xylem
Let's Solve Water

SPECIFICATIONS

e-SVX Smart Pump

Integrated pump, motor & variable speed drive solutions, **powered by hydrovar® X**

GOULDS WATER TECHNOLOGY
a xylem brand

GWTe-SVXSP-100035 R2

Typical Engineering Specifications

I. Scope

The contractor shall provide _____ (quantity) multistage centrifugal pump unit/s, Model e-SVX as manufactured by Goulds Water Technology, a Xylem brand. All pump units shall be from one manufacturer and include Xylem hydrovar® X integrated motor and variable frequency drive.

II. Conditions of Service

A. Equipment Item Number	_____	_____	_____
B. Discharge Connection Size	_____	_____	_____
C. Primary Service Condition			
Capacity (GPM)	_____	_____	_____
Total Head (feet)	_____	_____	_____
Efficiency (%)	_____	_____	_____
D. Minimum Shutoff Head	_____	_____	_____
E. Minimum Flow Allowed	_____	_____	_____
F. Operating Speed	_____	_____	_____
G. Maximum Motor HP	_____	_____	_____

III. Pump Construction

The e-SVX pump is a non-self priming vertical multistage pump coupled to a hydrovar X integrated motor and drive. The liquid end, located between the upper cover and the pump casing, is held in place by tie rods. The pump casing is available with different configurations and connection types.

A. Pump End Components

A.1 Pump Body

For models 1-22SVX

The pump body shall be constructed of ASTM class 35/40B cast Iron, AISI 304 stainless steel, or AISI 316L stainless steel and shall be capable of withstanding the maximum working pressure. Pump connections shall be compatible with 1.25" NPT (1-5 e-SVX), 2" NPT (10-22 e-SVX), 1.25" ANSI Class 300 raised face flanges (stainless steel all models), or 1.25" ANSI Class 250 raised face flanges (cast iron all models). Refer to Table 1 for pump body configuration options.

For models 33-125SVX

The pump body shall be constructed of ASTM class 35/40B cast Iron or ASTM CF8M 316 stainless steel and shall be capable of withstanding the maximum working pressure. Cast iron pump connections shall be either ANSI Class 125 flat face or Class 250 raised face. Stainless Steel pump connections shall be either ANSI Class 150 raised face or Class 300 raised face. Models 33, 46, 66, 92, and 125SVX shall be provided with 2.5", 3", 4", 4", and 5" nominal diameter connections respectively. Refer to Table 1 for pump body configuration options. Models 33-125SVX are only available in G and N configurations.

A.2 Wear Ring

Wear rings shall be constructed of glass-filled PPS.

Table 1: e-SVX Pump Body Configurations

Pump Body Configuration	Description	Material
F	ANSI flanges, in-line delivery and suction ports	AISI 304
T	Oval flanges (NPT), in-line delivery and suction ports	AISI 304
R	ANSI flanges, delivery port above the suction port, with four adjustable positions	AISI 304
N	ANSI flanges, in-line delivery and suction ports	AISI 316L
P	Victaulic couplings, in-line delivery and suction ports	AISI 316L
G	ANSI flange, in-line delivery and suction ports	Cast Iron
C	ISO clamp	AISI 316L

A.3 Impeller

Impellers shall be of enclosed design and constructed of AISI 304, AISI 316, or AISI 316L stainless steel. Impellers shall provide internal thrust balance in each stage.

A.4 Diffuser Bowl

Each stage shall have a bowl with attached diffuser and be constructed of AISI 304, AISI 316, or AISI 316L stainless steel.

A.5 Shaft Sleeve and Bearing

The pump shall have shaft sleeves made of tungsten carbide and ceramic bearings.

A.6 Coupling and Guard

Coupling – The pump shall have split type aluminum coupling. All rotating components of the drive-end are isolated by the formed metal coupling guards and bolted in place on the motor adapter.

A.7 Hardware

The pump shall be completely assembled with stainless steel fasteners.

A.8 Elastomers

Pump elastomers shall be either Viton or EPDM in construction.

A.9 Mechanical Seal

The standard pump shall be supplied with a mechanical seal of Carbon/Silicon Carbide/Viton construction. Alternative selection options shall be in accordance with Table 2 (see next page). Models 33-92SVX shall have the option of selecting a cartridge type seal in accordance with Table 3 (see next page).

Table 2: e-SVX Mechanical Seal Options

Pump	Rotating Face	Stationary Face	Elastomers	Spring	Metal Components
1SVX thru 22SVX	Carbon	Silicon Carbide Graphite Filled	Viton	316SS	316SS
	Silicon Carbide Graphite Filled				
	Carbon		EPR		
	FDA Grade Carbon		AFLAS		
33SVX thru 125SVX	Carbon	Silicon Carbide Graphite Filled	Viton	316SS	316SS
	Silicon Carbide Graphite Filled				
	Carbon		EPR		

Table 3: e-SVX Cartridge Seal Options

Pump	Rotating Face	Stationary Face	Elastomers	Spring	Sleeve	Set Screw	Locking Collar
33SVX	Silicon Carbide	Carbon	Viton	316SS	316SS	300SS	316SS
46SVX							
66SVX		Silicon Carbide	EPR				
92SVX							

IV. hydrovar X INTEGRATED MOTOR AND DRIVE

A. General Performance and Design

The unit shall be coupled to a hydrovar X variable-speed, permanent magnet (non-rare earth) assisted reluctance (PMAREL) motor-drive. The hydrovar X unit shall include provisions to disconnect the drive and motor independently. The motor-drive combination shall perform in accordance with the PDS (power drive system) values indicated on the unit motor nameplate and as outlined by IEC standards for IE5 and IES2 efficiencies. The motor-drive unit mounting dimensions shall conform to the frame size and type indicated on the unit nameplate. All hydrovar X units shall be rated for an environmental protection rating of NEMA 4/IP55 and working temperatures of -4 to 122°F (-20 to +50°C). hydrovar X units shall be compatible with both 3-phase 50 Hz or 60 Hz supply and rated for either 200-240V (+/- 10%) or 380-480V (+/- 10%) ranges. The motor-drive combination will not require shaft grounding rings.

B. Drive Controls and Wiring

Units shall be fitted with a full-color HMI (human machine interface) display controlled by rubber button physical input controls. hydrovar X units shall be compatible with Modbus RTU and BACNet MS/TP communication protocols. Units shall be equipped with the ability to perform wireless communication via the Xylem X App. The unit shall support up to (4) analog inputs, (5) digital inputs, (1) analog output, (2) relay outputs (Form C), and (1) 10V output supply. Supported analog input and output ranges are: 0-20 mA, 4-20 mA, 0-10V, and 2-10V. hydrovar X units shall be equipped with (2) RS485 terminal block connections. The unit shall feature a removable gland plate of which the power supply opening is dimensioned for standard U.S. trade size conduit fittings.

hydrovar X units shall be capable of multi-pump controls up to (8) pumps in parallel and feature a suite of input-driven control programming options including pressure, flow, temperature, and level as well as quadratic and linear proportional pressure control.

hydrovar X units shall support the ability to operate at a user-defined fixed rotational speed (Actuator mode) without external input controls.

V. Testing

A. Production performance testing will be conducted by the manufacturer on each pump unit. Head at three operating points (70% of BEP, BEP and 120% of BEP) will be measured to verify performance.

B. Pump performance shall be ANSI/HI 14.6 Grade 2B compliant.

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e-SVX Smart Pumps: