested by CSA to CSA and UL Standards

**APPLICATIONS**

- These 4" motors are designed and sized for installation in 4" diameter or larger water wells.
- Three wire motors are a capacitor start induction run design and require a control box with a starting relay and capacitor.
- Use the CSCR capacitor start/capacitor run control boxes on ½ - 1 HP motors to increase efficiency and motor life and reduce energy consumption.
- The 1½ HP and larger control boxes are all CSCR type.

**SPECIFICATIONS**

- **Temperature Rating:** Rated for continuous duty in water of 86° F (30° C) maximum.
- **Cooling:** Proper motor cooling requires a water velocity past the motor of .25'/sec which translates into 1.2 gpm in a 4" casing, 7 gpm in a 5" casing and 13 gpm in a 6" casing.
- **Power Lead (14 AWG):** Removable and replaceable motor leads are held in place by two (2) stainless steel screws for positive compression and sealing. Leads are furnished with motors and are also available as replacement parts.
- **Rotation:** CCW, counterclockwise as you face the top or shaft end of the motor.
- **Control Box:** Required on single phase 3 wire models, available in quick disconnect or more efficient CSCR designs.

**MATERIALS OF CONSTRUCTION**

| <b>Part</b>                     | <b>Material</b>      |
|---------------------------------|----------------------|
| Motor (Stator) Shell            | 304 SS               |
| Shaft Extension                 | 17-4 PH hardened SS  |
| Motor End Bells                 | 304 SS Castings      |
| Upper and Lower Radial Bearings | Carbon Sleeve        |
| Thrust Bearing                  | Kingsbury Type       |
| Overload Protection             | Built-in, Auto Reset |
| Lead Wire                       | XLPE (14 AWG)        |
| Lead Potting                    | Epoxy                |
| Lead Connector                  | 18-8 SS              |
| Fasteners                       | 18-8 SS              |
| Sand Slinger / Slinger Seat     | NBR / Delrin         |

**Generation II - April 2011****3-WIRE MOTORS Identified by a - 01 Nameplate Order No. Suffix**

As part of Faradyne Motors' continual improvement process, 3-Wire Generation II motors were introduced in April 2011. Pump model numbers and motor order numbers remained unchanged. The Motor Nameplate will have a new Faradyne part number and the Goulds Water Technology part number on the Motor Nameplate will have a - 01 suffix, example M05412 will be M05412 - 01, only on the Motor Nameplate not in our catalog or price book.

**GENERATION II 2011 - FUSE OR CIRCUIT BREAKER AMPS**

| <b>Type</b>      | <b>Motor Order Number</b>      |                   | <b>HP</b> | <b>Fuse or Circuit Breaker Amps</b> |                                |                        |
|------------------|--------------------------------|-------------------|-----------|-------------------------------------|--------------------------------|------------------------|
|                  | <b>Goulds Water Technology</b> | <b>Red Jacket</b> |           | <b>Standard Fuse</b>                | <b>Dual Element Time Delay</b> | <b>Circuit Breaker</b> |
| 3-Wire CSIR (QD) | M05411                         | 50C301            | 0.5       | 30                                  | 20                             | 30                     |
|                  | M05412                         | 50C311            | 0.5       | 20                                  | 10                             | 15                     |
|                  | M07412                         | 75C311            | 0.75      | 20                                  | 15                             | 20                     |
|                  | M10412                         | 100C311           | 1.0       | 25                                  | 15                             | 25                     |
| 3-Wire CSCR      | M05412                         | 50C311            | 0.5       | 15                                  | 10                             | 10                     |
|                  | M07412                         | 75C311            | 0.75      | 15                                  | 10                             | 15                     |
|                  | M10412                         | 100C311           | 1.0       | 20                                  | 15                             | 15                     |
|                  | M15412                         | 150C311           | 1.5       | 30                                  | 20                             | 25                     |
|                  | M20412                         | 200C311           | 2.0       | 30                                  | 20                             | 25                     |
|                  | M30412                         | 300C311           | 3.0       | 45                                  | 25                             | 40                     |
|                  | M50412                         | 500C311           | 5.0       | 80                                  | 45                             | 60                     |

### Generation II - April 2011

#### GENERATION II 2011 - 3-WIRE, SINGLE PHASE 4" MOTORS - ELECTRICAL DATA, 60 HERTZ, 3450 RPM

| Type                                                         | Motor Order No. |            | HP   | KW   | Volts | SF   | Full Load                  |       | Service Factor             |       | Locked Rotor Amps | Winding Resistance |             | Required Control Box <sup>1</sup> |
|--------------------------------------------------------------|-----------------|------------|------|------|-------|------|----------------------------|-------|----------------------------|-------|-------------------|--------------------|-------------|-----------------------------------|
|                                                              | Goulds          | Red Jacket |      |      |       |      | Amps                       | Watts | Amps                       | Watts |                   | Main (B-Y)         | Start (R-Y) |                                   |
| 3-Wire with Q.D. Cap. Start Box                              | M05411          | 50C301     | 0.5  | 0.37 | 115   | 1.6  | Y-8.8<br>B-8.8<br>R-0      | 675   | Y-10.9<br>B-10.9<br>R-0    | 980   | 44                | 1.0-1.4            | 2.5-3.1     | CB05411                           |
|                                                              | M05412          | 50C311     | 0.5  | 0.37 | 230   | 1.6  | Y-5.3<br>B-5.3<br>R-0      | 740   | Y-6.1<br>B-6.1<br>R-0      | 1050  | 21                | 5.1-6.1            | 12.4-13.7   | CB05412                           |
|                                                              | M07412          | 75C311     | 0.75 | 0.55 |       | 1.5  | Y-6.6<br>B-6.6<br>R-0      | 970   | Y-7.8<br>B-7.8<br>R-0      | 1350  | 32                | 2.6-3.3            | 10.4-11.7   | CB07412                           |
|                                                              | M10412          | 100C311    | 1.0  | 0.75 |       | 1.4  | Y-8.1<br>B-8.1<br>R-0      | 1215  | Y-9.4<br>B-9.4<br>R-0      | 1620  | 41                | 2.0-2.6            | 9.3-10.4    | CB10412                           |
| 3-Wire with CSCR (CR) or Magnetic Contactor (MC) Control Box | M05412          | 50C311     | 0.5  | 0.37 |       | 1.6  | Y-4.2<br>B-4.1<br>R-1.8    | 715   | Y-4.8<br>B-4.3<br>R-1.8    | 960   | 21                | 5.1-6.1            | 12.4-13.7   | CB05412CR                         |
|                                                              | M07412          | 75C311     | 0.75 | 0.55 |       | 1.5  | Y-4.8<br>B-4.4<br>R-2.5    | 940   | Y-6.0<br>B-4.9<br>R-2.3    | 1270  | 32                | 2.6-3.3            | 10.4-11.7   | CB07412CR                         |
|                                                              | M10412          | 100C311    | 1.0  | 0.75 |       | 1.4  | Y-6.1<br>B-5.2<br>R-2.7    | 1165  | Y-7.3<br>B-5.8<br>R-2.6    | 1540  | 41                | 2.0-2.6            | 9.3-10.4    | CB10412CR                         |
|                                                              | M15412          | 150C311    | 1.5  | 1.1  |       | 1.3  | Y-9.1<br>B-8.2<br>R-1.2    | 1660  | Y-10.9<br>B-9.4<br>R-1.1   | 2130  | 49                | 2.1-2.5            | 10.0-10.8   | CB15412CR or<br>CB15412MC         |
|                                                              | M20412          | 200C311    | 2    | 1.5  |       | 1.25 | Y-9.9<br>B-9.1<br>R-2.6    | 2170  | Y-12.2<br>B-11.7<br>R-2.6  | 2660  | 49                | 1.6-2.2            | 10.8-12.0   | CB20412CR or<br>CB20412MC         |
|                                                              | M30412          | 300C311    | 3    | 2.2  |       | 1.15 | Y-14.3<br>B-12.0<br>R-5.7  | 3170  | Y-16.5<br>B-13.9<br>R-5.6  | 3620  | 76                | 1.1-1.4            | 2.0-2.5     | CB30412CR or<br>CB30412MC         |
|                                                              | M50412          | 500C311    | 5    | 3.7  |       | 1.15 | Y-24.0<br>B-19.1<br>R-10.2 | 5300  | Y-27.0<br>B-22.0<br>R-10.0 | 6030  | 101               | .62-.76            | 1.36-1.66   | CB50412CR or<br>CB50412MC         |

<sup>1</sup> A CSCR control box with a CR suffix can be replaced by a Magnetic Contactor model ending in MC.

#### GENERATION II 2011 - 3-WIRE, SINGLE PHASE 4" MOTORS - ENGINEERING DATA

| Type             | Motor Order Number |            | HP   | Volts | Efficiency % |      | Power Factor % |      | Thrust Rating | KVA Code |
|------------------|--------------------|------------|------|-------|--------------|------|----------------|------|---------------|----------|
|                  | Goulds             | Red Jacket |      |       | F.L.         | S.F. | F.L.           | S.F. |               |          |
| 3-Wire CSIR (QD) | M05411             | 50C211     | 0.5  | 115   | 57           | 62   | 65             | 78   | 700 #         | M        |
|                  | M05412             | 75C211     | 0.5  | 230   | 52           | 58.5 | 61             | 75   |               | L        |
|                  | M07412             | 100C211    | 0.75 |       | 60           | 64.5 | 64             | 76   |               | L        |
|                  | M10412             | 150C211    | 1    |       | 63           | 66   | 66             | 76   |               | L        |
| 3-Wire CSCR      | M05412             | 50C311     | 0.5  |       | 54.5         | 61.5 | 77             | 87   |               | L        |
|                  | M07412             | 75C311     | 0.75 |       | 62           | 69   | 86             | 91   |               | L        |
|                  | M10412             | 100C311    | 1.0  |       | 66           | 71   | 86             | 91   |               | L        |
|                  | M15412             | 150C311    | 1.5  |       | 68           | 69   | 81             | 87   |               | J        |
|                  | M20412             | 200C311    | 2    |       | 70           | 70   | 89             | 91   | 900 #         | G        |
|                  | M30412             | 300C311    | 3    |       | 72           | 72   | 96             | 97   |               | G        |
|                  | M50412             | 500C311    | 5    |       | 70.5         | 71   | 97             | 97.5 | 1500 #        | E        |
|                  |                    |            |      |       |              |      |                |      |               |          |

#### GENERATION II 2011 - 3-WIRE, 4" SINGLE PHASE RECOMMENDED WIRE LENGTHS

| Generation II - Goulds Water Technology 3-Wire Motors - Recommended Motor Lead Lengths<br>Based on Service Factor Amps, 30°C Ambient and 5% Voltage Drop |      |      |      |      |                                                   |     |     |      |      |      |      |      |      |      |      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|---------------------------------------------------|-----|-----|------|------|------|------|------|------|------|------|
| Motor Rating                                                                                                                                             |      |      |      |      | 60° C and 75° C Insulation - AWG Copper Wire Size |     |     |      |      |      |      |      |      |      |      |
| Volts                                                                                                                                                    | HP   | kW   | FLA  | SFA  | 14                                                | 12  | 10  | 8    | 6    | 4    | 2    | 1/0  | 2/0  | 3/0  | 4/0  |
| 115                                                                                                                                                      | 0.5  | 0.37 | 8.8  | 10.9 | 101                                               | 160 | 255 | 404  | 629  | 1002 | 1591 | 2530 | 3192 | 4029 | 5076 |
| 230                                                                                                                                                      | 0.5  | 0.37 | 5.3  | 6.1  | 359                                               | 571 | 912 | 1444 | 2246 | 3581 | 5685 | 9040 | -    | -    | -    |
|                                                                                                                                                          | 0.75 | 0.55 | 6.6  | 7.8  | 281                                               | 447 | 713 | 1129 | 1757 | 2800 | 4446 | 7070 | 8920 | -    | -    |
|                                                                                                                                                          | 1.0  | 0.75 | 8.1  | 9.4  | 233                                               | 371 | 592 | 937  | 1458 | 2324 | 3689 | 5867 | 7402 | -    | -    |
|                                                                                                                                                          | 1.5  | 1.1  | 9.1  | 10.9 | 201                                               | 320 | 510 | 808  | 1257 | 2004 | 3182 | 5059 | 6383 | -    | -    |
|                                                                                                                                                          | 2.0  | 1.5  | 9.9  | 12.2 | 180                                               | 286 | 456 | 722  | 1123 | 1790 | 2843 | 4520 | 5703 | -    | -    |
|                                                                                                                                                          | 3.0  | 2.2  | 14.3 | 16.5 | 133                                               | 211 | 337 | 534  | 830  | 1324 | 2102 | 3342 | 4217 | 5323 | -    |
|                                                                                                                                                          | 5.0  | 3.7  | 24   | 27   | -                                                 | -   | 206 | 326  | 507  | 809  | 1284 | 2042 | 2577 | 3253 | -    |

## Generation II Single Phase (November 2015)

As part of Faradyne Motors' continual improvement process, further improvements have been made to Generation II motors in November 2015. Our pump model numbers and motor order number will not change. The Motor Nameplate for the improved Generation II will have a - 01 suffix, example M05422 will be M05422 - 01, only on the Motor Nameplate not in our catalog or price book. To decipher the November 2015 Generation II motors from the April 2011 Generation II motors, please use the date code located on the motor. Goulds Water Technology motor date codes are 12 characters long, the first character represents the month and the fourth and fifth character represent the year. The self-stick, Mylar motor data stickers we pack with our motors and complete pumps will be updated with the new electrical data so that installers will know which motor is installed in the well should service work ever be necessary.

### GENERATION II 2015 - 3-WIRE, SINGLE PHASE 4" MOTORS - ELECTRICAL DATA, 60 HZ, 3450 RPM

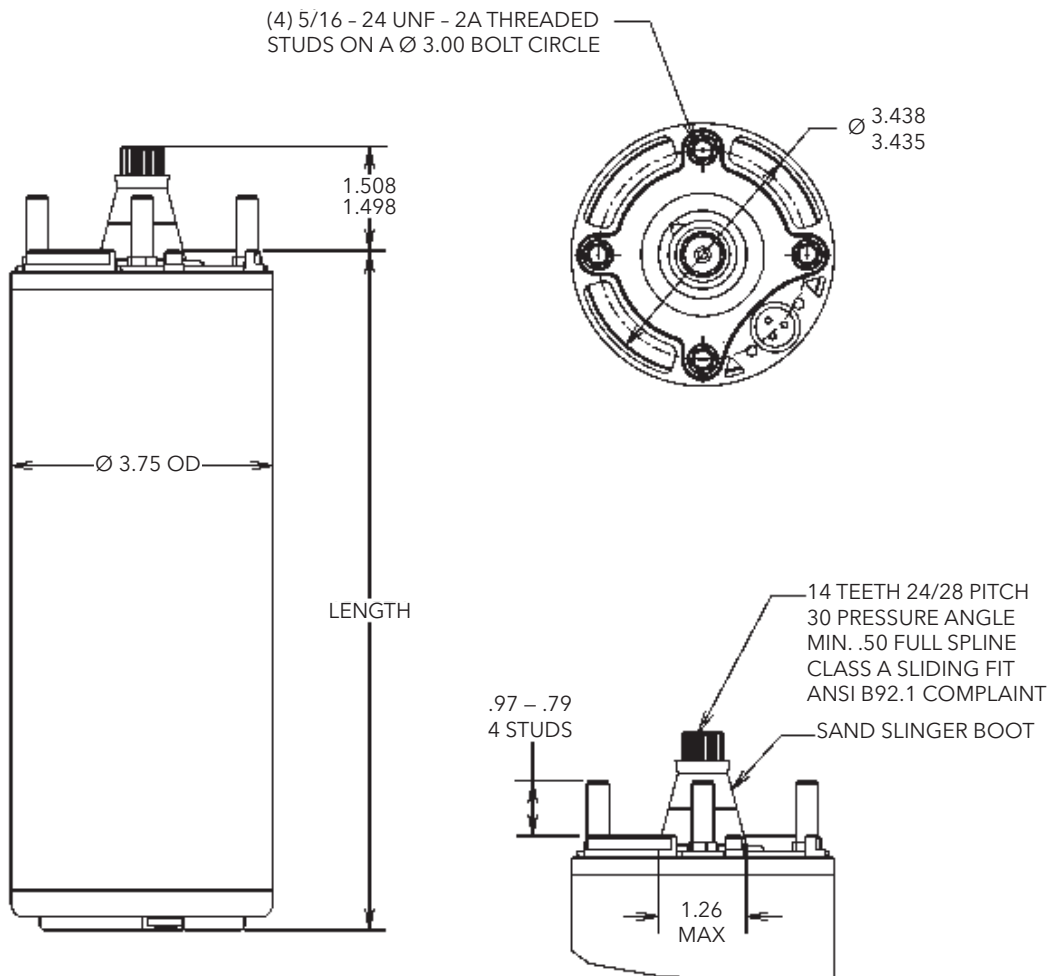
| Type                  | Model  | RJ Ref. # | Rating |      |       |      | Full Load         |       | Service Factor    |       | Locked Rotor Amps | Winding Resistance |             | Standard Control Box | Deluxe Control Box (Mag Contactor) |
|-----------------------|--------|-----------|--------|------|-------|------|-------------------|-------|-------------------|-------|-------------------|--------------------|-------------|----------------------|------------------------------------|
|                       |        |           | HP     | KW   | Volts | SF   | Amps (B or Y/B/R) | Watts | Amps (B or Y/B/R) | Watts |                   | Main (B-Y or B-B)  | Start (R-Y) |                      |                                    |
| 3-Wire (CSIR) PREMIUM | M05411 | 50C301    | 0.5    | 0.37 | 115   | 1.6  | 9.8/9.8/0         | 670   | 11.6/11.6/0       | 980   | 44                | 1.0 - 1.4          | 2.5 - 3.1   | CB05411              | -                                  |
|                       | M05412 | 50C311    | 0.5    | 0.37 | 230   | 1.6  | 5.7/5.7/0         | 735   | 6.3/6.3/0         | 1035  | 20.5              | 5.1 - 6.1          | 12.4 - 13.7 | CB05412              | -                                  |
|                       | M07412 | 75C311    | 0.75   | 0.55 | 230   | 1.5  | 6.7/6.7/0         | 940   | 7.9/7.9/0         | 1335  | 32                | 2.6 - 3.3          | 10.4 - 11.7 | CB07412              | -                                  |
|                       | M10412 | 100C311   | 1      | 0.75 | 230   | 1.4  | 8.5/8.5/0         | 1175  | 9.5/9.5/0         | 1590  | 41                | 2.0 - 2.6          | 9.3 - 10.4  | CB10412              | -                                  |
| 3-Wire (CSCR) PREMIUM | M05412 | 50C311    | 0.5    | 0.37 | 230   | 1.6  | 4.4/4.3/1.9       | 715   | 5.0/4.5/1.9       | 950   | 21                | 5.1 - 6.1          | 12.4 - 13.7 | CB05412CR            | -                                  |
|                       | M07412 | 75C311    | 0.75   | 0.55 | 230   | 1.5  | 4.6/4.6/2.6       | 920   | 6.1/5.1/2.6       | 1235  | 32                | 2.6 - 3.3          | 10.4 - 11.7 | CB07412CR            | -                                  |
|                       | M10412 | 100C311   | 1.0    | 0.75 | 230   | 1.4  | 6.2/6.0/3.6       | 1165  | 7.4/6.3/3.3       | 1490  | 41                | 2.0 - 2.6          | 9.3 - 10.4  | CB10412CR            | -                                  |
|                       | M15412 | 150C311   | 1.5    | 1.1  | 230   | 1.3  | 9.2/8.7/1.2       | 1660  | 11.0/9.9/1.2      | 2110  | 49                | 2.1 - 2.5          | 10.0 - 10.8 | CB15412CR            | CB15412MC                          |
|                       | M20412 | 200C311   | 2.0    | 1.5  | 230   | 1.25 | 9.9/9.1/2.6       | 2170  | 12.2/11.7/2.6     | 2660  | 49                | 1.6 - 2.2          | 4.8 - 5.9   | CB20412CR            | CB20412MC                          |
|                       | M30412 | 300C311   | 3.0    | 2.2  | 230   | 1.15 | 14.3/12.0/5.7     | 3170  | 16.5/13.9/5.6     | 3620  | 76                | 1.0 - 1.4          | 2.0 - 2.5   | CB30412CR            | CB30412MC                          |
|                       | M50412 | 500C311   | 5.0    | 3.7  | 230   | 1.15 | 24/19.1/10.2      | 5300  | 27.0/22.0/10.0    | 6030  | 101               | .6 - .8            | 1.3 - 1.7   | CB50412CR            | CB50412MC                          |

### GENERATION II 2015 - 3-WIRE, SINGLE PHASE 4" MOTORS - ENGINEERING DATA

| Type                  | Model  | RJ REF # | HP   | Volts | Efficiency % |      | Power Factor % |      | Thrust Rating | KVA Code |
|-----------------------|--------|----------|------|-------|--------------|------|----------------|------|---------------|----------|
|                       |        |          |      |       | F.L.         | S.F. | F.L.           | S.F. |               |          |
| 3-Wire (CSIR) PREMIUM | M05411 | 50C301   | 0.5  | 115   | 55.5         | 61   | 63             | 77   | 700 #         | M        |
|                       | M05412 | 50C311   | 0.5  | 230   | 51           | 58   | 60             | 75   |               | L        |
|                       | M07412 | 75C311   | 0.75 | 230   | 60           | 63   | 64             | 78   |               | L        |
|                       | M10412 | 100C311  | 1    | 230   | 63.5         | 66   | 63             | 76   |               | L        |
| 3-Wire (CSCR) PREMIUM | M05412 | 50C311   | 0.5  | 230   | 52           | 63   | 75             | 86   |               | L        |
|                       | M07412 | 75C311   | 0.75 | 230   | 61           | 68   | 86             | 93   |               | L        |
|                       | M10412 | 100C311  | 1.0  | 230   | 64           | 70   | 85             | 91   |               | L        |
|                       | M15412 | 150C311  | 1.5  | 230   | 68           | 69   | 82             | 87   |               | J        |
|                       | M20412 | 200C311  | 2.0  | 230   | 68           | 69   | 96             | 95   | 900 #         | G        |
|                       | M30412 | 300C311  | 3.0  | 230   | 72           | 72   | 96             | 97   |               | G        |
|                       | M50412 | 500C311  | 5.0  | 230   | 70.5         | 71   | 97             | 97.5 | 1500 #        | E        |

### WEIGHTS AND DIMENSIONS

| Type   | Motor Order No.         |            | HP  | Volts | Length |     | Motor Weight |      |
|--------|-------------------------|------------|-----|-------|--------|-----|--------------|------|
|        | Goulds Water Technology | Red Jacket |     |       | Inches | mm  | lb.          | kg.  |
| 3-wire | M05411                  | 50C301     | .5  | 115   | 9.6    | 244 | 17.9         | 8.1  |
|        | M05412                  | 50C311     | .5  | 230   | 9.2    | 234 | 16.7         | 7.6  |
|        | M07412                  | 75C311     | .75 |       | 10.3   | 262 | 19.8         | 9.0  |
|        | M10412                  | 100C311    | 1   |       | 11.2   | 284 | 22.0         | 10.0 |
|        | M15412                  | 150C311    | 1.5 |       | 12.8   | 325 | 26.0         | 11.8 |
|        | M20412                  | 200C311    | 2   |       | 15.1   | 383 | 31.0         | 14.1 |
|        | M30412                  | 300C311    | 3   |       | 18.3   | 466 | 40.0         | 18.1 |
|        | M50412                  | 500C311    | 5   |       | 27.7   | 703 | 70.0         | 31.8 |



### NOTES

# Xylem |'zīləm|

- 1) The tissue in plants that brings water upward from the roots;
- 2) a leading global water technology company.

We're a global team unified in a common purpose: creating advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services settings. Xylem also provides a leading portfolio of smart metering, network technologies and advanced analytics solutions for water, electric and gas utilities. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise with a strong focus on developing comprehensive, sustainable solutions.

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Xylem Inc.  
2881 East Bayard Street Ext., Suite A  
Seneca Falls, NY 13148  
Phone: (866) 325-4210  
Fax: (888) 322-5877  
[www.xylem.com/goulds](http://www.xylem.com/goulds)

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