

SERIES 236.40

SCREW PUMP FOR HANDLING CORROSIVE AND ABRASIVE LIQUIDS

APPLICATION AREAS

CHEMICAL INDUSTRY

PETROCHEMICAL INDUSTRY

TAR INDUSTRY

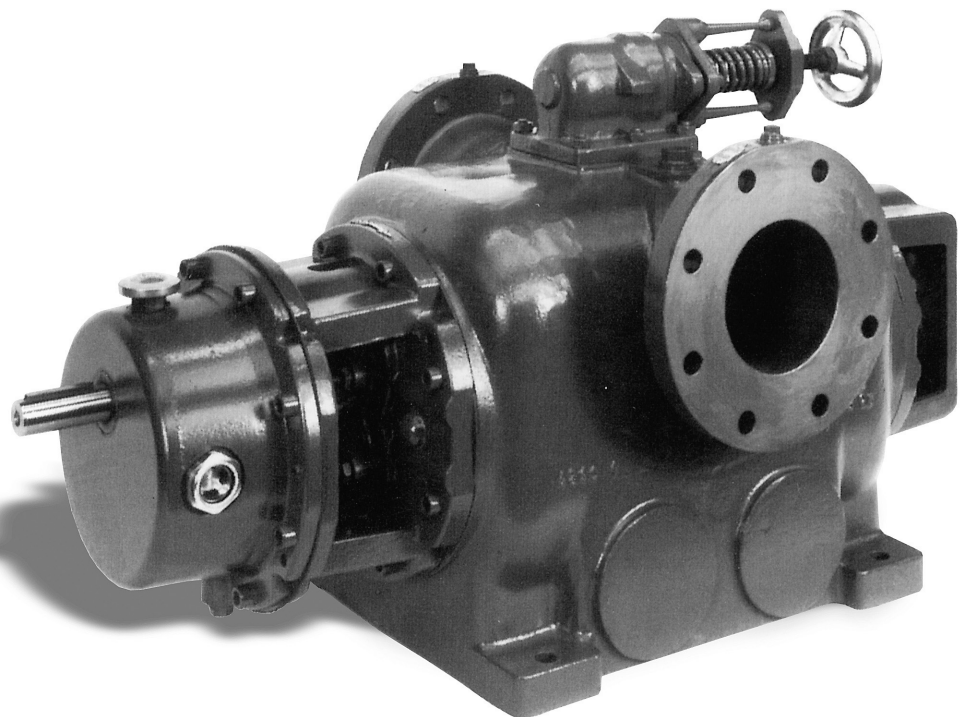
SHIPBUILDING INDUSTRY

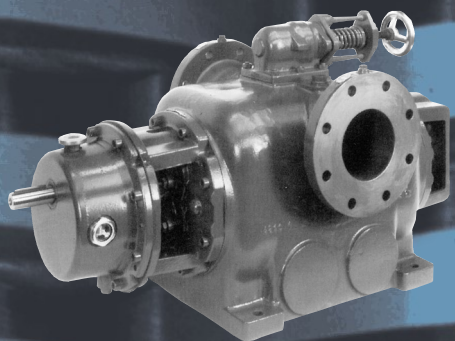
MARGARINE INDUSTRY

PAINT AND LACQUER
INDUSTRY

SOAP INDUSTRY

SUGAR INDUSTRY





Principle

The Houttuin double entry twin screw pumps series 236 are horizontal rotating self priming positive displacement pumps.

Two inter-meshing screws rotating in a pump casing insert ensure high pumping efficiency with constant axial flow and unequalled suction power.

Construction

The spindles are supported and axially held in position by ball bearings. The transmission of torque from the driven spindle to the idler spindle is effected by oil lubricated timing gears located outside of the pumping area in an attached gearbox. The ball bearings and timing gears maintain a small clearance between the screws, thus preventing metal to metal contact.

Shaft sealing

In standard design the pump can be fitted with single unbalanced mechanical seals or stuffing boxes. If required with fluid chamber for flushing or quenching.

Overload protection

For protection against overload a built-on spring loaded relief valve can be supplied.

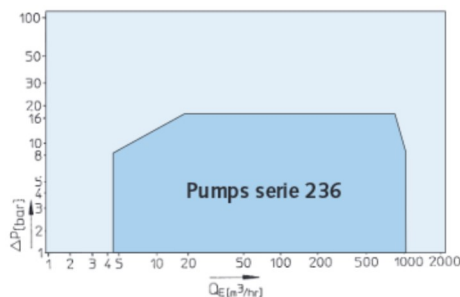
Applications

For pumping contaminated or slightly abrasive, lubricating and non-lubricating liquids of low or high viscosity which do not chemically attack the pump materials (corrosion proof materials

can be offered) In the chemical and petrochemical industry, soap and grease industry, paint and lacquer industry, food and beverage industry, plastics industry, sugar industry, environmental technology, in tankfarms and in the shipbuilding industry.

Performance data

| | | |
|------------------------------|----------------|------------------------------|
| Capacity | Q | up to 1100 m ³ /h |
| Viscosity range | V | 0,6 to 5000 cSt |
| Temperature of pumped liquid | t | up to 140 °C |
| Inlet pressure | p _s | up to 10 bar |
| Outlet pressure | p _d | up to 16 bar |
| Difference pressure | Δp | up to 16 bar |
| Speed | n | up to 2900 rpm |
| Flanges | | according to DIN or ANSI |



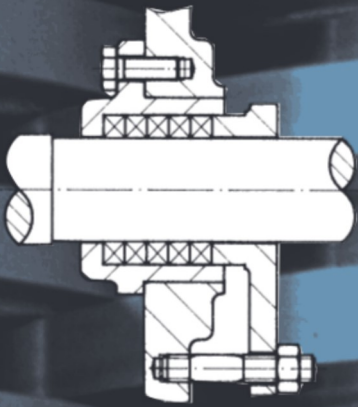
For the exact performance data as function of the viscosity of the liquid to be pumped and the pump speed, please refer to the individual characteristics.

AVAILABLE MATERIALS

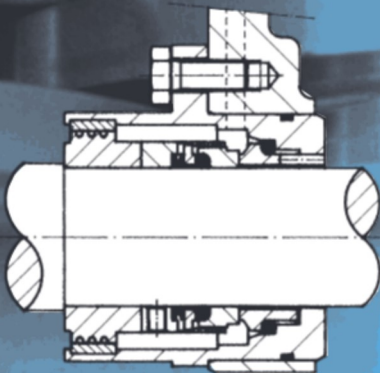
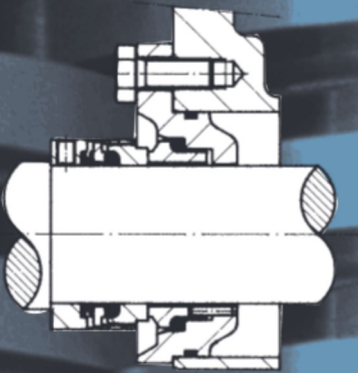
FOR PUMP AND MECHANICAL SEALS:

| Pump | | | | Mechanical seal according to DIN 24960 / API | | |
|-------------------|---------------|-------------------|-------------------|--|-------------|------------|
| Screw shafts | Casing insert | Casing | Covers | Seal faces | Springs | 'O' -rings |
| - Carbon Steel | - Cast Iron | - Cast Iron | - Cast Iron | - Chrome Steel or | - Stainless | - Viton |
| - Stainless Steel | - Nodular | - Nodular | - Cast Iron | - Silicon Carbide | Steel | - Teflon |
| (Type 400) | Cast Iron | Cast Iron | with coating | against | (Type 300) | |
| - Stainless Steel | - Ni-Resist | - Ni-Resist | - Nodular | - Carbon | | |
| (Type 300) | - Bronze | - Cast Iron | - Carbon Steel | | | |
| | | with coating | - Stainless Steel | | | |
| | | - Bronze | | | | |
| | | - Carbon Steel | | | | |
| | | - Stainless Steel | | | | |

SHAFT SEALING, STUFFING BOXES



SHAFT SEALING, MECHANICAL SEALS



Standard execution

The stuffing boxes are positioned at the suction side of the pump and consequently leakage is negligible

Grease lubrication

The stuffing box is provided with a lantern ring and can be grease-lubricated, to prevent the packing from drying out and to obtain a more efficient shaft sealing.

Standard execution with flushing

Design for grease lubrication.

Mechanical seal

Applicable from $H_S \geq 0.25$ bar abs.

The seal is allowed to run dry for a short period.

Mechanical seal with chamber

The construction of this seal has been developed from the standard construction. A chamber behind the seal offers the possibility of quenching by means of steam, thus preventing the oxidation of liquid eventually leaking through to the atmospheric side of the seal shaftsealing with labyrinth.

The pressure in this chamber may **never** exceed 0.2 bar above lowest H_S ; $H_S \geq 0.45$ bar abs.

Mechanical seal with chamber

As for above, but second shaftsealing with stuffing box.

Mechanical seal with chamber

As for above, but with a lipseal replacing the labyrinth sealing, so that liquids can be used as sealing medium.

The pressure in this chamber may **never** exceed 0.2 bar above lowest H_S ; $H_S \geq 0.45$ bar abs.

Mechanical seal

The mechanical seal is provided with a circulation system, so that its cooling and lubrication are safeguarded, even when the pump is running dry.

Mechanical seal with chamber

The construction of this seal has been developed from the construction 60.A chamber behind the seal offers the possibility of quenching by means of steam, thus preventing the oxidation of liquid eventually speaking through to the atmospheric side of the seal. Second shaftsealing with labyrinth. The pressure in this chamber man **never** exceed 0.2 bar above lowest H_S ; $H_S \geq 0.45$ bar abs.

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As for above, but with a lipseal replacing the labyrinth sealing, so that liquids can be used as sealing medium.

The pressure in this chamber may **never** exceed 0.2 bar above lowest H_S ; $H_S \geq 0.45$ bar abs.

Application areas for the processing or the transport in:

CHEMICAL INDUSTRY:

- acids
- alkalis
- additives
- glycerine
- paraffine
- polyethylene
- polyesters
- polybutadiene
- polyisoprene
- styrene
- liquid sulphur
- solvents
- etc.

MARGARINE INDUSTRY:

- animal fats
- vegetable oils
- soap - stock
- filtrates
- margarine
- etc.

PETROCHEMICAL INDUSTRY:

- all kinds of fuel oil and asphalt greases
- additives
- heavy distillation fractions
- slops and slurries
- etc.

SHIPBUILDING INDUSTRY:

- heavy fuel oils
- light products
- bilge/ballast water
- fresh- and seawater
- heavy-transfer oils

SOAP INDUSTRY:

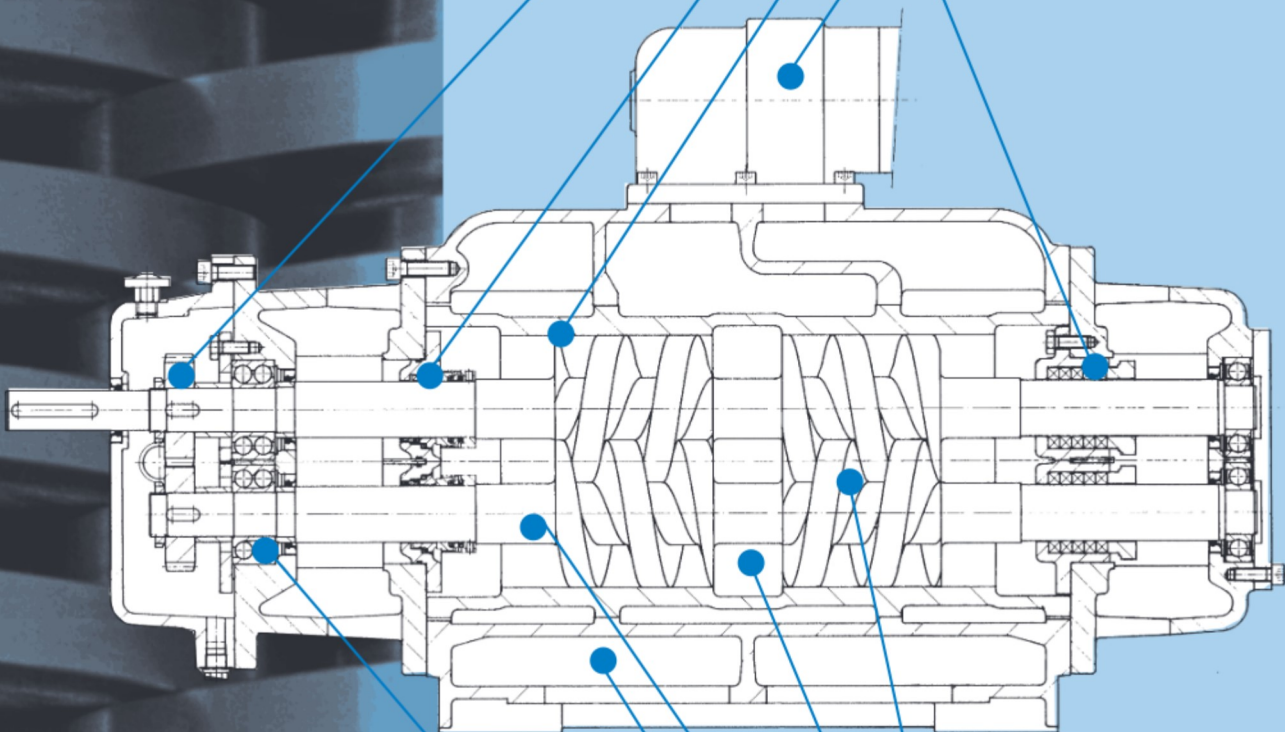
- liquid soaps
- soap-stock
- caustic soda
- fatty acids
- glycerine
- glycol and other polyvalent alcohols
- etc.

SUGAR INDUSTRY:

- molasse
- syrup
- masse-cuite
- etc.

TAR INDUSTRY:

- tar and bitumen
- as well as the sideline products:
- benzene
- toluene
- xylene
- phenol
- aniline



Safe transmission of torque through hardened and ground oil-lubricated timing gears.

Safe shaft sealing by single unbalanced and product lubricated mechanical seals.

Interchangeable casing insert therefore different materials possible.

For **overload protection** a direct mounted pressure relief valve is optional.

Safe shaft sealing by stuffingbox with softpacking.

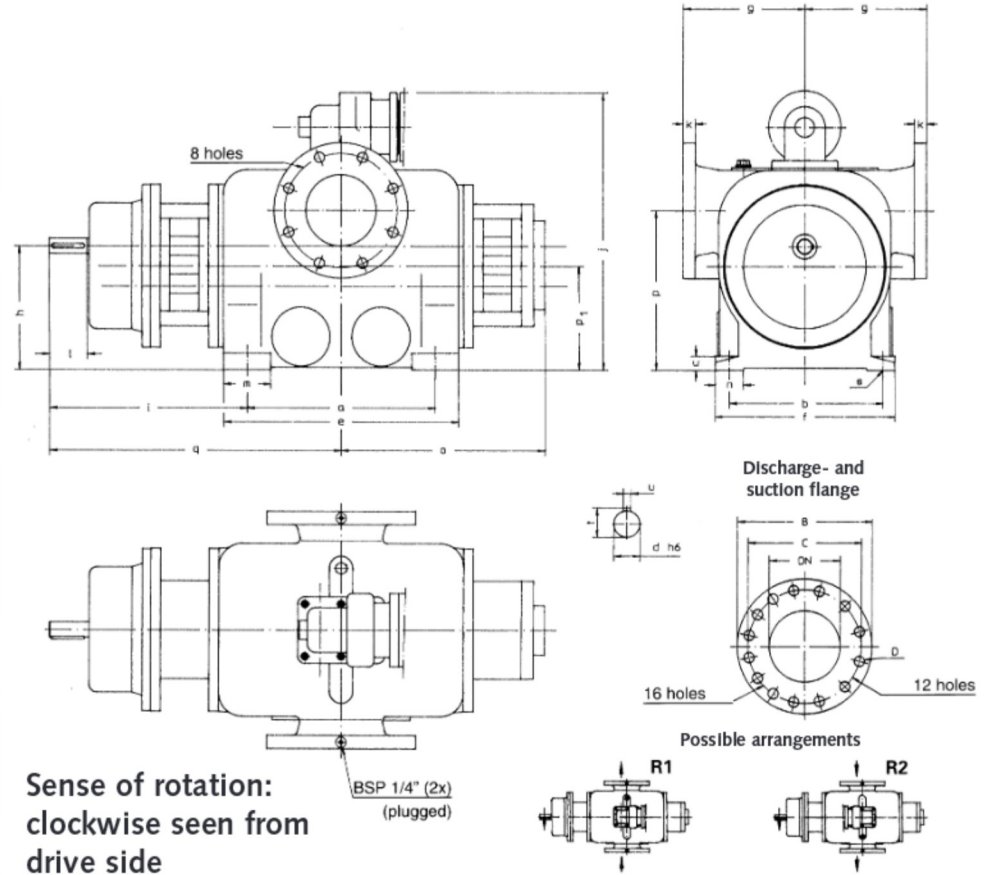
The special profile of the spindle flanks results in **continuously and nearly pulsation-free pumping, high efficiency, good NPSH- values and constant pressure course.**

Axial forces balanced through double entry spindles.

Heating of the pump foot by means of a medium or electric is optional.

Rigid spindles of solid material therefore compared with multi-part spindles **no crevice corrosion.**

Amplly dimensioned oil lubricated and **maintenance free ball bearings**, which additionally serve for the axial thrust of the spindles.



| PUMP SIZE | PUMP FOOT DIMENSIONS | | | | | | | | FLANGES PN 16 DIN 2533 | | | | |
|-----------|----------------------|-----|----|-----|-----|-----|-----|------|------------------------|-----|-----|-------|-----|
| | a | b | c | e | f | m | n | s | DN | B | C | D | |
| 088 | 325 | 310 | 35 | 415 | 350 | 90 | 60 | 4x18 | 100 | 228 | 180 | 8x18 | 46 |
| 105 | 370 | 330 | 35 | 460 | 370 | 90 | 60 | 4x18 | 125 | 254 | 210 | 8x18 | 46 |
| 118 | 400 | 335 | 35 | 500 | 380 | 100 | 60 | 4x22 | 150 | 285 | 240 | 8x22 | 70 |
| 135 | 480 | 400 | 40 | 570 | 450 | 100 | 70 | 4x22 | 200 | 340 | 295 | 12x22 | 70 |
| 150 | 580 | 450 | 40 | 670 | 500 | 100 | 70 | 4x22 | 250 | 405 | 355 | 12x26 | 100 |
| 165 | 620 | 490 | 45 | 740 | 550 | 120 | 90 | 4x26 | 250 | 405 | 355 | 12x26 | 100 |
| 180 | 670 | 540 | 45 | 790 | 600 | 120 | 90 | 4x26 | 300 | 460 | 410 | 12x26 | 100 |
| 195 | 680 | 590 | 45 | 800 | 650 | 120 | 90 | 4x26 | 300 | 460 | 410 | 12x26 | 135 |
| 210 | 690 | 600 | 45 | 840 | 660 | 150 | 120 | 4x26 | 300 | 460 | 410 | 12x26 | 135 |
| 225 | 700 | 660 | 45 | 850 | 720 | 150 | 120 | 4x26 | 350 | 520 | 470 | 16x26 | 135 |

| PUMP SIZE | PUMP DIMENSIONS | | | | | | | | SHAFT END | | | | | WEIGHT KG (CA) |
|-----------|-----------------|-----|-------|------|----|-----|-----|-------|-----------|----|-----|------|----|----------------|
| | g | h | i | j | k | o | p | p1 | q | d | l | t | u | |
| 088 | 230 | 230 | 362,5 | 488 | 26 | 380 | 305 | 197,5 | 525 | 28 | 60 | 31 | 8 | 165 |
| 105 | 240 | 245 | 375 | 506 | 26 | 400 | 310 | 207,5 | 560 | 28 | 60 | 31 | 8 | 220 |
| 118 | 250 | 260 | 400 | 610 | 26 | 429 | 335 | 218 | 600 | 32 | 80 | 35 | 10 | 275 |
| 135 | 275 | 280 | 405 | 655 | 30 | 465 | 355 | 233 | 645 | 38 | 80 | 41 | 10 | 380 |
| 150 | 300 | 305 | 410 | 805 | 32 | 525 | 400 | 252,5 | 745 | 42 | 110 | 45 | 12 | 535 |
| 165 | 320 | 335 | 500 | 832 | 32 | 576 | 425 | 277,5 | 810 | 45 | 110 | 48,5 | 14 | 760 |
| 180 | 350 | 355 | 515 | 897 | 32 | 610 | 465 | 292 | 850 | 50 | 110 | 53,5 | 14 | 965 |
| 195 | 370 | 375 | 520 | 983 | 32 | 627 | 480 | 307 | 860 | 55 | 110 | 59 | 16 | 1150 |
| 210 | 390 | 395 | 605 | 1025 | 32 | 666 | 520 | 321,5 | 950 | 60 | 140 | 64 | 18 | 1400 |
| 225 | 435 | 415 | 615 | 1070 | 36 | 677 | 540 | 336,5 | 965 | 65 | 140 | 69 | 18 | 1600 |

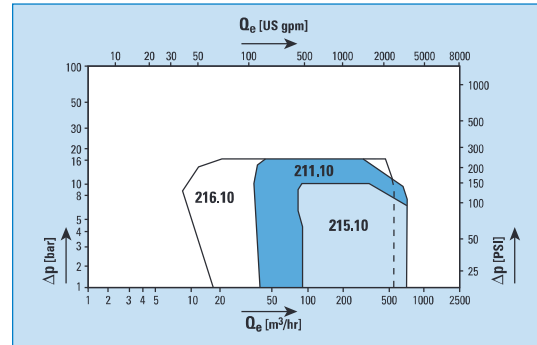
*) The diagrams show the performance range of the different pump series in our pump program and are for information only.

STANDARD PUMPS

With Internal Bearings

for lubricating liquids

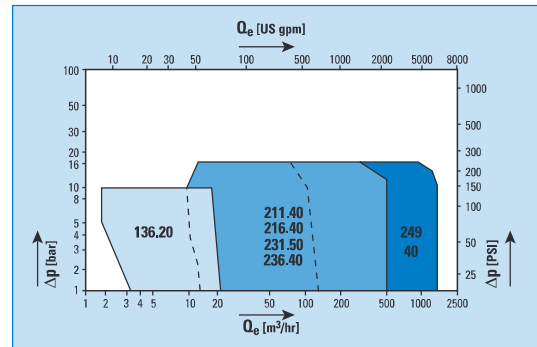
viscosity range : 20 - 760 cSt
: 98 - 3500 SSU



With External Bearings

for non-lubricating liquids

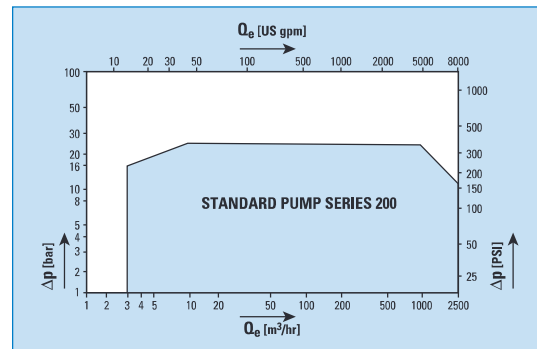
viscosity range : 0,6 - 1500 cSt
: 32 - 7000 SSU



With External Bearings

for lubricating and non-lubricating liquids

viscosity range : 0,6 - 100.000 cSt
: 32 - 466.000 SSU

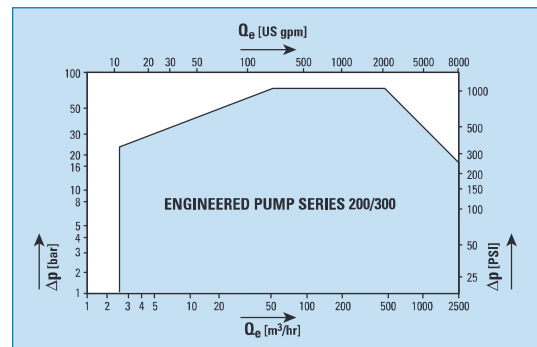


ENGINEERED PUMPS

With External Bearings

for lubricating and non-lubricating liquids

viscosity range : 0,6 - 100.000 cSt
: 32 - 466.000 SSU



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