VY-25

HIGH PRESSURE GEAR PUMP

PUMP PROPERTIES

Q — Flow	10.0 m³/h at 1450 rpm (≤ 165 cSt)	T — Temperature	0 ~ 150 °C
q — Displacement	0.115 l/rev	Visc. — Viscosity	10 ~ 550 cSt
Δp — Differential pressure	1 ~ 30 bar	DN — Suction / Discharge	DN40 / DN25
n — Speed	600 ~ 1450 rpm	Connection	Threaded — ISO 228 G 1½" suction / G 1" discharge (standard) · NPT optional
Port arrangement	180° — opposed — in-line	Weight, bare pump	≈ 29 kg

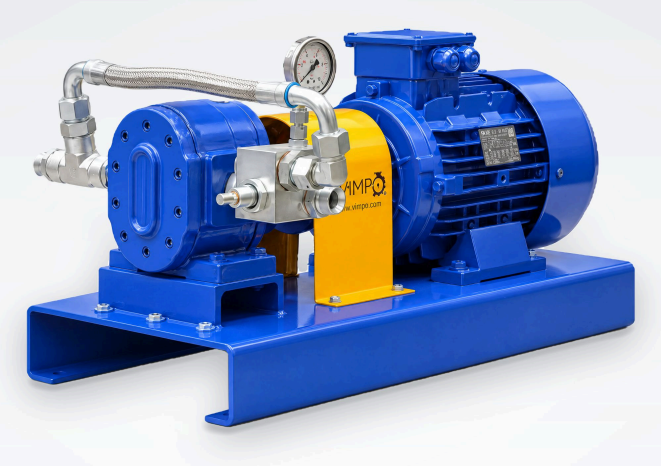
OPERATING PRINCIPLE AND CONSTRUCTION

VY-25 is a gear pump designed for high pressure. A reinforced bearing arrangement, a heavy casing section and a mechanical seal make it suitable for continuous duty up to 30 bar. The discharge port is one size smaller than the suction port, which keeps the suction velocity low at high speed. Flow is proportional to speed and independent of pressure. Typical duties are hydraulic power units, high pressure lubrication and press and injection circuits.

- Continuous working pressure up to 30 bar
- Reinforced bearing arrangement — ball bearing and bronze bush combination
- Mechanical seal — standard
- Compact casing — high pressure to volume ratio
- Uni-directional — rotation as marked on the pump
- Integrated by-pass valve as option (code BP)

APPLICATIONS

- Hydraulic power units
- High pressure lubrication systems
- Press and injection circuits
- Test benches and filling stations
- Fuel and light oil transfer against high back pressure



Representative photo — a VY series pump. This is not an exact image of VY-25.

Vimpo Makine A.Ş. · Malıköy Anadolu OSB, Sincan / Ankara, Türkiye · +90 312 354 85 09 · info@vimpo.com · www.vimpo.com

MODEL CODE

VY25	DN25	BP	DD	11	1450
family + size	port size	by-pass	drive	motor kW	pump rpm

Fields are separated by a hyphen and always appear in this order. A field is written only where VY-25 offers a choice; an omitted field means the standard of that field. A bare shaft pump carries no drive, motor or speed field.

FIELD	VALUES FOR VY-25	MEANING
FAMILY + SIZE	VY25	VY-25 — fixed
PORT SIZE	DN25	Suction and discharge DN25 (1") — fixed
BY-PASS	BP · omitted	BP — integrated by-pass valve on the cover omitted — no integrated by-pass (standard)
SEALING	not coded	Mechanical seal is the only sealing on VY-25 and is not written in the code.
DRIVE	DD · BD	DD — direct coupled motor (standard) BD — belt drive Written on motor coupled units only.
MOTOR kW	IEC notation	Installed motor rating: 0K55 = 0.55 kW · 0K75 · 1K1 · 1K5 · 2K2 · 3 · 4 · 5K5 · 7K5 · 11 · 15. The decimal separator is written as K.
PUMP rpm	speed	Pump shaft speed, not motor speed. With belt drive (BD) the speed after the pulley ratio.

EXAMPLE	READS AS
`VY25-DN25-DD-11-1450`	Complete unit, unheated, mechanical seal, motor 11 kW, 1450 rpm — standard unit
`VY25-DN25-BP-DD-11-1450`	As above with integrated by-pass valve (code BP)
`VY25-DN25-BD-11-1450`	Belt driven unit (BD)
`VY25-DN25`	Bare shaft pump — no drive, motor or speed field
`VY25-DN25-BP`	Bare shaft pump with integrated by-pass valve

DIMENSIONS

Dimensional drawing

Dimensions in mm. Baseplate and motor dimensions depend on the selected drive and are issued with the order acknowledgement.

Vimpo Makine A.Ş. · Malıköy Anadolu OSB, Sincan / Ankara, Türkiye · +90 312 354 85 09 · info@vimpo.com · www.vimpo.com

CAPACITY AND POWER TABLE

CAPACITY m³/h	SPEED rpm	5 bar	10 bar	15 bar	22 bar	30 bar	VISCOSITY
5.5	800	2.2 kW	3 kW	4 kW	5.5 kW	7.5 kW	22 cSt
10.0	1450 ★	4 kW	5.5 kW	7.5 kW	11 kW	15 kW	22 cSt
5.5	800	2.2 kW	3 kW	4 kW	5.5 kW	7.5 kW	165 cSt
10.0	1450 ★	4 kW	5.5 kW	7.5 kW	11 kW	15 kW	165 cSt
4.1	600	2.2 kW	3 kW	4 kW	5.5 kW	5.5 kW	550 cSt
7.6	1100	4 kW	5.5 kW	7.5 kW	11 kW	11 kW	550 cSt

Power figures are the recommended IEC motor rating for the duty point: shaft power is the sum of hydraulic power, viscous drag and bearing/seal friction, rounded up to the next standard motor step. ★ rows are the standard drive speeds; standard motors: 11 kW at 1450 rpm (standard unit). In each viscosity band the upper row is the maximum permitted speed for that band and the lower row a reduced speed; maximum speed falls as viscosity rises because filling of the pump becomes the limit. Viscosities above 550 cSt are outside the range of this model. Cold start: one motor step above the table value. Duty points outside the table are quoted on request.

OPERATING CONDITIONS

Suction lift	Maximum 3 m at sea level, decreasing 10 cm per 100 m of altitude. At the upper end of the viscosity range flooded suction is recommended.
NPSHr	Stated for the given speed, viscosity and temperature on request.
Direction of rotation	Uni-directional — as marked by the arrow on the pump.
Dry running	Not permitted. Bearings are lubricated by the fluid; a dry start damages bearings and gears.
Drive	IEC motor, 1450 rpm, direct coupled (DD) or belt drive (BD) · variable frequency drive · hydraulic motor.
Solid particles	≤ 0.025 mm · 25 µm suction filter required.
Casing pressure	30 bar + suction pressure · hydrostatic test 1.5 × casing pressure (EN 12162).

MATERIAL OPTIONS

Casing, covers	Cast iron GG25 (standard) · ductile iron · cast steel · stainless AISI 316/316L
Gears	Ductile iron GGG49 (standard) · cast steel · stainless AISI 316/316L
Shaft	42CrMo4 / AISI 4140 tempered steel (standard) · stainless AISI 316/316L
Bearings	Casing: SNBZ 12 bronze (standard) · carbon graphite · silicon carbide · tungsten carbide.
Gaskets	Klingerite / graphite (standard) · PTFE · Viton
Elastomers	FKM (Viton) −20 / +200 °C (standard) · PTFE −15 / +170 °C · EPDM −40 / +120 °C · FFKM (Kalrez) −20 / +300 °C · NBR −30 / +90 °C. The elastomer limits the fluid temperature.

SEALING — MECHANICAL SEAL, STANDARD

Mechanical seal	Single, fluid cooled mechanical seal is the only sealing on this model; no gland packing version. High temperature faces and elastomers for thermal oil service.
Elastomers	FKM (standard) · PTFE · FFKM for solvents and aggressive fluids.

BY-PASS / PRESSURE RELIEF — CODE FIELD BP

A positive displacement pump will pump against a closed valve. If the discharge line can be closed, a pressure relief device is mandatory.

- BP — by-pass (relief) valve integrated on the cover. Returns flow internally from discharge to suction; no external pipework. Set pressure 1–2 bar above working pressure.
- The integrated valve is for short term protection. Continuous by-pass requires a separate line valve.
- In reverse running the by-pass must also be reversed; it always faces the suction port.
- At high viscosity a line mounted relief valve is preferred over the integrated one.
- Without BP in the code a relief valve in the discharge line is required by the installer.

Vimpo Makine A.Ş. · Malıköy Anadolu OSB, Sincan / Ankara, Türkiye · +90 312 354 85 09 · info@vimpo.com · www.vimpo.com

SCOPE OF SUPPLY AND OPTIONS

Standard unit	Pump · IEC motor · steel baseplate · flexible coupling · coupling guard
Bare shaft pump	Pump only, without motor, baseplate or coupling — for connection to an existing drive. Code without drive, kW and rpm fields.
Options	integrated by-pass valve (BP) · NPT threads · belt drive (BD) · ATEX motor · variable frequency drive · stainless casing
Paint	Epoxy primer 60 µm + polyurethane top coat 60 µm, total ≥ 120 µm. Hot service above 150 °C: silicone based heat resistant system. Casing RAL 5005 (Vimpo blue); other RAL with the order.
ATEX	Available in ATEX version — II ½G Ex h IIB T4 Ga/Gb, zones 0 and 1 (2014/34/EU · EN ISO 80079-36/-37); EU-type examination certificate IEP 24 ATEX 1315X Suppl. 01, notified body 2284. Liquid temperature max. 130 °C. The motor is of Ex d or Ex e type to EN 60079-0/-1/-7. Any temperature or pressure sensor fitted must itself be Ex protected (zone 1, IIB, min. T4). Installation and periodic maintenance by authorised personnel to the operating instructions; replacement of a part requires re-approval. Zone, gas group and temperature class stated with the order.
Documents	CE declaration of conformity · material certificate EN 10204 3.1 · hydrostatic test report · performance test report · operating and maintenance manual · spare parts list

APPLICABLE STANDARDS

API 676	Positive displacement rotary pumps — design basis (reference)
EN 809	Pumps and pump units — safety requirements
2006/42/EC	Machinery Directive — CE declaration of conformity
EN ISO 12100	Safety of machinery — risk assessment
2014/34/EU	ATEX — equipment for explosive atmospheres (optional version)
EN 12162	Hydrostatic test — casing pressure test
EN 10204 3.1	Material inspection certificate
API 682 · ISO 21049	Mechanical seal arrangement and piping plans (MS version)
EN 1092-2	Flange dimensions and pressure rating

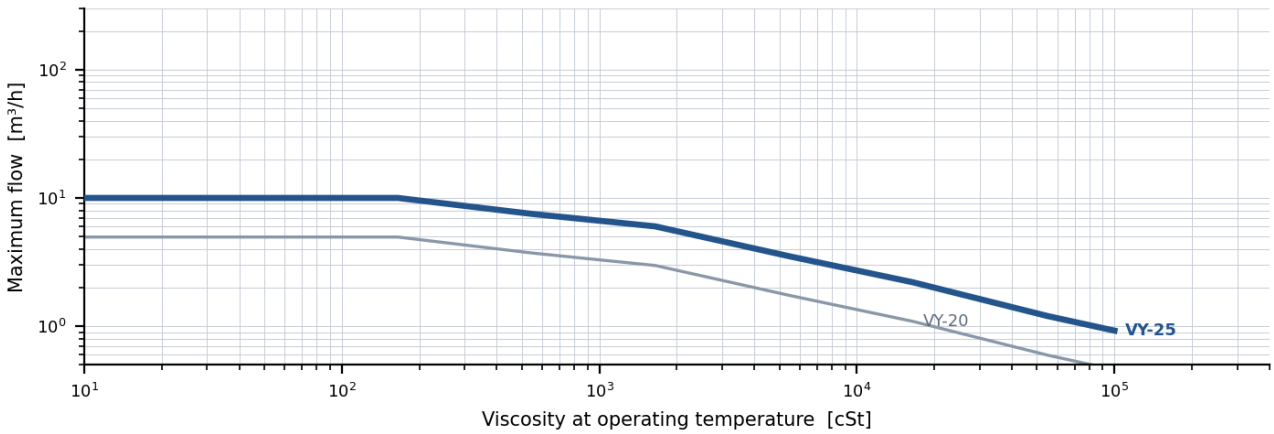
Vimpo Makine A.Ş. · Malıköy Anadolu OSB, Sincan / Ankara, Türkiye · +90 312 354 85 09 · info@vimpo.com · www.vimpo.com

TYPICAL VISCOSITY OF COMMON FLUIDS AT PUMPING TEMPERATURE

PRODUCT	PUMPING TEMPERATURE	VISCOSITY [cSt = mm²/s]	CAPACITY TABLE COLUMN
BITUMEN			
Paving grade bitumen 50/70	150 · 180 °C	≈ 300 · ≈ 90	165
Paving grade bitumen 35/50	150 · 180 °C	≈ 450 · ≈ 130	165 · 1,650
Polymer modified bitumen (SBS)	160 · 180 °C	≈ 2,000 · ≈ 500	1,650
Oxidised bitumen 85/25	170 · 200 °C	≈ 4,000 · ≈ 800	5,500 · 1,650
Cut-back bitumen (MC / RC)	60 · 100 °C	≈ 1,000 · ≈ 100	1,650 · 165
Bitumen emulsion 60–65 %	20–60 °C	≈ 20 – 100	165 (low lubricity)
FUELS AND OILS			
Heavy fuel oil HFO 380	50 · 80 °C	≈ 380 · ≈ 90	1,650 · 165
Light fuel oil, kerosene, diesel	20 °C	≈ 2 – 6	165 (thin — flow reduced)
Lube oil ISO VG 46	20 · 40 °C	≈ 120 · ≈ 46	165
Lube oil ISO VG 320 · gear oil	20 · 40 °C	≈ 1,500 · ≈ 320	1,650 · 165
Thermal oil (heat transfer fluid)	20 · 200 °C	≈ 40 · ≈ 1	165
CHEMICAL AND PROCESS			
Glycerine 99 %	20 · 40 °C	≈ 1,200 · ≈ 280	1,650 · 165
Polyol, plasticiser (DOP)	25 °C	≈ 300 – 3,000	1,650 · 5,500
Alkyd / epoxy resin, liquid	20–25 °C	≈ 5,000 – 15,000	5,500 · 16,500
Hot-melt adhesive (EVA)	160–180 °C	≈ 2,000 – 20,000	5,500 · 16,500
Solvent-based paint · printing ink	20 °C	≈ 100 – 500 · 10,000 – 50,000	165 · 16,500 – 55,000
FOOD			
Vegetable oil (sunflower, soybean)	20 · 60 °C	≈ 65 · ≈ 15	165
Molasses (cane)	20 · 40 °C	≈ 5,000–10,000 · ≈ 1,000–2,000	5,500 · 1,650
Glucose syrup 80 % DS	20 · 50 °C	≈ 20,000–50,000 · ≈ 2,000–5,000	16,500 – 55,000 · 5,500
Honey	20 · 40 °C	≈ 5,000–10,000 · ≈ 500–1,000	5,500 · 1,650
Chocolate mass	40–45 °C	≈ 2,000 – 10,000 (non-Newtonian)	5,500 · 16,500
Melted animal fat, tallow, palm oil	50–60 °C	≈ 25 – 50	165

Indicative values; the fluid supplier's data sheet governs the selection. Where two temperatures are given the two viscosities correspond in the same order (e.g. 150 · 180 °C → ≈ 300 · ≈ 90 cSt). Conversion: mPa·s (cP) ÷ density (kg/dm³) = cSt. Oils roughly halve their viscosity every 10–15 °C; bitumen falls about tenfold between 120 °C and 180 °C. Select the capacity table column equal to or above the viscosity at the lowest pumping temperature (cold start).

VY SERIES — PUMP SELECTION DIAGRAM



Maximum flow of each model at the maximum permitted speed for the viscosity at operating temperature. The smallest model whose curve lies above the duty point is the selection. Duty point values are confirmed with the order acknowledgement. Technical data subject to change without notice.

Vimpo Makine A.Ş. · Malıköy Anadolu OSB, Sincan / Ankara, Türkiye · +90 312 354 85 09 · info@vimpo.com · www.vimpo.com