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SHW
A member of the Pankl Group

DRIVING RESPONSIBLY INTO THE FUTURE

PUMPS AND INTEGRATED SYSTEM SOLUTIONS
with focus on lubrication, actuation and cooling engines,
transmissions, e-axles and batteries



for automotive application



for truck- & off-highway application

solutions
for all propulsion
systems

THE COMPANY

SHW is a member of the Pankl Group and a global player specialized in developing and manufacturing single components or complete systems like **lightweight pin discs**, **pumps** as well as **integrated modules** for cooling and lubrication of components in different markets: passenger cars, high performance cars and truck & off-highway.

pankl AG



KEY FIGURES

SALES 2023

532,9

Mio. EUR

1.826

employees

GLOBAL
FOOTPRINT

9

locations

KEY MARKETS

Passenger cars

High performance cars

Commercial vehicles

Agriculture &
Construction machinery



PRODUCT PORTFOLIO - OVERVIEW SHW AG

CHASSIS | POWERTRAIN

Mechanical and electrical oil pumps, oil modules, electrical main coolant pumps, thermal management modules and battery cooling modules



BRAKES

Lightweight composite brake discs, monobloc brake discs and brake drums



GLOBAL FOOTPRINT



To offer our customers a local footprint, SHW has nine plants in different regions to supply our products.



Aalen | Bad Schussenried | Neuhausen ob Eck | Tuttlingen |
Timisoara | Toronto | Sao Paulo | Kunshan | Haimen

CHASSIS | POWERTRAIN

MECHANICAL OIL PUMPS

for engine and transmission lubrication



ICE



MHEV



PHEV

SHW offers all pump technologies and provides its customers tailored solutions with focus on function, cost, packaging, reliability and weight.



mechanical Engine Oil Pumps



mechanical Transmission Pumps



mechanical Fuel Pumps



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MECHANICAL ENGINE OIL PUMPS

SUMP OIL PUMP

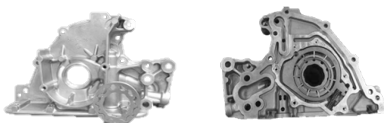
located in the sump oil pan



Pump type	G-Rotor/ Spur Gear / Vane Pump
Qth	3 – 60 ccm/rev
Control type	1-/ 2-step/ fully variable pressure regulation
Drive type	Chain, Belt or Gear-drive
Application	for diesel and gasoline engines

CRANKSHAFT OIL PUMP

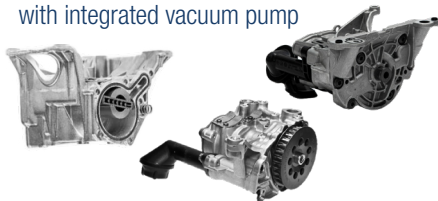
located on the crankshaft



Pump type	G-Rotor/ Vane Pump
Qth	10 – 60 ccm/rev
Control type	1-/ 2-step/ fully variable pressure regulation
Drive type	Crankshaft
Application	for diesel and gasoline engines

TANDEM OIL PUMP

with integrated vacuum pump



Pump type	G-Rotor/ Spur Gear / Vane Pump
Qth	10 – 60 ccm/rev
Control type	1-/ 2-step/ fully variable pressure regulation
Drive type	2k single vane driven by oil pump shaft
Application	for diesel engines and direct injection gasoline engines

MBS OIL PUMP

with integrated mass balancer



Pump type	G-Rotor/ Spur Gear / Vane Pump
Qth	10 – 60 ccm/rev
Control type	1-/ 2-step/ fully variable pressure regulation
Drive type	Belt, Gear or Chain-drive feasible
Application	for 3-Cyl., 4-Cyl. and V6 engines

SCAVENGE OIL PUMP

with one or multiple scavenge pumps



Pump type	G-Rotor/ Spur Gear / Vane Pump
Qth	10 – 60 ccm/rev
Control type	1-/ 2-step/ fully variable pressure regulation
nmax	~ 14.000 1/min
Application	for sportscar engines with dry oil sump lubrication

MECHANICAL TRANSMISSION OIL PUMPS

INNER-GEAR PUMPS

with aluminum or steel housing



Pump type	Inner-Gear Pumps
Qth	4 – 20 ccm/rev / 4 – 30 ccm/rev
Pmax	12 bar / 4-30 bar / < 30 bar
Application	Automatic transmission, DCT

OUTER-GEAR PUMPS

with aluminum or steel housing



Pump type	Outer-Gear Pumps
Qth	3 – 20 ccm/rev / 4 – 20 ccm/rev
Pmax	20 bar / 0 bar / < 30 bar
Application	Automatic transmission, DCT

BINARY VANE PUMP

1 or 2 circuits



Pump type	Binary Vane Pump (1 or 2 circuits)
Qth	4 – 20 ccm/rev
Pmax	~ 35 – 45 bar
Application	Automatic transmission, DCT

COMPETENT PARTNER

SHW is one of the innovation leaders for oil pumps and systems in conventional and hybrid powertrains with a history dating back to 1365. This has made us a reliable and competent partner for our customers.

Our customers include the largest car manufacturers and Tier 1s in the automotive industry.

WE CONVINCED WITH



excellent technical solutions



customized to the requirements



cost-efficient design and choice of materials

CHASSIS | POWERTRAIN

ELECTRICAL OIL PUMPS

for transmission cooling, lubrication and actuation as well as e-axle and e-motor cooling and lubrication



MHEV



PHEV

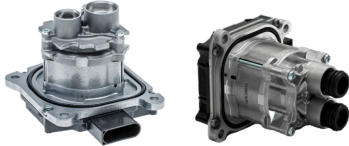


BEV

SHW developed different modular families of electrical pumps, which can be easily adapted to the customer specific requirements.

EOP CARTRIDGE

incl. e-motor and ECU



Pump type	EOP Cartridge
Fluid	Oil
Control	integrated ECU
Electrical power / Voltage	50 – 500W / 12V or 24V
Communication Interface	PWM, CAN, LIN

EOP EXTERNAL MOUNTED

incl. e-motor and ECU



Pump type	EOP External Mounted
Fluid	Oil
Control	integrated ECU
Electrical power / Voltage	50 – 500W / 12V
Communication Interface	PWM, CAN, LIN

ELECTRICAL MOTOR OIL PUMP

incl. e-motor



Pump type	Electrical Motor Oil Pump
Fluid	Oil
Control	excl. ECU
Electrical power / Voltage	50 – 500W / 12V
Communication Interface	3 phases pins

CHASSIS | POWERTRAIN

THERMAL MANAGEMENT

lubrication and cooling systems for the e-axle
and the battery



MHEV



PHEV



BEV

Oil Management Module

Electrical Main Coolant Pump

Battery Cooling Module

OIL MANAGEMENT MODULE

(Pump Heat-Exchanger
Module)



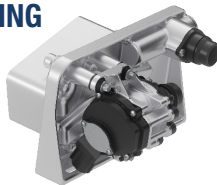
Fluid	Oil
Features (optional)	EOP, cooler, filter, temp.-sensor
Electrical power / Voltage	EOP: 50 – 600W / 12V
Communication Interface	PWM, CAN, LIN

ELECTRIC MAIN COOLANT PUMP



Fluid	Water-Glycol/ dielectric oil
Control	integrated ECU
Electrical power / Voltage	300 – 600W / 12V or > 600W
Communication Interface	PWM, CAN, LIN

BATTERY COOLING MODULE



Fluid	Water-Glycol/ dielectric oil
Control	integrated ECU
Electrical power / Voltage	300 – 600W / 12V or > 600W
Communication Interface	PWM, CAN, LIN

CHASSIS | POWERTRAIN

MECHANICAL FUEL PUMPS

for on- and off-highway, aviation and industrial

DIFFERENT APPLICATIONS - DIFFERENT SOLUTIONS



maximum efficiency - CO₂ reduction



customized to the requirement



maximum robustness



improved pump geometry



focus on reliability and longevity



experience since 1365 for extraordinary solutions

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MECHANICAL PUMPS

(VARIABLE) CHARGE PUMP

for hydraulic application



Medium	Oil
Pressure range	≤ 10 bar
Volume flow	≤ 115 cc/rev
Lifetime	< 15.000 hours

FUEL TRANSFER PUMP

charge pump for hp piston pump



Medium	Diesel Fuel
Pressure range	≤ 20 bar
Volume flow	5 – 20 l/min
Lifetime	2 million kilometers

TWO SECTION PUMP

for power shift transmission



Medium	Oil
Pressure range	≤ 50 bar
Volume flow	< 76 cc/rev per section
Lifetime	< 15.000 hours

TRANSMISSION OIL PUMP

for power shift transmission



Medium	Oil
Pressure range	≤ 50 bar
Volume flow	≤ 130 cc/rev
Lifetime	< 15.000 hours

ENGINE OIL PUMP

located on the crankshaft or oil sump



Medium	Oil
Pressure range	≤ 10 bar
Volume flow	≤ 220 l/min 155 cc/rev
Lifetime	< 15.000 hours

BI-DIRECTIONAL PUMP

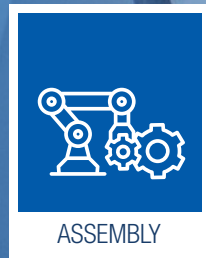
for various applications



Medium	Oil
Pressure range	≤ 50 bar
Volume flow	< 50 cc/rev
Lifetime	< 15.000 hours

SYSTEM SUPPLIER

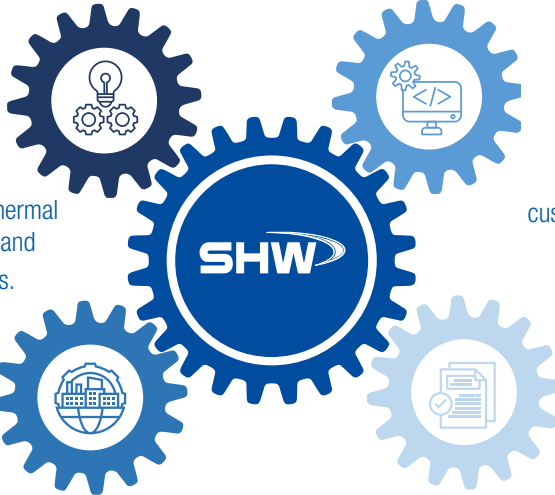
SHW is a development partner with system competence and a high level of added value:



INNOVATION, SPEED & QUALITY

Inhouse hardware development

SHW offers all kinds of mechanical and electrical oil pumps, oil modules, electrical main coolant pumps, thermal management modules and battery cooling modules.



Global production

SHW serves its products globally from the plants in Europe, North America, South America and China.

Inhouse software development

SHW develops all software and PCBA's inhouse in the R&D centre according to customer and functional safety requirements.

Inhouse testing and validation

SHW develops, tests and validates its e-pumps and modules completely inhouse.



TESTING AND VALIDATION

Functional and durability test benches

Functional test rigs

- functional tests -40 °C – 150 °C
- 2 cold-chambers -45 °C

Durability test rigs in 24/7

- High temperature durability
- Low temperature durability
- Cyclic temperature durability

Further test rigs

- Acoustic measurements
- Electrical tests
- Temperature measurements
- Chemical resistance tests
- Temperature shock (external)
- V&S-tests (external)
- EMC tests (external)

LOCAL PRODUCTION

To offer our customers a local footprint to supply pumps and integrated modules SHW has five plants in different regions.

Europe



DE **Bad Schussenried**, Germany

founded 1978
> 7.5 Mio pc./a

ISO 45001, ISO 9001, ISO 14001,
ISO 50001, IATF 16949, TISAX (2025)

RO **Timisoara**, Romania

founded 2017
> 1.0 Mio pc./a

ISO 45001, ISO 9001, ISO 14001,
IATF 16949

China



CN **Kunshan**, China

founded 2014
> 2.0 Mio pc./a

ISO 45001, ISO 14001,
IATF 16949, TISAX (2025),
NQC sustainability assessment

North America



NA **Toronto**, Canada

founded 2014
1,0 Mio pc./a

ISO 9001, IATF 16949
(2022), ISO 14001 (2024)

South America



SA **Sao Paulo**, Brasil

founded 2012
> 0.3 Mio pc./a

ISO 14001,
IATF 16949

BRAKES

LIGHTWEIGHT BRAKE DISCS AND DRUMS

Benchmark in terms of weight, performance and design



ICE



MHEV



PHEV



BEV

Monobloc Brake Disc

Best In Class: SHW Composite Brake Disc

Even Better: Advanced Composite Brake Disc (ACBD)

Hybrid-Brake-Drum



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SHW'S PIN DISC CONCEPT

As pioneer of the pin disc SHW set the standard in lightweight design as early as 1993 and has continued to improve its product portfolio over the years.

The pin disc concept is a two piece fully floating disc brake rotor. The friction ring is connected to the central aluminum rotor bell by means of stainless steel pins which are cast into the assembly during the manufacturing process.

SHW pin discs carries many benefits: low weight, maximum braking performance and excellent brake-comfort.



1.

grey iron friction ring
with radial reamed holes

2.

stainless steel pins casted
in the aluminum bell

3.

casted
aluminum bell

COMPOSITE BRAKE DISC



ADVANTAGES:

- Up to 2.5 kg mass reduction possible compared to monobloc disc
- Reduced thermal strain due to floating friction ring
- Excellent cooling
- Extreme durability and safety
- Improved brake-comfort
- Distinguished appearance
- Significant CO₂-reduction over lifetime

ADVANCED COMPOSITE BRAKE DISC



ADVANTAGES:

- Up to 3.5 kg mass reduction possible compared to monobloc disc
- Reduced thermal strain due to floating friction ring and more homogenous mass allocation
- Superior cooling
- Highest endurance, durability and safety
- Excellent brake-comfort
- Distinguished appearance
- Optimized CO₂-reduction over lifetime

HYBRID-BRAKE-DRUM



ADVANTAGES:

- Tremendous weight save of up to 40% compared to a Grey Iron Brake-Drum
- Better resistance to corrosion and reduced brake dust emission compared to disc brake system
- Superior reactivity after long periods of disuse (due to regen. braking)
- Significant CO₂-reduction over lifetime

R&D ACTIVITIES

Currently, the requirements for lightweight design and corrosion resistance are getting more important due to increasing share of electrified vehicles.

Thus, SHW developed the Advanced Composite Brake Disc (ACBD) and the Hybrid-Brake-Drum with start of production in 2024.

In addition SHW is developing low emission brake discs (LEB) to be prepared for future particle emission standards.

LOCAL FOOTPRINT

To offer our customers a local footprint to supply the lightweight composite brake disc, SHW has founded a new plant in China in addition to the plants in Tuttlingen and Neuhausen, Germany.



Tuttlingen, Germany
Neuhausen, Germany



Haimen, Nantong, China

WE ANSWER TO CUSTOMER REQUIREMENTS



FUNCTION

improvement of resistance to corrosion, brake performance and durability/safety



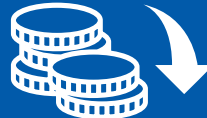
ENVIRONMENT

reduction of brake-induced emissions (brake dust) and wear behavior



WEIGHT

further weight reduction, e.g. due to optimized design with focus on cooling behaviour



ECONOMY

cost efficient design and economic local production

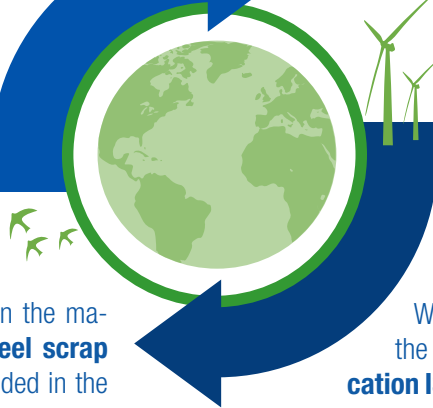
SUSTAINABILITY

@ SHW

SHW contributes to achievement of global **goals** for **sustainable** development.



In 2029, the change to an **electric melting furnace** is scheduled, so that climate-neutral production will be possible before 2030.



At our location in Tuttlingen the materials are melted from **steel scrap** and are therefore not included in the emissions balance.

Furthermore, we **remelt chips** from aluminum and gray cast iron. This results in the **re-recycling of raw materials**.

We are **certified** with the **environmental certification ISO 14001** and **ISO 50001**.

German locations used **100% emission-neutral electricity** for the first time in 2021.

The structure of the **supply chains** follows the principle of being as **regional** as possible.

* Goals for a climate-neutral production

CLIMATE-NEUTRAL PRODUCTION

@ SHW

SHW will make its own production climate-neutral* by 2040. The focus is primarily on reduction measures and the supply of emission-neutral energy sources.



Until **2030** all European locations will be **climate-neutral***.



Until **2040** all locations worldwide will be **climate-neutral***.

* CO₂-neutral in Scope 1 und 2 acc. GHGP-definition

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