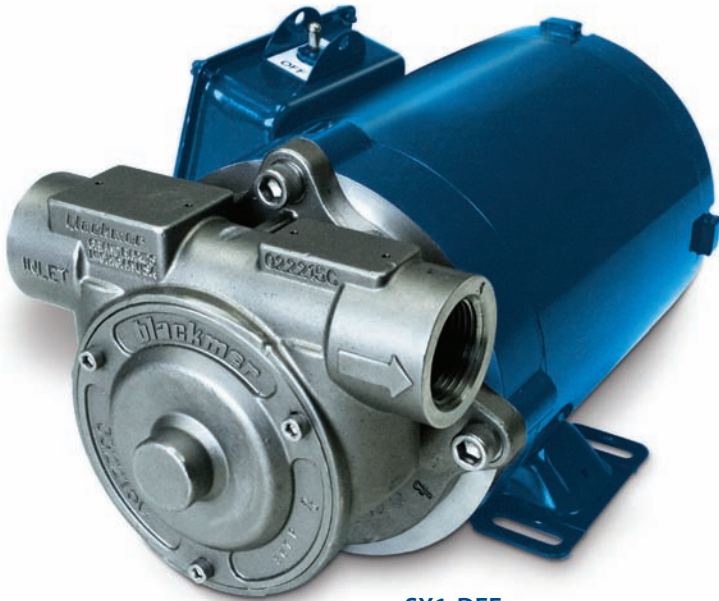


**Spec Sheet 203-005**

Section: 203  
Effective: September 2017  
Replaces: March 2014



## SX1-DEF Series Sliding Vane Pumps



**SX1-DEF**  
12-volt or 110-volt Motor Option

The features and benefits make the SX1-DEF pump a superior solution to low-cost, short-service “throwaway” pumps, which utilize inadequate designs and, in many cases, are constructed of cheaper plastic materials. These competitive models just can’t compete with the design, reliability, durability and overall performance of the Blackmer SX1-DEF Series Sliding Vane Pump.

In 2010, when new diesel-emission standards for Class 4-8 vehicles mandated its use in the USA, Diesel Exhaust Fluid (DEF) was called “the largest addition to the motor-vehicle liquids marketplace in decades.” Subsequent years have borne out the veracity of that statement with consumption growing geometrically and significant growth forecasted for the future.

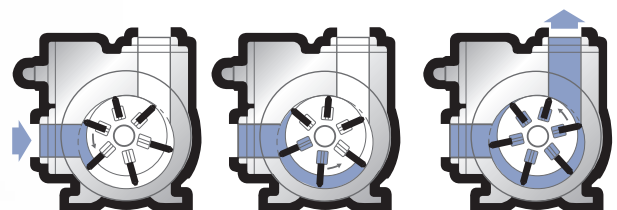
To meet this demand, thousands of truck stops, truck dealers and aftermarket parts stores are offering DEF. Pumps are needed to facilitate the transfer of DEF into on-site storage vessels, or from those vessels into the DEF tanks of fleet trucks and these pumps must be compatible with DEF’s unique properties to avoid contamination issues.

Recognizing both the opportunities and challenges inherent in the DEF marketplace, Blackmer® has produced a series of sliding vane-style pumps that are dedicated for DEF production and handling.

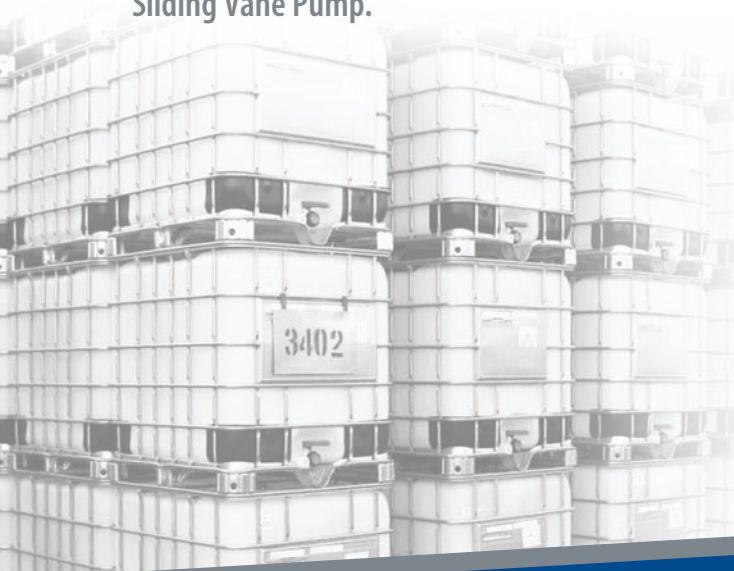
### Features & Benefits

The SX1-DEF pumps offer the following operational features and benefits when dispensing DEF from various sized totes:

- Maximum flow rate: 10 gpm (37.9 L/min)
- Maximum differential pressure: 25 psi (1.7 bar)
- Motor speed: 1,750 rpm
- All 316 stainless-steel construction, including pump shaft
- Duravanes®
- EPDM O-rings
- Commercial mechanical seal
- 180° porting with optional 1” NPT or 1” BSPP tapped ports
- Optional foot-mounted, 0.5-horsepower TENV, C-face close-coupled 12-volt or 110-volt motor
- Integral relief valve with stainless-steel spring
- Meets ISO 22241-3 certification for material compatibility



How Blackmer’s sliding vane action works



## Blackmer® Introduces SX1B-DEF Series Sliding Vane Pumps In 110-Volt and 12-Volt Versions

Grand Rapids, MI, Sept. 28, 2017 – Blackmer®, part of PSG®, a Dover company and a global leader in positive displacement pump, regenerative turbine pump, centrifugal pump, and reciprocating compressor technologies, is pleased to announce the release of the SX1B-DEF Series Sliding Vane Pump. Effective immediately, Blackmer is accepting orders for both the 110-volt and 12-volt versions. Initial orders will ship the week of Dec. 18, 2017.

The SX1B-DEF pumps have been designed to meet the stringent handling requirements of Diesel Exhaust Fluid (DEF). All materials are either DEF-approved or have been tested to ensure there is no fluid contamination or leeching into the DEF fluid.

The SX1B-DEF pumps, which have been upgraded from previous models, retain the compact footprint, but include several improvements and features when compared with competition:

- New Zytel® plastic rotor
- Duravanes
- C-Face pump mounting
- Commercial mechanical seal
- Motor options
  - 110-volt – 50 & 60 Hz dual rated motor.
  - 12-volt
- Porting options
  - 1" NPT tapped ports
  - 1" BSPP tapped ports

The addition of a 12-volt motor option allows the SX1B-DEF pump to be truck-mounted and used for fleet refueling. Several trial pumps have been running in the field for almost two years.

The users of those pumps praise the reliability and longevity of the SX1B-DEF pump when compared with competitive models that often fail within six months. These truck-mounted pumps use eyelet motor connections with recommended 6 AWG wire no longer than 20 feet. This ensures that the motor gets the proper voltage to deliver up to 10 gpm (38 L/min) up to 25 psi (1.7 bar).

One unique feature of both the 110-volt and 12-volt pumps is the use of a 316 stainless-steel motor shaft as the pump shaft. The Zytel rotor is then installed on the motor shaft and locked to the shaft with a grub screw.



SX1B-DEF 12-volt motor



SX1B-DEF 110-volt motor



Tank Truck Service & Sales, Inc. Warren, Michigan  
800-482-2678 [www.tanktruckservice.com](http://www.tanktruckservice.com)





# SX1-DEF Series Sliding Vane Pumps



## Characteristic Flow Rates

Pump Model	Pump Speed rpm	Pump Capacity @ 10 psid (0.7 bar) with 30 ssu (1 cSt) Fluid			Maximum Fluid Viscosity at rpm Shown	
		US gpm	L/min	m <sup>3</sup> /h	ssu	cSt
SX1-DEF	1750	8.5	32.2	1.93	30	2.0

## Maximum Operating Limits

Pump Model	Nominal Flow Rate			Pump Speed rpm	Viscosity		Differential Pressure		Temperature	
	US gpm	L/min	m <sup>3</sup> /h		ssu	cSt	psi	bar	°F	°C
SX1-DEF	7.5	28.4	1.7	1750	30	2.0	25	1.72	80	32

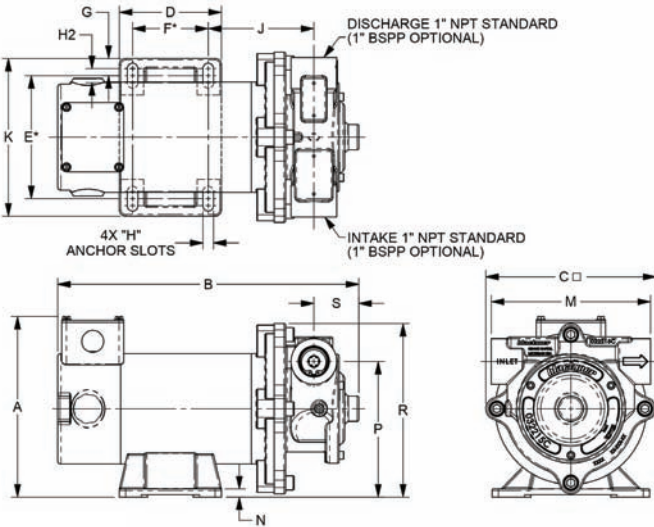
## Motor Descriptions

### 12-Volt

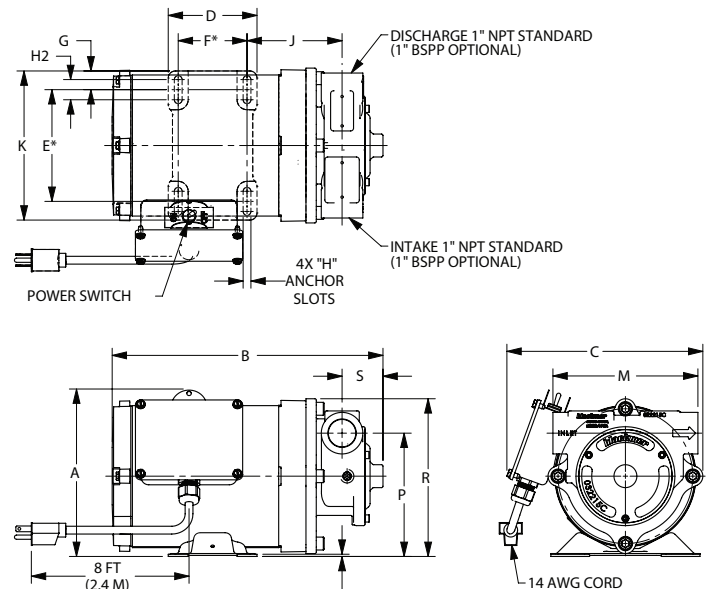
Frame: 56C Phase: —  
HP: 1/2 Freq: —  
Volts: 12 DC Encl: TENV

### 110-Volt

Frame: 56CZ Phase: 1 PH  
HP: 1/2 Freq: 60 HZ  
Volts: 115 AC Encl: TENV



12-Volt



110-Volt

## Pump Dimensions

Pump Model	A	B	C	D	E	F	G	H	H2	J	K	M	N	P	R	S	Pump Weight	
SX1-DEF 12-Volt	in.	7 1/8	11 15/16	6 3/4	4 1/16	4 7/8	3	1 1/16	7/16	9/16	4 3/16	6 1/4	6 5/16	5/16	5 3/8	6 7/8	1 13/16	27 lbs,
	mm	181.0	303.2	171.5	103.2	123.8	76.2	17.5	11.1	14.3	106.4	158.8	160.3	7.9	136.5	174.6	46.0	12 kg
SX1-DEF 110-Volt	in.	7 5/16	11 13/16	8 9/16	3 3/8	4 1/8	3	1 3/16	1 1/2	7/8	4 1/8	6 1/2	6 5/16	1/8	5 3/8	6 7/8	1 13/16	36 lbs.
	mm	185.7	300.0	217.5	98.4	123.8	76.2	20.6	8.7	22.2	104.8	165.1	160.3	3.2	136.5	174.6	46.0	16.3 kg



Authorized PSG® Partner:

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