



ARC INTERNAL GEAR PUMP

Engineered for Efficiency, Versatility & Reliability

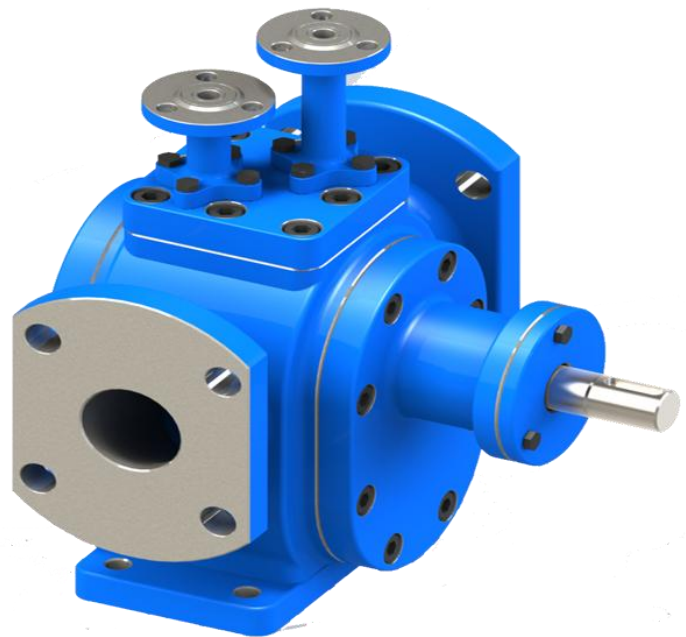
POWER, EFFICENCY & VERSATILITY

When Power, efficiency & versatility is the priority, “**SPEW SGR series**” Round Arc Internal Gear High Temperature Pumps deliver results you can measure.

The advanced **SGR arc-tooth design** ensures smoother meshing, minimizing losses and maximizing flow accuracy with **±1–2% volumetric precision**.

Capable of handling fluids from **light hydrocarbons to high-viscosity polymers**.

These pumps reduce energy consumption, cut operating noise, and extend service life. With every rotation, you get more — **more efficiency, more reliability, and more value** for your operation.



MODEL: SGR Series

Designed for:

For High Temperature Jacketed & Medium Viscosity

INTRODUCTION:

“SPEW SGR” Round Arc Internal Gear Pumps are **positive displacement rotary pumps** designed for High Temperature with a **unique round arc tooth profile** between the internal rotor and external idler gear. This geometry delivers exceptionally **smooth, quiet, and efficient fluid transfer** while maintaining robust performance across a wide range of viscosities.

Unlike conventional spur gear or external gear pumps, the **round arc contact** minimizes pulsations, vibration, and wear, ensuring longer service life and stable performance even in demanding industrial conditions.

Key Strengths & Features:

1. Application

- The SGR series are jacketed construction which designed for medium and High temperature application which ranges up to 180°C
- The Viscosity range is 5-1500cSt.
- However, the pump is not suitable for oil liquid which contains hard particles or fibres in it.

2. Smooth & Quiet Operation

- The arc-shaped teeth create a continuous rolling action, reducing fluid pulsation, mechanical vibration, and operating noise.
- Ideal for environments where reliability and low noise levels are essential.

3. High Volumetric Efficiency & Accuracy

- Minimal internal slip ensures consistent flow rates and accurate metering.
- Delivers volumetric accuracy typically within **±1–2%**, making it suitable for dosing, blending, and precision transfer.

4. Wide Viscosity Handling

- Capable of pumping low-viscosity solvents, light fuels, and lubricants as well as heavy oils, polymers, resins, and bitumen.
- Maintains efficiency across the entire viscosity spectrum.

5. Self-Priming & Reversible Flow

- Provides reliable suction lift capability.
- Can operate in both directions, allowing the same pump to be used for loading and unloading applications.

6. Low NPSH Requirement

- Efficient at low inlet pressures, making it well-suited for volatile liquids prone to cavitation.

7. Robust, Compact Construction

- Few moving parts, easy maintenance, and rugged design.
- Compact size makes it simple to integrate into skids or confined plant spaces.

8. Material & Fluid Compatibility

- Offered in cast iron, carbon steel, stainless steel, hardened alloys, and specialized coatings.
- Handles diverse fluids: hydrocarbons, petrochemicals, adhesives, edible oils, food-grade liquids, and corrosive chemicals.

Specifications:

Parameter	Details
Pump Type	Positive Displacement – Internal Gear (Round Arc Tooth Profile)
Flow Range	Up to 324 m ³ /h (depending on model & viscosity)
Viscosity Handling	From 1 cSt up to 1,500 cSt
Discharge Pressure	Up to 8 bar (standard) Higher ratings on request
Volumetric Accuracy	±1–2% under stable operating conditions
Temperature Range	–20°C to +180°C (jacketed)
Self-Priming Capability	Yes – reliable suction lift
Flow Direction	Fully reversible (CW/CCW rotation)
NPSH Requirement	Very low – suitable for volatile/foaming liquids
Noise & Vibration	Exceptionally low due to smooth round arc meshing
Construction Materials	Cast Iron, Carbon Steel, Stainless Steel (304/316), Hardened Alloys, Coatings
Seal Options	Mechanical Seal, Packing, Cartridge Seal, Magnetic Drive (optional)
Mounting Options	Foot-mounted or flange-mounted
Drive Options	Electric Motor, Diesel Engine, Gearbox Drive, Hydraulic Motor
Applications	Oils, fuels, solvents, resins, polymers, adhesives, edible oils, bitumen, chemical transfer

Structure:

- The pumps are mainly composed of internal rotor, outside rotor, shaft, pump casing, front cover, seal, bearing etc.
- The pump seal adopts packing seal or mechanical seal. When the delivered medium is low temperature, Medium viscous or Low corrosion, packing seal should be adopted (optional).
- When the delivered medium is ease crystalline, we can design the heat preservation jacket (Model: SGR) in the pump casing and front cover to melt the medium with steam when working. The pump can be also fitted with the safety valve.
- The pump set is composed of the pump, motor and baseplate. the direction way is belt wheel driving or coupling driving.
- The direction of rotation is clockwise viewed from coupling end.

Advantages:

- Steady delivery without pulsation, little vibration & noise and outstanding self-priming ability.
- The **SGR** pump can deliver the varied low to medium corrosive medium fluids if suitable material of constructions is selected. In addition, the working temperature can bear up to 180°C easily.
- The same rotary direction of internal rotor and outside rotor results in little wear and long operational life.
- The pump's flow capacity can be changed through adjusting the speed.
- It's suited to deliver high viscous medium.

Drivers Options:



cast iron



Stainless steel



Thermal insulation



Magnetic coupling



Mobile installation



Vertical installation

Jacketed/Insulated Structure:

Type-SGR Jacketed Round Arc Internal Gear Pumps are specially designed for applications where the pumped fluid must be kept at a controlled temperature to ensure smooth transfer and prevent solidification. With integrated heating or cooling jackets around the casing and bearing areas, these pumps allow circulation of steam, hot oil, or cooling media to maintain the required process temperature. This makes them ideal for handling **bitumen, heavy oils, resins, polymers, and other temperature-sensitive fluids**, ensuring consistent viscosity, product integrity, and reliable performance throughout operation.

Flow rate/Pressure:

Model	Flow Capacity		Discharge Pressure	Suction Vacuum	Port Size	Motor	
	m ³ /h	l/min	Mpa	m	mm	(kW)	Model
SGR-25	1	16.7	0.36 0.8	3	Ø25	1.5	Y90L-4
SGR-25A	2	33.3	0.36	3	Ø25	1.5	Y90L-4
			0.8			2.2	Y100L1-4
SGR-25B	3	50	0.36	3	Ø25	1.5	Y100L-6
			0.8			2.2	Y112M-6
SGR-40	5	83.3	0.36	3	Ø40	2.2	Y100L1-4
			0.8			4	Y112M-4
SGR-40A	6	100	0.36	3	Ø40	2.2	Y100L1-4
			0.8			4	Y112M-4
SGR-50	8	133	0.36	3	Ø50	4	Y132M1-6
			0.8			5.5	Y132M2-6
SGR-50A	10	167	0.36	3	Ø50	4	Y112M-4
			0.8			5.5	Y132S-4
SGR-65	12	200	0.36	3	Ø65	4	Y132S-4
			0.8			5.5	Y132M2-6
SGR-65A	18	300	0.36	3	Ø65	5.5	Y132S-4
			0.8			7.5	Y132M-4
SGR-80	18	300	0.36	3	Ø80	5.5	Y132M2-6
			0.8			7.5	Y160M-6
SGR-80A	29	483.3	0.36	3	Ø80	7.5	Y132M-4
			0.8			11	Y160M-4
SGR-100	38	633	0.36	3	Ø100	11	Y160L-6
			0.8			15	Y180L-6
SGR-100A	45	750	0.36	3	Ø100	18.5	Y200L-6
			0.8			30	Y225M-6
SGR-100B	58	960	0.36	3	Ø100	18.5	Y180M-4
			0.8			30	Y200L-4
SGR-100C	65	1083	0.36	3	Ø100	30	Y200L-4
			0.8			37	Y225S-4
SGR-150	72	1200	0.28	3	Ø150	37	Y280S-8
SGR-150A	96	1600	0.28	3	Ø150	45	Y280S-6
SGR-200A	110	1800	0.28	3	Ø200	55	Y315S-8
SGR-200B	150	2500	0.28	3	Ø200	75	Y315S-6
SGR-250	228	3800	0.28	3	Ø250	90	Y315L-8
SGR-250A	324	5400	0.28	3	Ø250	110	Y315L-6