FLOW FLUID FORCIBLY

SPEW
POSITIVE DISPLACEMENT PUMPS

PROGRESSIVE CAVITY SCREW PUMP

SSG-Series

Technical Datasheet

SSG Progressive Cavity Pump is a positive displacement, single screw pumping solution engineered for the reliable transfer of liquids with varying viscosity, solids content, and shear sensitivity. Using a helical rotor operating within a resilient stator, the pump generates continuous, low-pulsation flow with precise volumetric accuracy. This unique design enables high suction performance, consistent pressure output, and gentle media handling, making it ideal for industrial applications ranging from lubricants, polymers, fuels, and chemicals to food products, wastewater, and process slurries. Designed for efficiency, durability, and seamless integration into automated systems, the SPEW SSG delivers stable performance where conventional pumping technologies fall short.

Data Sheet : SSG-06-02

Issued : AUG-2019

Replaced : Dec-2024

1 INTRODUCTION

SSG-Series Progressive Cavity Single Screw Pumps are positive displacement pumps designed for continuous, low-pulsation transfer of clean, abrasive, shear-sensitive, and highly viscous media. The pumping principle uses a rotating helical rotor inside an elastomer stator, forming progressive sealing cavities that convey fluid smoothly from suction to discharge.

These pumps are ideal for industries requiring controlled volumetric flow, precise dosing, and stable pressure performance across varying viscosities, solids content, and temperature ranges.

2 OPERATING SPECIFICATIONS

Parameter	Typical Range
Flow Capacity	**0.1 to 120 m³/hr** *(customizable up to 250 m³/hr)*
Discharge Pressure	**Up to 24 bar** *(higher with multi-stage design)*
Viscosity Handling	**1 to 1,000,000+ cSt**
Temperature Range	**−10°C to 150°C** *(depending on elastomer selection)*
Solids Passage	**Soft solids up to 8 mm**
Suction Lift Capability	**Up to 6 m** (self-priming)
Operating Speed	**200–450 rpm** *(application dependent)*
Pump Type	Horizontal / Vertical / Hopper-type / Dosing skid variants

3 DESIGN & STRUCTURE

Main Components:

- **Rotor:** Single helical, chrome-plated tool steel / SS304 / SS316 / Duplex
- **Stator:** Elastomer (NBR, EPDM, FKM/Viton, HNBR, PTFE, Food-grade options)
- **Suction Casing:** Cast iron / SS316 / Super Duplex *(media dependent)*
- **Drive End:** Direct coupling / VFD-controlled geared motor / bearing housing
- **Mechanical Seal Options:** Single, double cartridge, gland packing
- **Connection Types:** Flanged (DIN/ANSI), Threaded (BSP/NPT), Tri-clamp (Hygienic)

Construction Options:

- Multi-stage for high pressure
- Hopper & feed screw for semi-solid media
- Jacketed casing for heating fluids (bitumen, wax, molasses)
- Sanitary polish for food & pharma

4 WORKING PRINCIPLE

A single-helix rotor rotates eccentrically within a double-helix stator, generating progressive cavities. These cavities move axially, creating a continuous forward conveying action. Flow is proportional to speed, enabling precise dosing and flow regulation.

5 APPLICATIONS

- **Oil & Gas:** sludge, lube oils, tank stripping, oily wastewater
- **Edible Oil & Food:** molasses, chocolate, syrups, yeast, gravy, pulp
- **Lubricants & Chemical:** polymers, resins, adhesives, emulsions
- **Pharma/Cosmetics:** creams, gels, shampoos, ointments
- **Waste & Utility:** biosludge, slurry, bentonite, ceramic paste

6 ADVANTAGES

Operational Benefits	Performance Benefits
Non-pulsating flow	Accurate volumetric output
Self-priming	Suitable for high-viscosity media
Gentle handling of shear-sensitive fluids	Stable pressure at varying flow
Low NPSH requirement	Reversible flow direction
Dosing precision with VFD	Handles solids without damaging media

7 SYSTEM INTEGRATION

SSG-Series Single Screw pumps can integrate into industrial control systems:

- **VFD control with speed feedback**
- **PLC monitoring (4–20mA / Modbus / Profibus)**
- **Load cell or flowmeter-based dosing control**
- **Temperature/Pressure interlocks**
- **Skid-mounted turnkey units with instrumentation**

Available Accessories:

- Inlet strainers / filters
- Relief valves & discharge dampeners
- Heating jackets
- Inline flow control valves
- Flowmeters (Coriolis / Magnetic / PD)

8 MATERIAL SELECTION (MEDIA BASED)

Fluid Type	Recommended Rotor	Stator Elastomer
Hydrocarbons	SS316 / Duplex	FKM (Viton)
Food Grade	SS316L	EPDM / NBR Food grade
Abrasive Sludge	Hardened steel / Coated rotor	HNBR
High Temperature	Duplex / Hastelloy	FKM / PTFE
Solvents / Chemicals	SS316 / Hastelloy C	PTFE

9 MAINTENANCE FEATURES

- Modular design for fast stator/rotor replacement
- Accessible seal chamber
- Cartridge mechanical seals
- Axial wear adjustment available
- Predictive maintenance with running hours/pressure trend monitoring

10 AVAILABLE MODELS

Model Code	Flow Range (m³/hr)	Pressure (bar)	Mounting
SPEW-SSP10	0.1 – 1.5	6	Horizontal
SPEW-SSP20	2 – 10	12	Vertical / Baseplate
SPEW-SSP40	5 – 40	18	Geared Motor
SPEW-SSP60	10 – 80	24	Hopper feed
Custom	Up to 250	Up to 36	On Request

DRAWINGS & DIMENSIONS

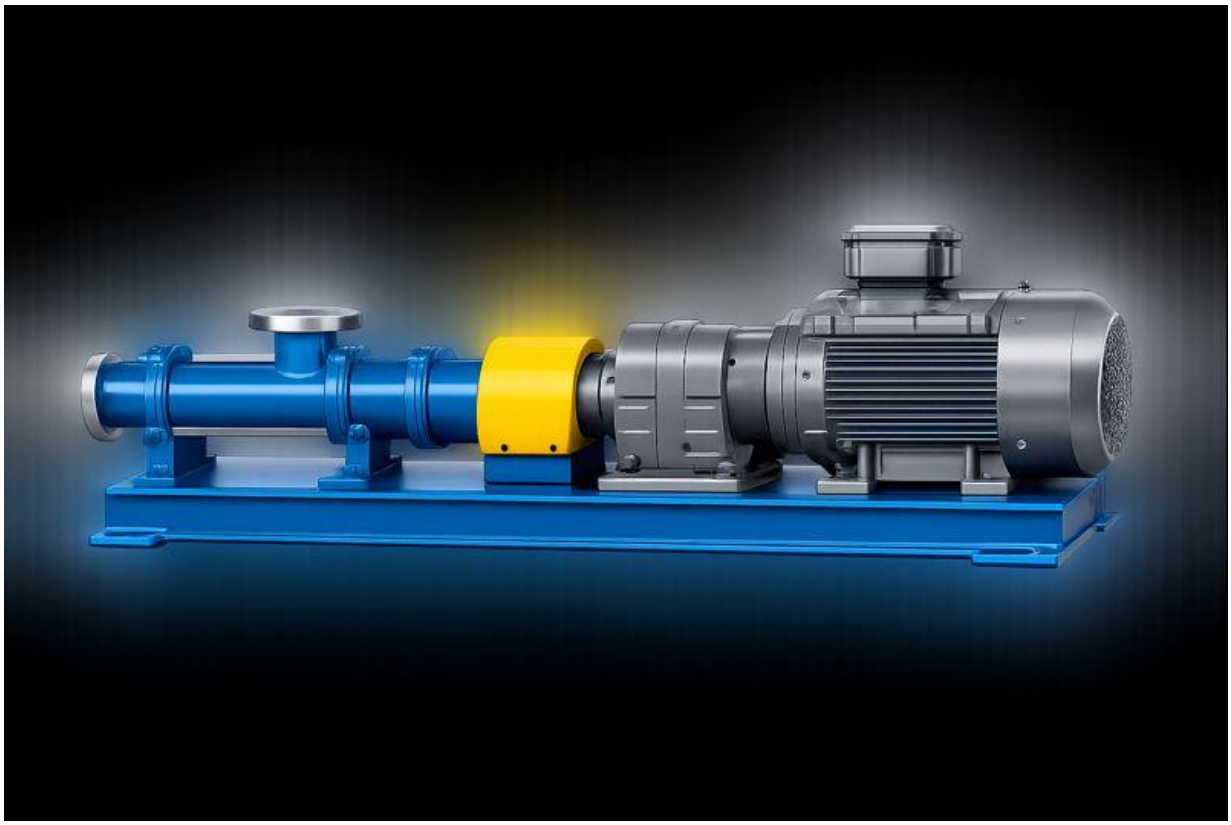
Note: GA drawings, installation dimensions, and performance curves will be attached as per selected model.

NOTE: Please follow Specification sheet.

ORDERING CODE

SPEW – SSP – 40 – 316 – V – 24 – G
(Pump Type – Model – Material – Elastomer – Pressure – Drive Type)

Above is illustrated only, please follow Specification sheet.



Contact Us

Business Hours
Weekdays: 8.30AM to 5.30PM
Weekends: Closed

enquiry@spewpumps.com

PT 14515, Persiaran Batu Gajah Perdan 8, Taman Perindustrian Batu Gajah Perdan, 31550, Perak, Malaysia