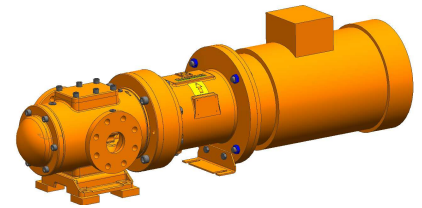


Screw Pumps SN Magdrive Series in block pump design (SN..MB, sizes 80-660)



Intended applications

The SN Magdrive series is the ideal choice whenever liquid must be pumped with absolutely no leaks and optimized operating costs. Pumps of this series may be used in any industrial setting to pump lubricating liquids that do not contain abrasive elements or elements that will chemically attack the pump material.

The pumps can move a wide variety of oil and oil-based products, including heavy fuel oil, fuels, and heating, lubricating, and hydraulic oils; chemical products such as polyols, isocyanates, paints, coatings, and glycerine; and virtually any other lubricating liquid.

Main fields of application

Main fields of application include oil firing, energy, and hydraulics engineering; shipborne and offshore engineering; and applications in the chemical and petrochemical industries.

Design type

SN Magdrive is an internal-bearing, triple-screw, self-priming, sealless screw pump with magnetic coupling. The magnetic coupling's containment can hermetically seals the pump.

Hardened and polished screws run inside an exchangeable casing insert.

Idle screws are hydraulically driven and axial thrust is fully balanced hydrostatically. A liquid-lubricated groove ball bearing fixes the drive screw in place.

The pump's magnetic coupling and suction chamber are connected to each other via a return bore. This facilitates circulation of the liquid straight through the coupling, thereby forcing heat generated by the eddy current to dissipate out from the coupling.

The horizontal version (SNH) utilizes a pump bracket with mounting foot to join the pump and drive motor; the vertical version (SNS) employs a pedestal/pump foot combination.

Function

The three screws have specially shaped thread flanks that form sealed chambers. As the screws turn, the content of chambers is moved continuously in the axial direction from the suction side to the pressure side of the pump. Despite rotation of the screws, no turbulence results. Chamber volume remains constant, eliminating the possibility of crushing forces and producing virtually pulsation-free operation.

The drive side of the magnetic coupling is flanged to the screw pump via the intermediate cover. The pump's drive screw is rigidly connected to the magnetic-coupling's rotor via a drive-type fastening.

The magnetic field lines between the outer and inner magnetic rotors provide for contactless and non-wearing transfer of torque from the drive machine to the pump.

Drive

Under normal circumstances, the pumps are driven by surface-cooled three-phase squirrel-cage motors, design type IM V1; degree of protection IP 55, insulation class F, according to IEC standard. Output and dimensions comply with DIN 42 677.

Performance data ①②

Capacity	Q	up to	1.700	l/min ③
Discharge pressure	p_d	up to	64	bar ④
Inlet pressure	p_s	up to	20	bar
Liquid temperature	t	up to	+150	°C ⑤
Viscosity	v	up to	2000	mm ² /s

① The performance data overview is based on drive speeds generated when using 4-pole three-phase motors in a 50 Hz power network. Refer to the quotation and order confirmation for precise operational limits.

② The specified operational limits are maximum values; specific situations and technical characteristics may require lower limits. Refer to the relevant order documentation for binding values.

③ Corresponds to size 660; larger sizes require version SN..AR..M, see brochure VM 687, ID-Nr. 795614.

④ Pressure limits depend on casing material.

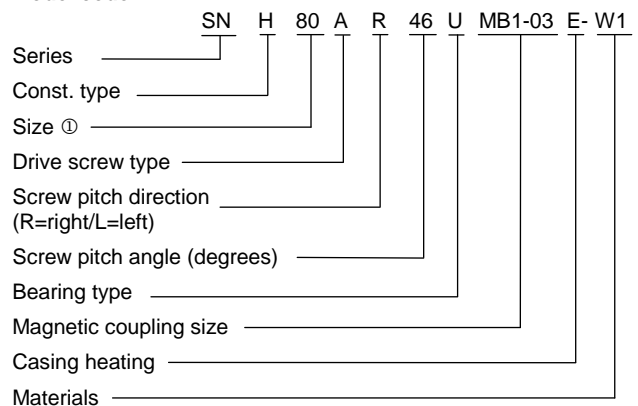
⑤ Higher temperatures on request.

Pressure relief valves

The pumps can be delivered with installed pressure relief valves (see page 9, technical documentation of the SN series, VM617). Valve performance curves and sectional drawings are not contained in this brochure and must be requested separately.

If pumps are requested without pressure relief valves, overload protection must be provided in the controller or in the form of a pipeline-mounted valve (see separate brochure).

Model code



① theoretical capacity in l/min at normal pitch

Flange

Suction branch: up to DN 150 according to DIN EN 1092-2 PN 16

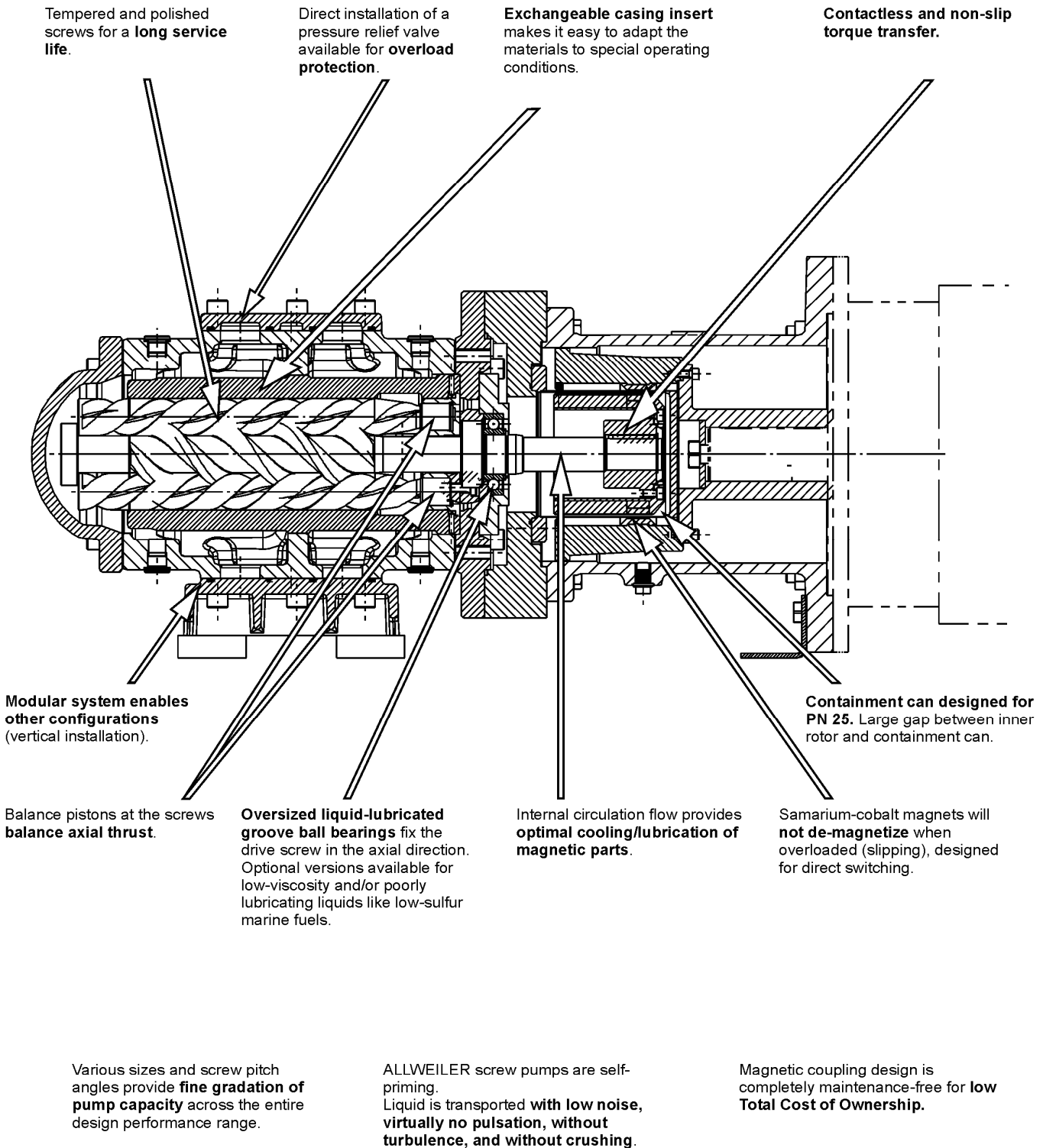
from DN 200 according to DIN EN 1092-2 PN 10

Discharge branch: PN 40 according to DIN EN 1092-2 (pump casing in EN-GJL-250)

PN 64 according to DIN EN 1092-2 (pump casing in EN-GJS-400-15)

Additional flanges (ANSI-B 16.1 or 16.5, SAE, JIS, BS and others) are available upon request.

Benefits of SN Magdrive series



Materials

Description	Material versions					
	W1	W2	W61 ^①	W33	W67 ^①	W72
Pump casing	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJS-400-15	EN-GJS-400-15	Welded steel
Casing insert	EN-GJL-250	SIL 70 (Silafont)	EN-GJL-250	SIL 70 (Silafont)	EN-GJL-250	EN-GJL-250
Pump cover, non-drive end	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJS-400-15	EN-GJS-400-15	Steel
Pump cover, drive end	EN-GJL-250	EN-GJL-250	EN-GJL-250	Steel	Steel	Steel
Drive and idler screws	16MnCrS5 (nitrided steel 1.7139)	16MnCrS5 (nitrided steel 1.7139)	16MnCrS5 (nitrided steel 1.7139)	16MnCrS5 (nitrided steel 1.7139)	16MnCrS5 (nitrided steel 1.7139)	16MnCrS5 (nitrided steel 1.7139)
Balance bushes	AlMgSi1 3.2315	AlMgSi1 3.2315	EN-GJL-250	AlMgSi1 3.2315	EN-GJL-250	EN-GJL-250

^① Version for low-viscosity liquids (such as low-sulfur marine fuels) also available.

List of important components

Description	Part No.	Description	Part No.
Pump casing	1	Screw plug	46
Casing insert ^①	2	Bearing cover	76
Pump cover, drive end	3	Coupling hub	77
Pump cover, non-drive end	4	Nozzle	80
Pump foot	6	Heating chamber/steam heated cover	120
Cover plate	7	Screw plug	123
Balance bush ^①	8	Containment can	200
Intermediate cover	11	Outer rotor	201
Drive screw ^①	12	Inner rotor	202
Idler screw ^①	13	Drive shaft	300
Pipe	20	Motor bracket	301
Groove ball bearing ^①	34	Hexagon screw	303
Supporting washer	36	Screw plug	309
Key	41	Support foot	312

^① available as spare part

Pump sectional drawing

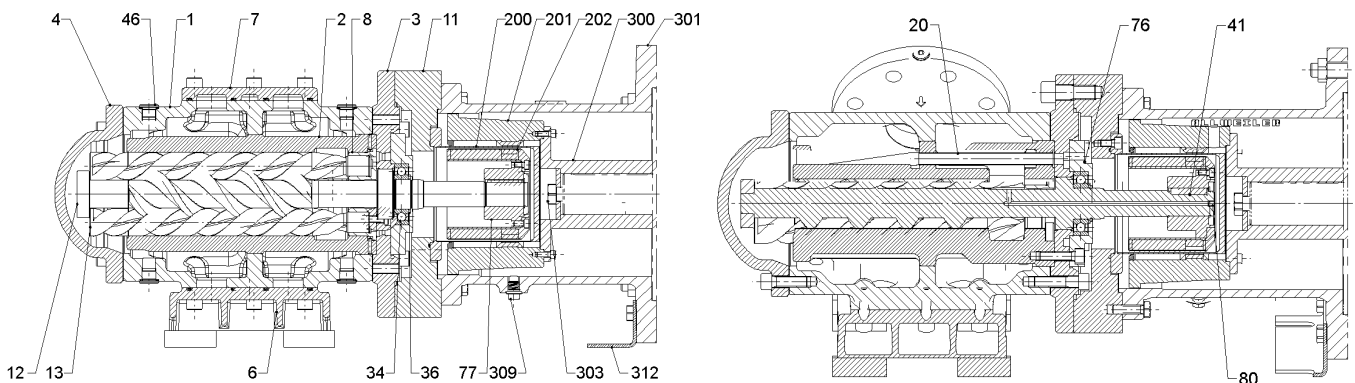


Fig. SNH, version U, internal bearing, sizes 80-660

Note: The SNS series is not shown because it differs only in the manner of installation.

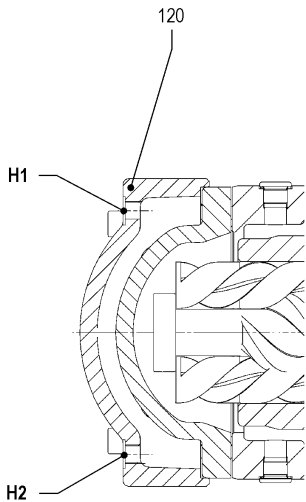
Pump dimensions and installation plan

All pump and pump/motor dimensions of all series can be generated and retrieved individually through ALL2CAD. ALL2CAD is available online through the ALLWEILER service portal (<http://service.allweiler.de>).

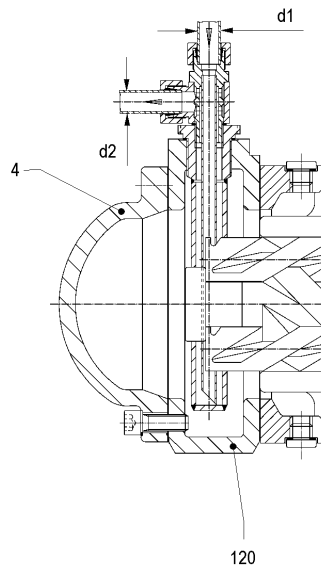
Options

Heating

A heater is available in order to protect the pump when moving highly viscous liquids or liquids that tend to stagnate. Heating brings liquid standing in the pump up to a viscosity suitable for pumping. Heating can be provided either via steam or electrical energy.



Heating version X (steam heated cover)



Heating version E (electrical heating)

Pump size	Version X (heating shell)	Version E (with heating elements, electric)					
	Connection (Ø in inch)	Heating capacity [W] (2 heating elements)	Connection (Ø in inch)	Pump heat-up time in minutes at $\Delta t =$			
				25 °C	50 °C	75 °C	100 °C
80	G 1/4	260	G 3/4	60	120	240	320
120	G 1/4	300	G 3/4				
210	G 1/4	420	G 1				
280	G 3/8	460	G 1				
440	G 3/8	460	G 1				
660	G 3/8	680	G 1 1/4				

Monitoring functions

Load monitors or $\cos \phi$ monitors are designed to prevent unacceptable operating states, such as starting against excessive viscosity.

The G2CU $\cos \phi$ monitor monitors the motor's $\cos \phi$ value. If this falls below a threshold value, this indicates separation of the magnetic forces within the magnetic coupling and triggers a specific action, such as shutting down the motor.

The G4BM digital load monitor measures and monitors the motor's effective power. Definition of threshold values permits detection of overload and underload conditions. As a result, unacceptable operating states such as dry running are detected and prevented early. Motor temperature can also be monitored. Unacceptable conditions can be stored in a fault memory as they are detected.

Subject to technical changes.



ALLWEILER AG
 Postfach 1140 · 78301 Radolfzell
 Allweilerstr. 1 · 78315 Radolfzell / Germany
 Germany
 Tel. +49 (0)7732 86-0
 Fax. + 49 (0)7732 86-436
 E-mail: service@allweiler.de
 Internet: <http://www.allweiler.com>