

PART 1 - GENERAL

- 1.1 REFERENCES .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)  
.1 Material Safety Data Sheets (MSDS).
- 1.2 SUBMITTALS .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:  
.1 Submit manufacturer's printed product literature, specifications and data sheet for fixtures and equipment.
- .3 Shop Drawings.  
.1 Submit shop drawings to indicate:  
.1 Equipment, including connections, fittings, control assemblies and ancillaries. Identify whether factory or field assembled.  
.2 Wiring and schematic diagrams.  
.3 Dimensions and recommended installation.  
.4 Pump performance and efficiency curves.
- .4 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
- .5 Instructions: submit manufacturer's installation instructions.
- .6 Manufacturers' Field Reports: manufacturers' field reports specified.
- .7 Closeout submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals, include:  
.1 Manufacturers name, type, model year, capacity and serial number.  
.2 Details of operation, servicing and maintenance.  
.3 Recommended spare parts list with names and addresses.

1.3 QUALITY  
ASSURANCE

- .1 Health and Safety:
  - .1 Do construction occupational health and safety in accordance with Section 01 35 29.06 - Health and Safety Requirements.

1.4 DELIVERY,  
STORAGE AND  
HANDLING

- .1 Waste Management and Disposal:
  - .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
  - .2 Collect and separate for disposal paper plastic polystyrene corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

PART 2 - PRODUCTS

2.1 DEEP WELL PUMP

- .1 Capacity: 61.5 L/s @ G1 m head.
- .2 Construction:
  - .1 100 mm bowl size.
  - .2 Vertical, multi-stage turbine.
  - .3 Built-in non-return valve.
  - .4 Stainless steel construction with stainless steel or composite resin impellers.
  - .5 Suction screen.
  - .6 Suitable for domestic water use.
- .3 Motor: submersible 0.75 kw, 208V, 1 Ph.
- .4 Control: Controller in Pumphouse, with level transmitters in domestic water cells.
- .5 Control Panel
  - .1 CSA approved.
  - .2 Main disconnect.
  - .3 Thermal and short circuit protection using circuit breakers.
  - .4 Control transformer with fused primary.
  - .5 Power on and pump run pilot lights.
  - .6 Hand-off-auto selector switch.
  - .7 NEMA 4 enclosure.
  - .8 High level alarm with reset button.
  - .9 Overload pilot lights.
  - .10 Elapsed time meter.
  - .11 Magnetic starter.
- .6 Standard of Acceptance: Grundfos SP 16S10-10.

PART 3 - EXECUTION

- 3.1 MANUFACTURER'S INSTRUCTIONS .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.
- 3.2 INSTALLATION .1 Make piping and electrical connections to pump and motor assembly and controls as indicated.
- .2 Ensure pump and motor assembly do not support piping.
- 3.3 FIELD QUALITY CONTROL .1 Site Tests/Inspection:
- .1 Check power supply.
- .2 Check starter protective devices.
- .2 Start-up, check for proper and safe operation.
- .3 Check settings and operation of hand-off-auto selector switch, operating, safety and limit controls, audible and visual alarms, over-temperature and other protective devices.
- .4 Adjust flow from water-cooled bearings.
- .5 Adjust impeller shaft stuffing boxes, packing glands.
- 3.4 START-UP .1 General:
- .1 In accordance with Section 01 91 13 - General Commissioning (Cx) Requirements: General Requirements, supplemented as specified herein.
- .2 Procedures:
- .1 Check power supply.
- .2 Check starter O/L heater sizes.
- .3 Start pumps, check impeller rotation.
- .4 Check for safe and proper operation.
- .5 Check settings, operation of operating, limit, safety controls, over-temperature, audible/visual alarms, other protective devices.

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- 3.4 START-UP (Cont'd)
- .1 General: (Cont'd)
  - .2 Procedures: (Cont'd)
    - .6 Test operation of hands-on-auto switch.
    - .7 Test operation of alternator.
    - .8 Adjust leakage through water-cooled bearings.
    - .9 Adjust shaft stuffing boxes.
    - .10 Adjust leakage flow rate from pump shaft stuffing boxes to manufacturer's recommendations.
    - .11 Check base for free-floating, no obstructions under base.
    - .12 Run-in pumps for 12 continuous hours.
    - .13 Check installation, operation of mechanical seals, packing gland type seals. Adjust as necessary.
    - .14 Adjust alignment of piping and conduit to ensure full flexibility.
    - .15 Eliminate causes of cavitation, flashing, air entrainment.
    - .16 Measure pressure drop across strainer when clean and with flow rates as finally set.
    - .17 Verify lubricating oil levels.
- 3.5 DEEP WELL PUMPS
- .1 Test and commission as per manufacturer's recommendations.
- 3.6 REPORTS
- .1 In accordance with Section 01 91 13 - General Commissioning (Cx) Requirements: reports, supplemented as specified.
  - .2 Include:
    - .1 PV results on approved PV Report Forms.
    - .2 Product Information report forms.
    - .3 Pump performance curves (family of curves) with final point of actual performance.
- 3.7 TRAINING
- .1 In accordance with Section 01 91 13 - General Commissioning (Cx) Requirements: Training of O&M Personnel, supplemented as specified.