



**Spec Sheet 106-001**

Section: 106

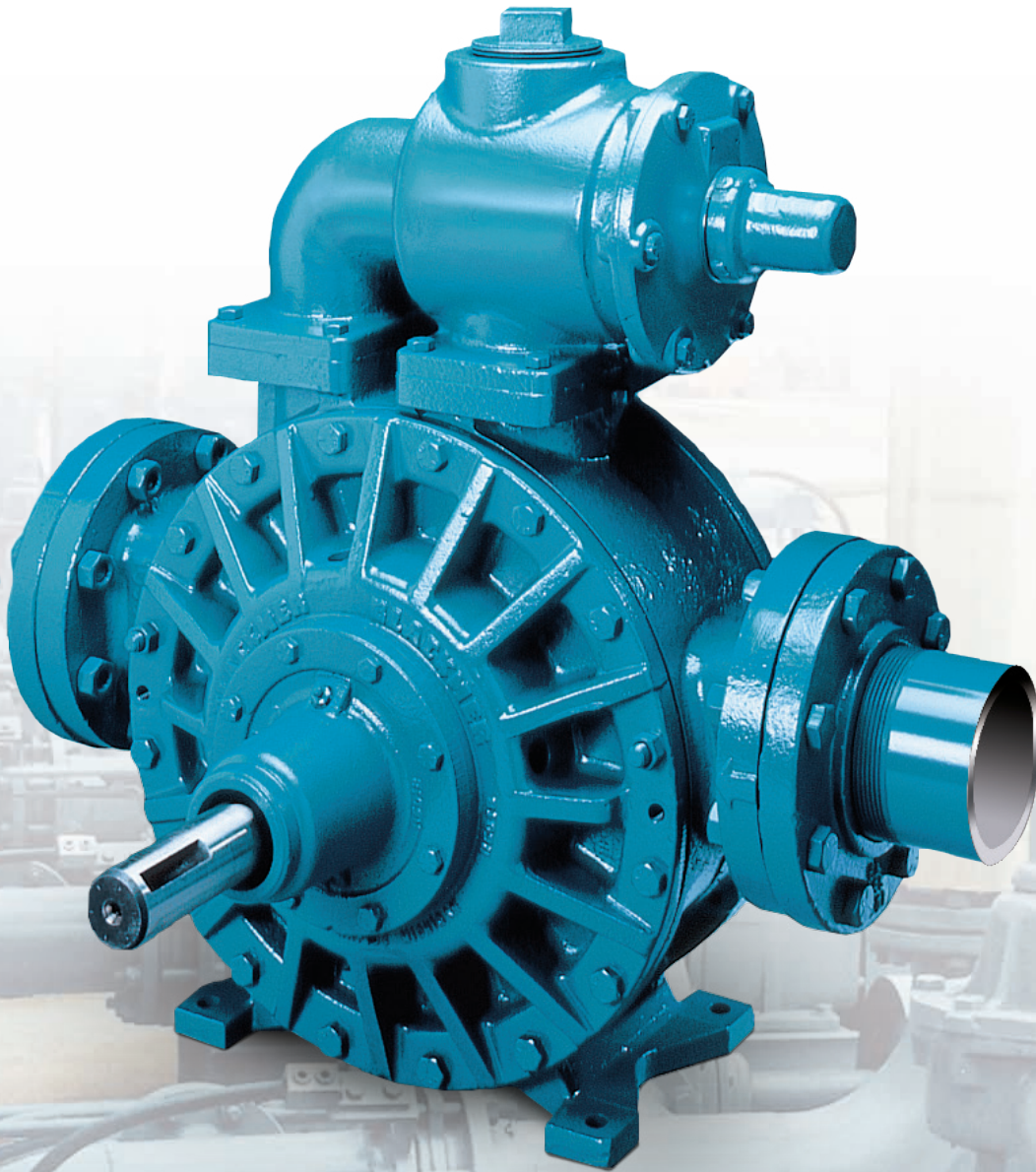
Effective: June 2015

Replaces: July 2012



## **ML4 Series**

**The Flexible Pump Solution for Fluid Processing and Transfer**





# Blackmer ML4 Series Fluid Processing Pumps

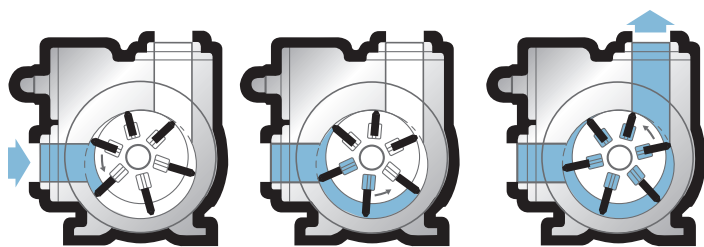
## A tough pump for tough services

Blackmer's ML4-inch Series positive displacement rotary pumps are designed for the long run. They are ideal for handling everything from thin non-lubricating solvents, to highly viscous liquids or abrasive slurries. Count on the ML4 when you need continuous duty performance over a wide range of services: chemicals, petroleum, paint and coatings, pulp and paper, and food processing.

## ML4 combines proven sliding vane design with interchangeable hubs engineered to your service

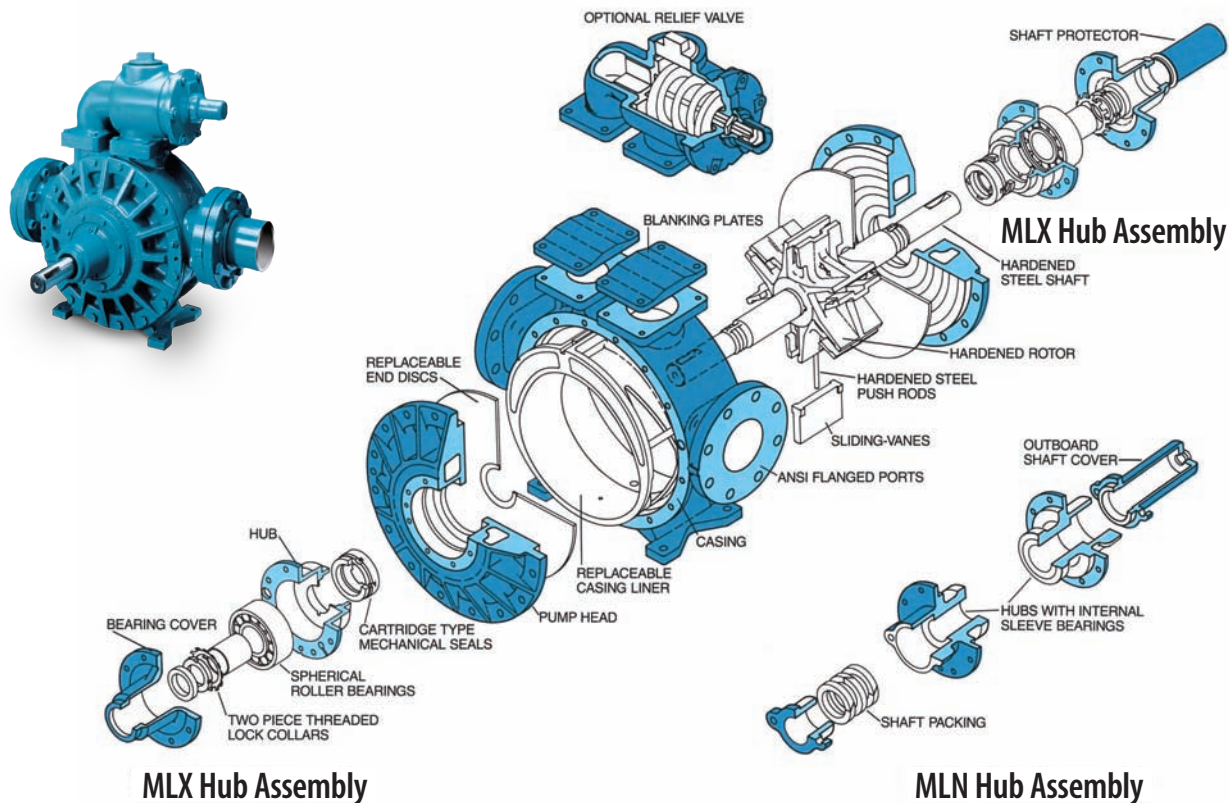
Our unique sliding vane rotor design is the heart of the ML4 pump and the major reason for Blackmer's sustained high-level performance. Other major benefits are built in too – like energy efficiency, dependable trouble-free operation, low maintenance, smooth non-pulsating flow, easy flushing and reverse shaft rotation capabilities.

Blackmer's design leadership is evident in the wide range of applications for which the ML4 is the ideal pump solution. Simply tell us your pump service and we will put the right combination of bearing, seal and hub assembly together to do the job. The removable hub allows quick access to the bearing and sealing areas for routine inspection, without removing the entire pump head.



How Blackmer's sliding vane action works

## Basic Design and Construction





# Heavy-Duty / Modular Design / Minimum Maintenance

## Design Parameters

**Flow rates:** up to 600 gpm (136 m<sup>3</sup>/h)

**Operating temperatures:** to 400°F (204°C)

**Viscosity range:** 30 to 500,000 ssu (1.0 to 108,000 cS)

**Suspended particle handling:** up to 400 microns at concentrations to 40%.

**Maximum differential pressure:** 200 psi (13.8 bar) – Standard on the MLX4 Model and available on the MLN4.

## Design Features, Options and Specifications

**Vanes:** available in a wide range of materials to match your fluid service. Standard pin lock design automatically alerts operator when vane replacement is needed, before excessive wear can occur.

**Liner:** replaceable for easy rebuilding of the pump chamber if ever necessary.

*Optional hardened, wear-resistant liner is available for handling abrasive fluids.*

**End Discs:** protect the heads from wear. Can easily be replaced if ever needed.

*Optional wear-resistant end discs are available for highly abrasive fluids.*

**Rotor & Shaft:** double ended for convenience of driving the pump in either direction.

**Elastomers:** FKM is standard. Also available with PTFE.

**Casing:** thermal shock-resistant ductile iron is standard.

**ANSI Compatible Flanges:** standard on all models.

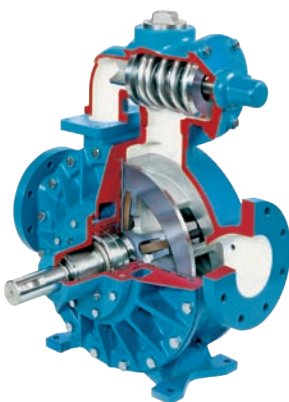
**Drain Plugs:** standard, allow for easy draining.

**Jacketed Heads:** for circulation of steam or hot oil for heating highly viscous fluids, or circulation of coolant for controlling bearing temperature.

**2-Way Relief Valve:** detachable, with special back-to-tank feature or internal bypassing.

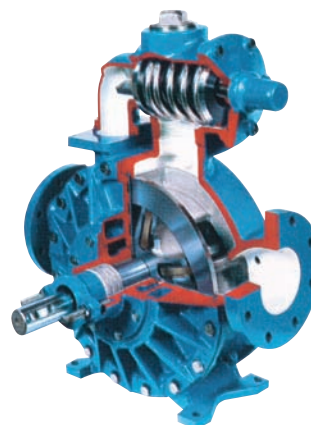
**Base Mounted Unit Assemblies:** complete with pump, base, gear reducer, couplings and coupling guards, ready to accept a standard NEMA motor. All units are available with or without motors or drives.

## Two Pre-Engineered Pump Models to Choose From



**Model MLX** – Designed for handling all types of liquids from light non-lubricating to viscous abrasive slurries and waste oils.

The hub assembly in this model features external grease-lubricated spherical roller bearings and can be fitted with a wide selection of Blackmer mechanical seals. Options include hardened or wear resistant internal components.



**Model MLN** – Ideal for handling thin to highly viscous fluids such as oils, asphalts, molasses and adhesives.

The MLN features internal self-lubricating carbon sleeve bearings and PTFE-impregnated shaft packing. Options include Blackmer or commercial single or double mechanical seals.



## Pump Performance Data

ssu	30	500	2,000	5,000	20,000	50,000	100,000	200,000 <sup>2</sup>	500,000 <sup>2</sup>
cSt	1.0	110	630	2,200	4,250	10,500	21,000	44,000	108,000
rpm	600	600	600	600	500	300	200	155	68
gpm <sup>1</sup>	550	583	583	583	485	291	193	149	64
m <sup>3</sup> /h <sup>1</sup>	125	132	132	132	110	66	44	34	14
hp <sup>1</sup>	21.4	24.2	28.6	35.0	31.7	23.1	14.1	15.6	6.5

Horsepower (hp) and nominal flow rates are for the conditions specified at 50 psi (3.5 bar) differential pressure. Refer to performance curves for capacities and horsepower at other operating conditions.

<sup>1</sup>Reduced liner models are available with flow and hp of about 75% of the standard models.

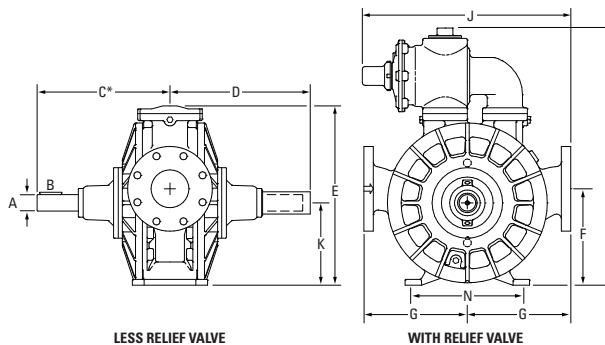
<sup>2</sup>Note: Viscosity for the MLX4 pump model is limited to 100,000 ssu (21,000 cS).

## Maximum Operating Limits

Pump Model	Differential Pressure		Viscosity		Flow Rate		Temperature		Working Pressure		Pump Speed
	psi	bar	ssu	cSt	gpm	m <sup>3</sup> /h	°F	°C	psi	bar	rpm
MLX4	200	13.8	100,000	21,000	590	134	300	143	250	17.2	600
MLN4	150	10.3	500,000	108,000	590	134	400	204	200	13.8	600

## Flanges

Standard
4-inch ANSI Compatible



## Dimensions – Inches (mm)

Pump Model		A	B	C*	D	E	F	G	J	K	L	M	N	Approximate Weight – lbs. (kg)	
														With Relief Valve	Less Relief Valve
ML4	in.	1 3/4	3/8	14 1/8	15 1/4	19 1/16	10 1/4	11	22 1/4	8 3/4	27 3/8	6 1/2	12	445	393
	mm	—	—	(359)	(403)	(484)	(260)	(279)	(565)	(222)	(695)	(165)	(305)	(202)	(179)

\* All ML4 pumps have double ended shafts.

## Technical Assistance

In some applications, selecting the right pump may require more detailed information than can be presented here. Your Blackmer representative can help you find the correct equipment to ensure the best performance possible for your specific application.

If you have a unique fluid handling problem, please call your Blackmer representative or contact Blackmer's Fluid Processing and Transfer Pump Group at our main office listed below.

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