

Oil Diffusion Pumps

DIJ Series

Most innovative design
for best performance
and efficiency



The new DIJ oil diffusion pump series

Oil diffusion pumps from Leybold are ideally suited for industrial high vacuum applications. They excel with superior vacuum performance and are reliable components in medium vacuum and high vacuum systems with a fit and form retrofit capability.

DIJ oil diffusion pumps are wear-free high vacuum pumps without wearing and moving components. The pumping effect of these pumps is created through the diffusion of gases into an oil vapor stream.

DIJ benefits at a glance

■ Most innovative heating concept

utilizing newly developed heater cartridges with large heat exchange surface for an optimized energy transfer into the oil. Effective temperature monitoring protects the system against overheating. The insulated heater area ensures minimum energy losses.

- + Minimum stress and longest lifetime for heaters and oil
- + Highest uptime
- + Flanged heaters, easy to exchange

■ Choice of flange variants

for improved connectivity

- + ANSI / Inch flanges (with O-ring)
- + ISO-F or ISO-K flanges (with centering ring)

■ Unique baffle design

- + Proven cold cap baffle at the inlet to minimize oil backstreaming
- + Innovative, new foreline baffle for reduced oil losses

■ Various electrical connection opportunities

to meet customers requirements

- + Three different connection types available
 - Basic – simplified OEM connection with male plug
 - Standard – with circuit breaker box
 - ECO, with switchbox and energy control unit

■ Five stage system design

provides excellent performance data

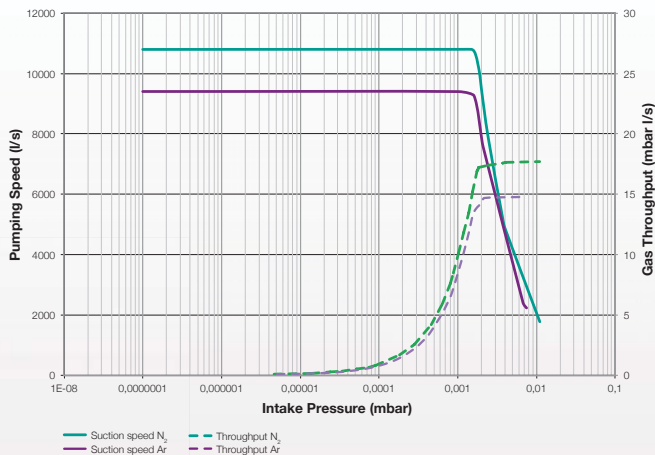
- + Four diffusion pump stages for highest suction speed at low pressures and lowest final pressure
- + One ejector stage for high forevacuum stability and stable throughput at pressures $>10^{-3}$ mbar

Typical Applications

- Vacuum coating
- Metallurgy
- Vacuum furnaces
- Vacuum drying
- Research and development



Improved design features for your vacuum requirements



Pumping speed characteristics and throughput of a DIJ 20 oil diffusion pump

DIJ Oil Diffusion Pump Advantages

Prolonged maintenance intervals, non-wearing, high safety standard.

- High and stable throughput at pressures $>10^{-3}$ mbar
- High forevacuum tolerance
- High pumping speed
- Safe and economical
- CE compliant electronics supplied
- No wear caused by moving parts
- Simple to operate
- Maintenance friendly design for rapid and simple replacement of heating elements
- Wide range of accessories available
- Innovative ECO Energy control unit (ROI < 2 years)

Power Efficiency Control -

Energy savings up to 30% without power loss

Oil diffusion pumps require a certain minimum oil temperature for operation. Commonly, 100% of the installed heating power is constantly utilized.

The innovative Leybold power efficiency control unit for diffusion pumps cuts power consumption by up to 30% since the supplied power is significantly reduced after the pump has attained its operating temperature. Further savings result from the utilization of the standby mode at a reduced temperature.

- Cost reductions through energy-savings (up to 30%)
- Increased service life of oil and heating cartridges
- Excellent operating convenience and simple use
- Fast ROI (< 2 years)
- Simple, visual monitoring of the parameters
- PLC driven
- USB Interface and Ethernet



100% power demand during the warm-up phase



Approx. 70% power demand after attaining the defined oil temperature

Pump fluids

Specifications

LEYBONOL pump fluid for oil diffusion pumps in any application



The matching pump fluid influences the performance and pumping speed of oil diffusion pumps. Our LEYBONOL pumping fluids fulfil the requirements for working in a high vacuum:

- High-quality, reliable fluids for a long service life of oil and pump
- Excellent vacuum performance data

■ ECO (Energy control unit) compliant
The product line of suitable pump fluids and vacuum oils for your application are described in our full line catalog.

We gladly provide personal advice for the selection of the suitable pump fluid. Please contact us.



Technical Data *

Oil diffusion pumps		DIJ 20	DIJ 35
High vacuum connection	ANSI	20	35
Forevacuum connection	DN (ISO)	4	6
High vacuum connection	DN ISO-K / ISO-F	630	1000
Forevacuum connection	DN ISO-K	160	200
Nominal pumping speed ¹⁾	l/s	10000	28000
Ultimate total pressure ¹⁾	mbar	< 5 · 10 ⁻⁷	
Ultimate backing pressure ¹⁾	mbar	< 5 · 10 ⁻¹	
Operating range	mbar	1 · 10 ⁻² - 5 · 10 ⁻⁷	
Gas throughput	mbar l/s	17	33
Weight	kg	270	1150
Cooling water consumption	l/h	620	900
Oil filling LEYBONOL	l	5.5 / 7.0	15 / 18
Number of heating cartridges		9	18
Heating power	kW	10.8	22

¹⁾ in accordance with ISO/R 1000, DIN 28 400 with LVO 520 as the pump fluid

P/N *				
DIJ diffusion pump, ANSI flange versions			22227Vxxx	22242Vxxx
DIJ diffusion pump, DN-ISO flange versions			22228Vxxx	22243Vxxx
Version	Tension	Cable	Connection	P/N XXX
Plug male	400 V, 50/60 Hz	3 phase / N / PE	Y	V000
	460 V, 50/60 Hz			V001
Circuit breaker box	400 V, 50/60 Hz			V005
	460 V, 50/60 Hz			V006
EER / EEC	400 V, 50/60 Hz			V009
	460 V, 50/60 Hz			V010

* For detailed information, please contact us. Visit our webshop www.leyboldproducts.com.

Accessories	P/N
Astrotorus baffle	coming soon
Overttemperature protection switch	122 84
Contact thermometer	218 81
Resistance thermometer (Pt 100)	200 02 958
Valves	on demand

For detailed information, please refer to our general catalog.

Visit our webshop

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Pump fluids/oils	P/N	
Mineral oil base, for standard applications:		
LEYBONOL LVO 500	1 l	L500 01
	5 l	L500 05
	20 l	L500 20
LEYBONOL LVO 510	1 l	L510 01
	20 l	L510 20

Silicone oil base, for processes with aggressive media or oxygen:

LEYBONOL LVO 520	1 l	L520 01
	5 l	L520 05
LEYBONOL LVO 530	1 l	L530 01
	20 l	L540 20



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