



# VACUUM BOOSTER PUMPS

Atlas Copco

ZRS 250-4200 Series



The ZRS mechanical booster pumps, based on the simple roots principle, remains the favourite pump for applications where high pumping speeds are required for pressures in the region of 0.01 to 50 mbar. This pump must always be backed by another pump, which can deliver against a high-pressure differential to atmospheric pressure. Operating at relatively low pressures, the mechanical booster pump is not exposed to the same concentrations of corrosive process media as is the backing pump, which makes it highly reliable.

## FEATURES AND BENEFITS

- Suitable for applications where high pumping speeds are required in the pressure region of 0.01 to 50 mbar/0.0075 to 37.5 Torr.
- Operating at relatively low pressures makes it highly reliable.
- The ZRS pumps have a high quality, oil-free pumping mechanism. This offers:
  - Quiet, vibration free operation.
  - Rugged and corrosion resistant.
  - Advanced shaft-seal technology with no oil contamination of the process chamber.
- The proven shaft-seal arrangement ensures that no oil enters the pumping stator, and the absence of internal and external by-pass lines and valves which may corrode or stick minimizes maintenance requirements.
- The design of the shaft seals is optimized to ensure that no lubricants can migrate into the pumping mechanism. This maintains booster pump performance in applications which demand the highest standard of cleanliness. In addition, this prevents the build-up of trapped particles on the rotor lobes and end-faces which have very close tolerances.
- The dynamically balanced rotors and precision ground gears contribute to the smooth, quiet operation of the pumps, as demanded by manufacturers of advanced technology equipment.

## APPLICATIONS

- Vacuum packaging
- Drying and de-gassing
- Vacuum metallurgy
- Vacuum distillation
- Thin film coating
- Low density wind tunnels
- Space simulation
- Vacuum impregnation
- Freeze drying

# TECHNOLOGY



## Pumps with hydrokinetic drive

ZRS booster pumps have a unique and patented hydrokinetic fluid drive, which couples the motor to the pumping mechanism. The hydrokinetic drive offers the following advantages:

- Pump down times cut by up to 50%.
- No pressure sensors, by-pass lines or valves.
- Reduced capital and operating costs.
- Can operate continuously at all pressures when used with a backing pump.

## Pump-down times cut by up to 50%

The hydrokinetic drive allows the booster pump to be started at the same time as the backing pump as it prevents motor overload. The ZRS booster pump therefore assists the pumping process from the start of pump-down.



## Automatic overload protection

The hydrokinetic drive automatically varies the rotational speed of the pump. This protects the motor from overload, prevents over-heating, and allows the pump to operate with high-pressure differentials.

## Important cost savings

When you use ZRS mechanical booster pumps, you save money on installation and operation. Your capital costs are reduced as you do not need valves, by-pass lines and pressure switches, and you can use a smaller backing pump than with conventional drive booster pumps.



# TECHNICAL SPECIFICATIONS ZRS SERIES (50/60Hz)

Pump type	Displacement (swept volume)		Maximum pressure differential		Motor power		Overall dimensions			Weight
	m3h-1	cfm	mbar	Torr	Hydrocarbon		D mm	W mm	H mm	
					kW	Hp				kg
ZRS 250	310/375	185/220	180/150	140/115	2.2	3	705	305	272	69
ZRS 500	505/605	300/335	110/90	83/68	2.2	3	791	305	265	106
ZRS 1200	1195/1435	715/845	90/75	68/56	3	4	952	380	334	149
ZRS 2600	2590/3110	1525/1830	80/67	60/50	11	15	1156	522	498	345
ZRS 4200	4140/4985	2440/2935	60/50	45/38	11	15	1336	522	498	481

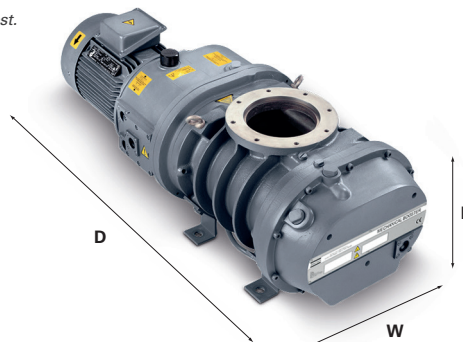
Hydrokinetic drive is water-cooled on ZRS 1200 and above.

Motors conform to EN 60034 and are energy efficient.

Voltage options:

- 400 V 50 Hz
- 230/460 V 60 Hz
- 200/380 V 50 Hz
- 200/380 V 60 Hz

Oil is 100cSt hydrocarbon type. Other oil types are available on special request.



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