

MVV Chemical Range

Metering Circulation and Transfer
External Gear Pumps

PUG Series



MVV Metering, Circulation and Transfer External Gear Pumps

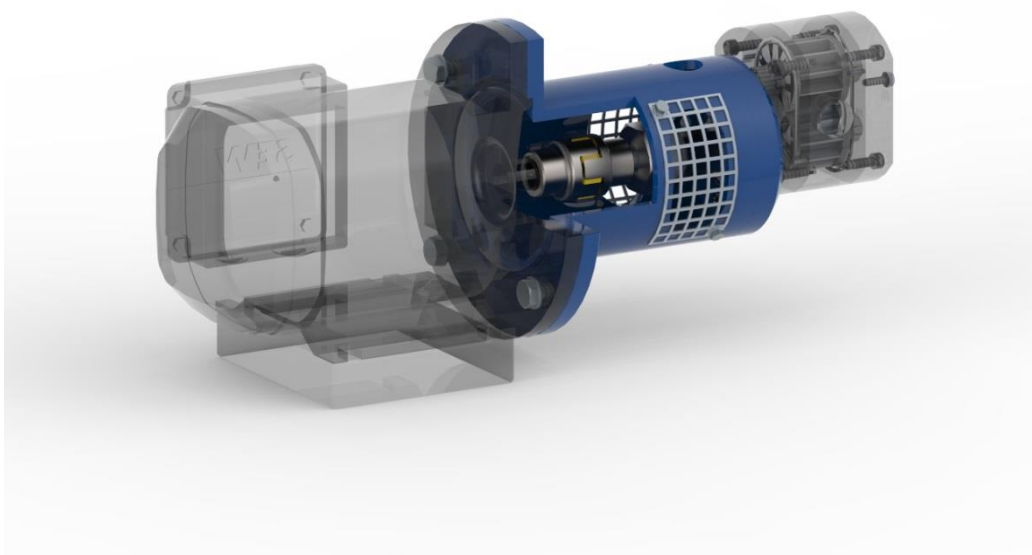
Fabricated in AISI 316 and Alloy 20 materials, suitable for corrosive and poor lubricating materials

The PUG series benefits from MVV's 70-year experience in manufacturing process external gear pumps; pumps are simple yet rugged and able to work 24/7 in harsh industrial environments.

The pursuit to total quality (thanks to MVV cutting edge mechanical production) assures high accuracy (in excess of 1%), stable (almost pulseless) and repeatable flows, under varying operating conditions (temperature, viscosity and pressure).

Wetted materials are selected to handle a variety of chemical process applications (extremely corrosive and toxic too)

Pumps can be supplied in several configuration and sealing options to meet customers' demands and Local Regulations



Model	cc/rev	Threaded connections	Flanged Connections	Max flow rate @ 50 Hz LPH	Max flow rate @ 60 Hz LPH	Flow rate range LPH ⁽¹⁾	Max inlet pressure bar	Max outlet pressure bar	Max Δ P bar	Absorbed Power kW ⁽²⁾	Viscosity range cP ⁽³⁾
G1	1	¼" BSPf	½" ANSI	85	100	6 – 100	8	8	8	0,08	0,5-1.000
G2	4,1	¼" BSPf	½" ANSI	350	425	24 – 425	12	12	12	0,42	0,5-2.000
G4	7,5	½" BSPf	½" ANSI	650	770	45 – 770	12	12	12	0,78	0,5-5.000
G6	26	¾" BSPf	¾" ANSI	2250	2650	156 – 2650	12	12	12	2,7	0,5-5.000
G8	52	1" BSPf	1" ANSI	4500	5300	312 – 5300	12	12	12	5,3	0,5-5.000

Operating Temperatures °C Mechanical Seal	+10/+160 (higher temp. on demand)
Operating Temperatures °C PTFE Packing	-50/+150 (higher temp. on demand)
Turn Down Ratio RPM	300 – 1750

(1) With 2 barg operating pressure and 100 cP, considering max allowable turn down ratio (min RPM 300 max RPM 1750)

(2) considering 100 cP viscosity at max discharge pressure at max RPM; consult factory for different operating conditions

(3) Max viscosity data refers to 300 RPM max – Consult factory for more detailed data

Advantages of External Gear Pumps

External Gear are volumetric pumps used for a number of applications for accurate metering, circulation and transfer, with differential pressures way higher than centrifugal and internal gear pumps.

Unlike other volumetric pumps, Gear Pumps are basically pulseless and, **do not require pulsation dampers** or other ancillary.

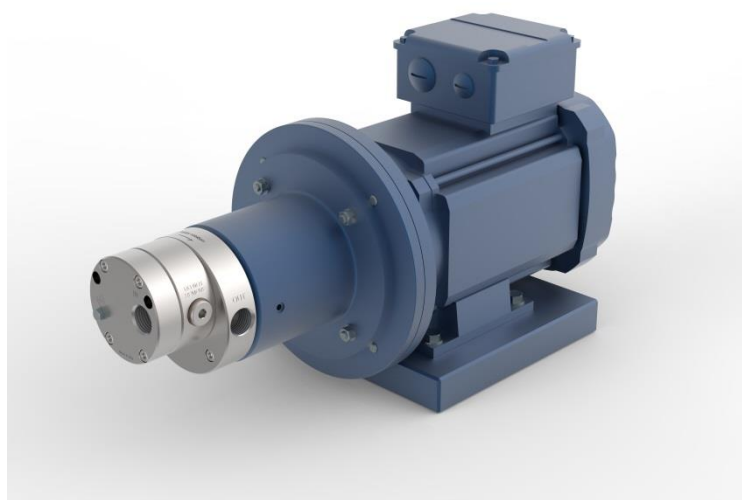
PUG series are able to accurately dose very thin and/or poor lubricant chemicals. Using gears, bushings and wearing plates made of self-lubricating materials (Teflon, PEEK or graphite) in combination with metallic wetted parts such as AISI 316 and Alloy 20, PUG series are ideal for pumping highly corrosive chemicals.

By using Magnetic Drive coupling (see below image), PUG pumps are safely used to pump toxic, dangerous, expansive chemicals where leakage is not considered as option.

Very low roughness (Ra 0,5), backed by FDA components and 3.1 material certification, make PUG pumps suitable for Food&Diary application

- Extreme dosing accuracy (in excess of 1%)
- No check valves that might clog
- Virtually pulseless (no ancillaires)
- Relieable (Long Main Time Between Maintenance)
- Simple and economical to service

} **Low Total Cost of Ownership**



Markets served by PUG Pumps

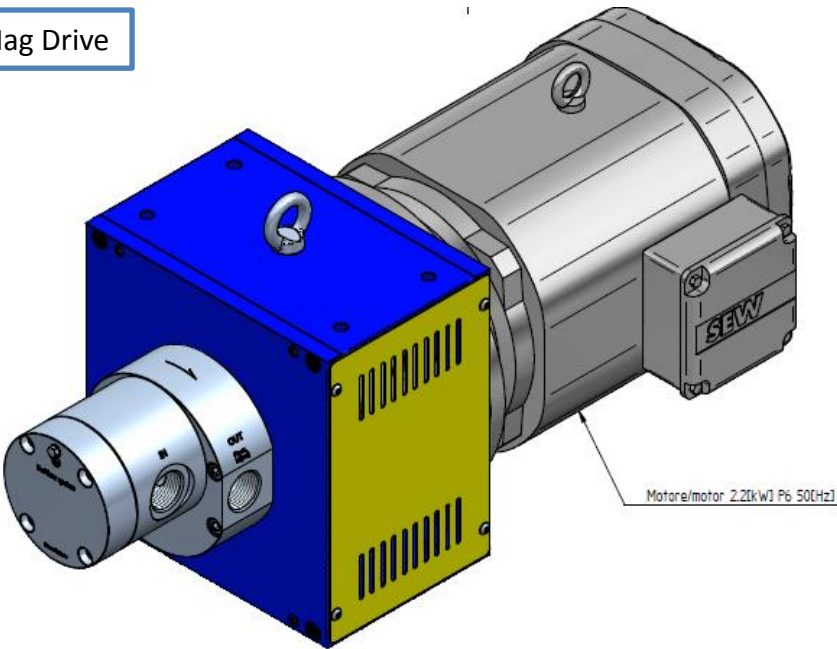
Market	Most common applications
Refineries, Chemical & Petrochemical	Gasoline or gasoline components (ethanol ðers), Zinc Octane, Polymer, Oils, Lube oil circulation, Hydrocarbons, Styrene, acrylonitrile, toluene etc.
Food&Dairy	Chocolate and snack food ingredients (Lecitine, Aroma Arachis Oil, Butryc Acid, synthetic fat), meat processing additives, cleansing chemicals
Iron, Steel Mills and Foundry	Sulpuric and sulfonic acid, caustic, pickling chemicals
Personal and Household Products	Panthenol/sodium lauroyl/Milkiacid/Dehiquartz etc, soap, dyes, fragrances
Municipalities	Oxygen peroxide, Nitric acid, alum, polymers, acids, sodium Hypochlorite
Pulp&Paper	Polymers, glues, wet strength additives
Polyurethane	PMDI and MDI Isocyanate
Power Plants	Boiler feedwater treatment chemicals, biocides

Materials of construction	AISI 316	ALLOY 20
Housing	AISI 316	Alloy 20
Drive gear	AISI 316	Alloy 20
Idler gear	Glass filled PTFE ①	Glass filled PTFE ①
Shaft	AISI 316	Alloy 20
Gasket	PTFE ②	PTFE ②
Bushing	Glass filled PTFE ①	Glass filled PTFE ①
Wear Plates	Glass filled PTFE ③	Glass filled PTFE ③

- ① PEEK or AISI 316 on demand, consult factory
- ② Other elastormes on demand, consult factory
- ③ PEEK, carbon or ceramic on demand; consult factory

Other exotic materials (Hastelloy C- Titanium) would be quoted on demand only

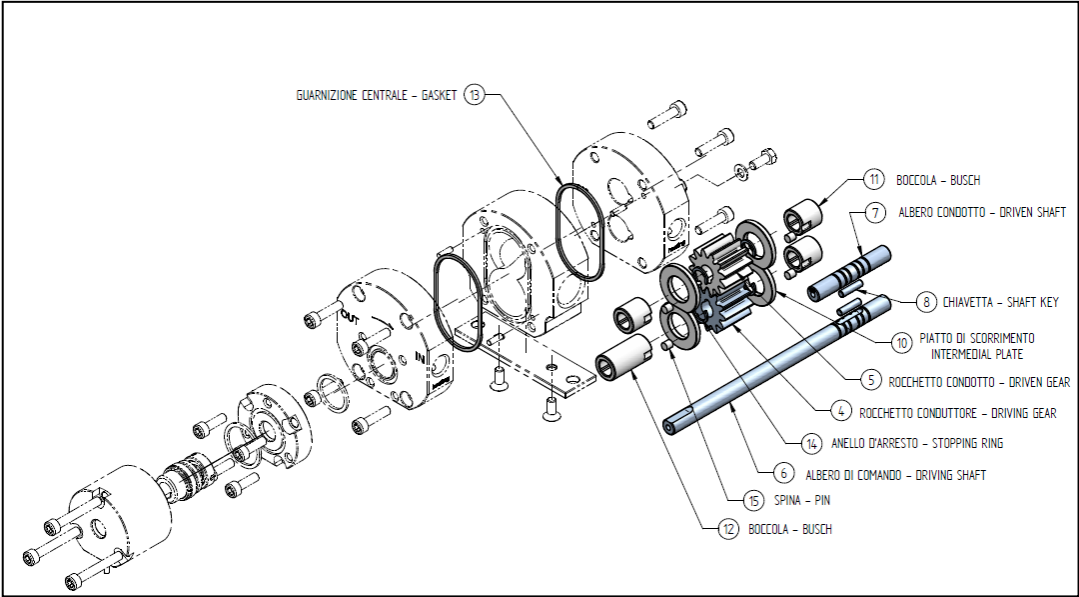
PUG G8 Mag Drive



Features	
Sealing system	Packing, mechanical seal and Mag Drive
Driving system	Pumps can be supplied bare-shaft, with motor flange or complete with motor (close coupling)
Rotation	Packing both, mechanical seal clockwise (CW) facing drive shaft (CCW on demand)
Cooling/heating	No need of extra cooling/heating jacket; internal circulation system directly on Housing
Certification	EC, ATEX II 2 G Tx (with mechanical seal), others on demand

PUG pumps are very easy to maintain and repair. Dedicated IOM manuals, specific exploded drawings as well as videos are available to give clear step-by-step instructions.

Each PUG pump type and size has both **Gear and Shaft Seal Spare Kits** that are quickly available from our stock.



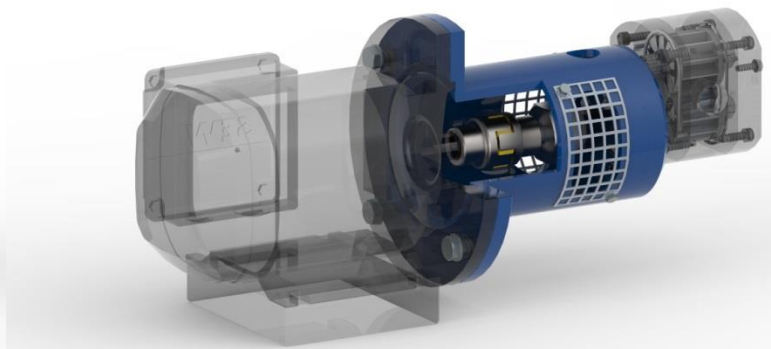
On demand every single component can be purchased separately

Advantages of repair kits:

- All wear items of the pump are supplied
- Small, delicate parts (Gaskets, keys, pins.) that could be damaged or lost during servicing are supplied too
- Keeping in stock both Gear and Shaft kits would make repair quick and economical should a performance problem occur
- Each kit has its own unique code (e.g. KUGXXX01XBE01 is the Shaft Seal Kit code for pumps size G1-G2-G4 in Alloy 20 wetted parts)

Key to model numbers

Pump model	Displacement cc/rev		Outlet conn #	Fixing		Sealing type		Shaft rotation		Serial #
PUG	4V1		01	D		B		D		XX
PUG	1	1 cc/rev	1 discharge port only (STD for PUG)	D	Foot mounted	B	Packing (braid)	D	CW	Serial number, giving full info about pump.
	4V1	4,1 cc/rev				M	Mechanical Seal			
	7V5	7,5 cc/rev				C	Ring packing			
	026	26 cc/rev				R	Lip seal			
	052	52 cc/rev				O	Oil barrier			
						T	Mag Drive			
				C	Close Coupled overhanging			S	CCW	Produced in case of order only (01, 02, 03...)
								E	Both	



Accuracy - Repeatability - Pulseless

MVV Chemical Range PUG

Over 1 million of gear pump installed in several industrial applications over 70 years of history, make MVV a proven manufacturer of External Gear Pumps.

Expertise on critical applications, competence and R&D on special materials, unparalleled machining ability enables MVV to provide the right solution in extreme metering conditions.

SYNTHETIC FIBERS

MELTED GLUE PUMPS

POLYMER EXTRACTION

BOOSTER PUMPS

FINISHING PUMPS

TEXTILE PUMPS

Company ISO 9001:2008 Certified



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