Product information

varisco
solid pumping solutions



Self-priming centrifugal pumps

J Series and ST-R Series

variscopumps.com



Solid Pumping Solutions

Varisco is committed to providing innovative, durable and efficient solutions for industrial pumps intended for complex applications. Our pumps are designed for strength, reliability and durability, ensuring consistent performance even in the most challenging environments.

Our pumps are recognized and used globally, particularly in handling abrasive and solids-laden fluids in the water treatment, chemical, and food industries. Varisco is part of Atlas Copco Group.



Where reliability meets innovation

Active since 1932, Varisco boasts long and consolidated experience in the design and production of pumps for use in industrial processes. All products are distinguished by reliability and quality, and are tested at the internal Research and Development center.

We assist you in selecting your pump

From expert assistance with pump configurations to providing competitive quotes, our team is committed to supporting you through every stage of your project.

Optimize the performance of your pump with our after-sales service

Varisco is always at your side for pump assistance and repair services, anytime, anywhere. Thanks to scheduled maintenance, original spare parts and specialized technicians, we guarantee competence and professionalism to extend the life cycle of the pump.

J and ST-R Series
Self-priming centrifugal pumps

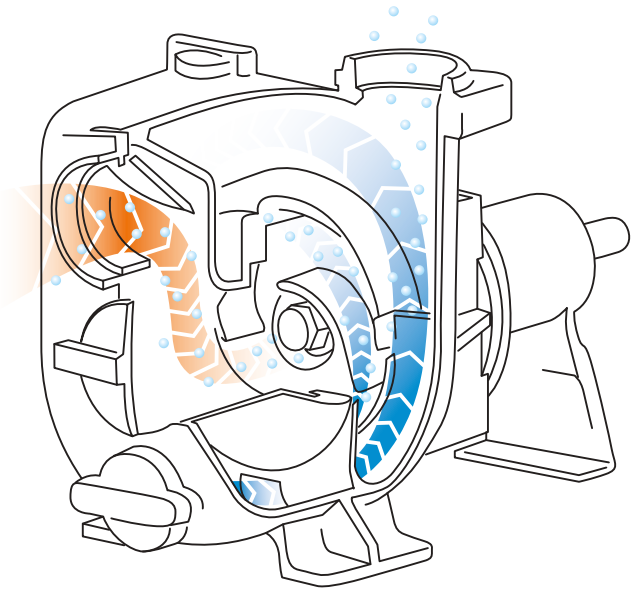
The self-priming centrifugal pumps of the series J and ST-R Varisco are designed and manufactured to guarantee high performance and ease of use in multiple industrial, purification and waste fluid management sectors in general.



Working principle

The air (orange flow) is drawn into the pump by the vacuum created by the moving impeller, and it emulsifies with the liquid (blue) in the pump body. The air-liquid emulsion is forced into the priming chamber where the lighter air separates and comes out from the delivery pipe; the heavier liquid falls back and recirculates. Once all the air is expelled from the suction duct, the pump is activated and runs just like a regular centrifugal pump.

The pump can also run with an air- liquid mixture. The non-return valve has a dual function: it prevents the suction pipe from emptying when the pump is not running; if the suction pipe is accidentally emptied, it keeps sufficient liquid in the pump body for priming. The delivery pipe must be free to release the air deriving from the suction.



Applications



Water purification and treatment plants:

landfills, power plants, smoke abatement and washdown.



Industry:

industries producing machinery and animal feed, steel mills, tanneries; mechanical processing; protection of sites exposed to flood risk.



Chemical and petrochemical:

used for transfer operations, unloading, and other support services for dirty and abrasive fluids.



Food industry:

wine industry (washdown), canning industries.



Naval industry:

bilge, ballast, fire prevention, washdown services.



OEM:

Vehicle transformation industries (concrete mixers, sprayers, road washing, water distribution)



Agricolture:

for irrigation and management of waste water, fertilisers; aquaculture facilities; animal farm slurry.



PET recycling plants:

for handling the washing fluids of plastic waste to be recycled, and for various uses in the sector's purification plants.



Paper industry:

The pumps are used to extract the residues from the paper processing stages (air, gases dissolved in water, and fibrous suspensions).

J Series
Main features of the range

The J self-priming centrifugal pumps are used in applications requiring a fast priming capacity from demanding suction heights combined with the ability to transfer and manage polluted, waste and abrasive fluids with suspended solids.

The system features an inspectable pump casing, which also acts as a water tank allowing for early quick priming without auxiliary systems, simplifying system management and reducing maintenance times.

Within the limits of physically permissible suction heights, J pumps offer a more convenient and reliable solution compared to submersible pumps and vertical shaft pumps with immersed impellers.

Materials
Cast iron
Hardened cast iron
Stainless steel

Ports size
Up to 300 mm (12")

Solids passage
Up to 76 mm (3")

Max Head
Up to 110 m (361 ft)

Max Flow Rate
Up to 20.000 l/min (5.283 USGPM)

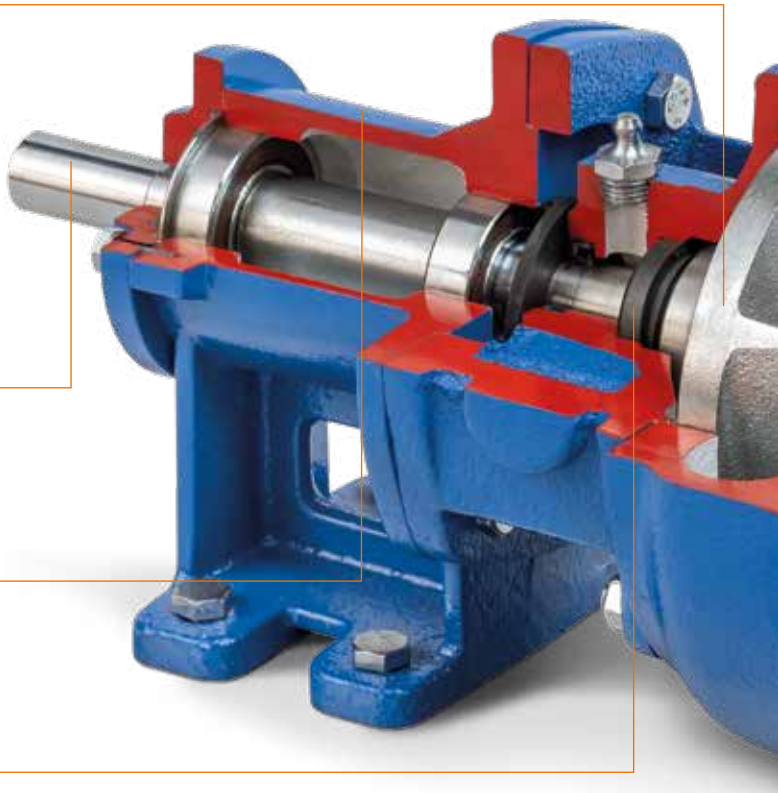
Self-priming capacity
Up to 7,5 m (24,6 ft)

Optionals
- inverter
- flange kit
- automatic greaser
- cutting devices
- zinc anodes

IMPELLER

Varisco self-priming centrifugal pumps feature 'semi-open' impellers, with two, three or four vanes.





SHAFT

The shafts are amply oversized to withstand abnormal loads and thrusts generated by priming operations with particle-laden fluids polluted by dissolved gases.

SUPPORT

The double-bearing support guarantees maximum reliability under the most heavy-duty conditions (repeated priming, heavy and loaded fluids, etc.)

MECHANICAL SEAL

Prevents leakage of the pumped fluid along the shaft and, at the same time, prevents air or contaminants from entering the pump body, ensuring proper functioning and reliability of the system.



PRIMING FROM GREAT HEIGHTS

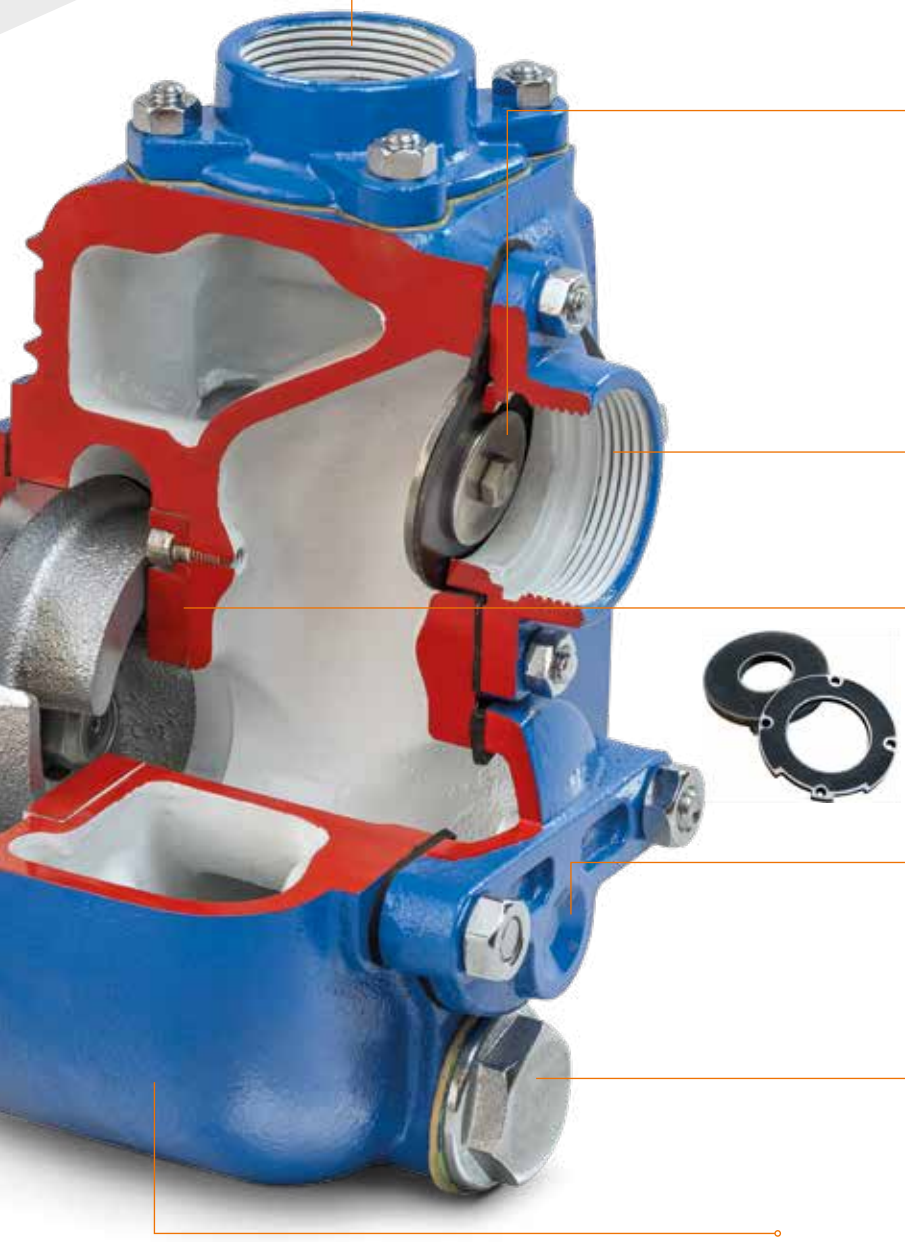
Self-priming capacity without auxiliary systems up to 7.5m (24,6 ft)

HIGH ABRASION RESISTANCE

Its design features allow the handling of abrasive fluids with minimal wear and maintenance.

LARGE SOLIDS PASSAGE

Ability to handle difficult, polluting, and heavily loaded fluids containing solids up to 76 mm (3”) in diameter without sustaining damage.



DISCHARGE PORT

Sostituibile in caso di rottura, senza necessità di sostituire il corpo pompa.

CHECK VALVE

The check valve prevents the suction pipe from emptying when the pump stops, ensuring the immediate availability of fluid at subsequent start-ups.

Thanks to its position, which does not allow the pump body to be completely drained, any failures (wear, blockage, etc.) do not affect the priming or correct operation of the pump.

SUCTION PORTS

Replaceable in case of breakage, no need to replace the pump casing.

WEAR PLATE

Wear plates, whether rubber-coated or not, are easily replaceable components designed to absorb shocks and resist the abrasive action of pumped liquids, protecting the pump casing.

IMPELLER INSPECTION COVER

Allows in-field inspection of the impeller area, internal washing of the pump and consequent rapid unclogging without disassembly.

DRAIN PLUG

Enables field inspection of the priming window and its cleaning and emptying during internal pump flushing.

CASING

Tank-type pump casing.

J Series
Advantages

- **Top and dry installation** to ensure easier control, maintenance and management compared to submerged or vertical shaft solutions with immersed impeller
- Suitable for handling **challenging fluids** and heavy-duty applications
- Castings in **different metallurgy** with high thickness for resistance to abrasive and corrosive liquids
- Casing with **inspection and drainage covers** for filling, washing and unclogging
- **Semi-open impeller** in different metallurgy with the passage of solids up to 76 mm (3")
- **Easily replaceable parts** subject to wear to restore original performance
- Mechanical seals with counter faces in materials selectable based on use, suitable for **containing abrasion and chemical aggression**
- Management of fluids with viscosity up to 50 mm^2/s (cSt) with standard sizing. Option of special sizing for **dense and waste mixtures and slurries**

Main set-ups



1

BARE SHAFT
JS - JS Ex



2

CLOSE COUPLED
JE... JX...



3

FOR OR WITH HYDRAULIC MOTOR
JP MOD - JO MOD



4

BASE AND JOINT
JE...S...BASE
JX...S...BASE

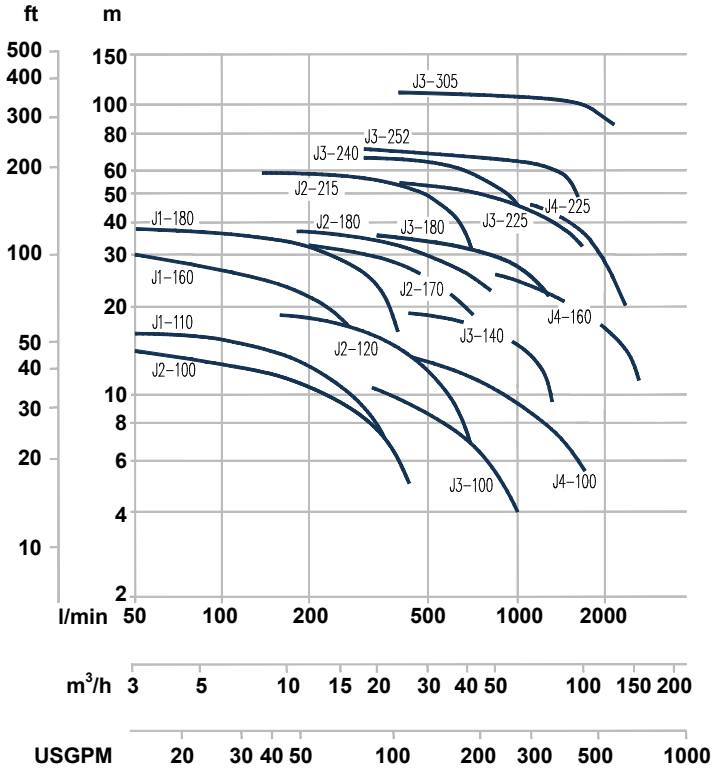
J Series
Technical data

J Series	Ports		Power	Speed	Flow (Q max)		Head (H max)		Power	Speed	Flow (Q max)		Head (H max)		ATEX*
Model	ISO 228 (BSP)	DN	Kw-50Hz	rpm	l/min	US GPM	m	ft	Kw-60Hz	rpm	l/min	US GPM	m	ft	Zone 1 - 2
J 1-110	1 1/2"	40	1,1	2900	367	97	16,5	54	1,5	3450	367	97	23	75	✓
J 1-160	1 1/2"	40	2,2	2900	333	88	30	98	4	3450	350	92	44	144	✗
J 1-180	1 1/2"	40	4	2900	417	110	35	115	5,5	3450	417	110	50	164	✓
J 2-100	2"	50	1,1	2900	500	132	14	46	1,5	3450	533	141	20	66	✗
J 2-120	2"	50	2,2	2900	667	176	20	66	4	3450	733	194	30	98	✓
J 2-170	2"	50	4	2900	733	194	36	118	7,5	3450	833	220	52	171	✓
J 2-180	2"	50	5,5	2900	833	220	38	125	11	3450	833	220	50	164	✓
J 2-215	2"	50	11	2900	767	203	60	197	18,5	3450	767	202	85	279	✓
J 3-100	3"	80	2,2	2900	1000	264	14	46	3	3450	1167	308	20	66	✗
J 3-140	3"	80	4	2900	1333	352	21	69	7,5	3450	1383	365	30	98	✓
J 3-180	3"	80	7,5	2900	1400	370	35	115	15	3450	1417	374	50	164	✓
J 3-210	3"	80	4	1450	1583	418	16	52	5,5	1750	1750	462	23	75	✓
J 3-225	3"	80	15	2900	1583	418	55	180	✗	✗	✗	✗	✗	✗	✓
J 3-240	3"	80	18,5	2900	1333	352	70	230	30	3450	1333	352	100	328	✓
J 3-252	3"	80	22	2900	1583	418	80	262	45	3450	1583	418	108	354	✓
J 3-305	3"	80	75	2900	1750	462	110	361	✗	✗	✗	✗	✗	✗	✓
J 4-100	4"	100	4	2900	1667	440	15	49	7,5	3450	1833	484	21	69	✗
J 4-160	4"	100	11	2900	2500	660	24	79	✗	✗	✗	✗	✗	✗	✓
J 4-220	4"	100	5,5	1450	2167	572	15	49	11	1750	2667	705	21	69	✓
J 4-225	4"	100	22	2900	2500	660	46	151	✗	✗	✗	✗	✗	✗	✓
J 4-250	4"	100	7,5	1450	2667	704	20	66	15	1750	2667	705	30	98	✓
J 4-316	4"	100	18,5	1450	2833	748	30	98	30	1750	2833	748	46	151	✓
J 6-250	/	150	11	1450	5333	1409	18	59	18,5	1750	5667	1496	26	85	✓
J 6-350	/	150	30	1450	5167	1365	35	115	✗	✗	✗	✗	✗	✗	✓
J 6-400	/	150	45	1450	6333	1673	37	121	75	1750	7000	1848	54	177	✓
J 8-300	/	200	22	1450	8000	2113	22	72	45	1750	8500	2245	32	105	✓
J 8-305	/	200	18,5	1450	6333	1673	20	66	30	1750	8000	2113	32	105	✓
J 10-305	/	250	30	1450	10000	2642	21	69	45	1750	10000	2642	34	112	✓
J 12-400	/	300	55	975	20000	5283	17	56	90	1150	21500	5682	27	89	✗

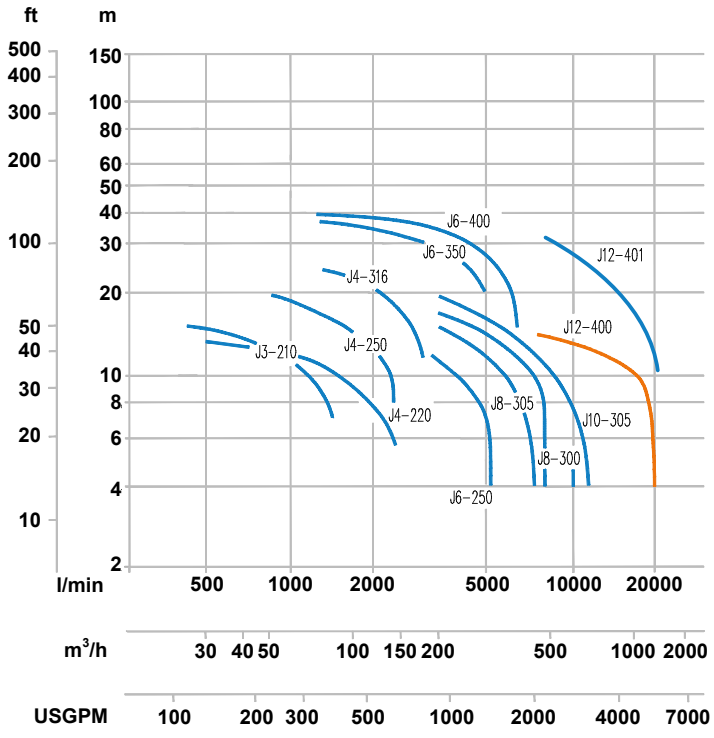
***ATEX:** not available in all material combinations

✓ Available ✗ Not available

J Series
Performance curves 50 Hz

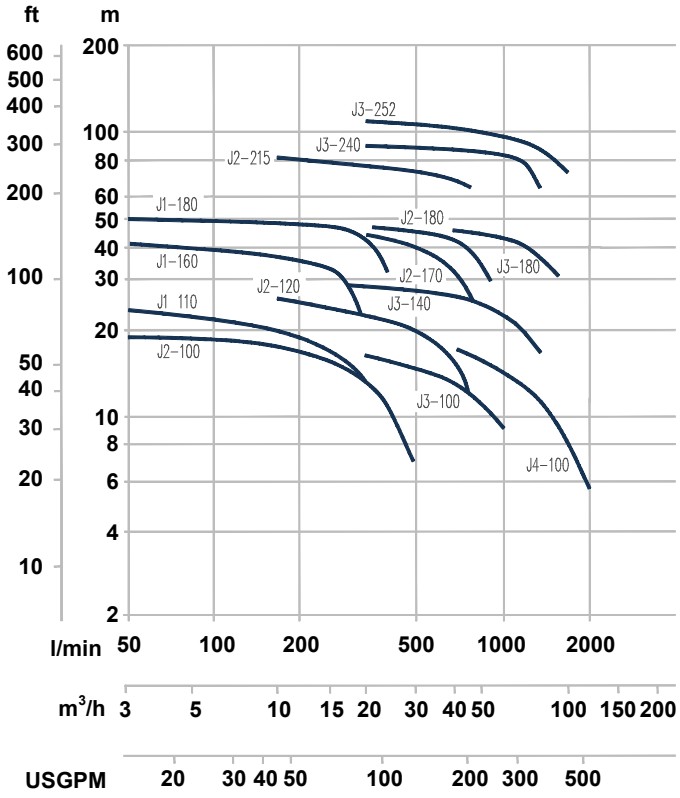


2 poles = 2900 rpm

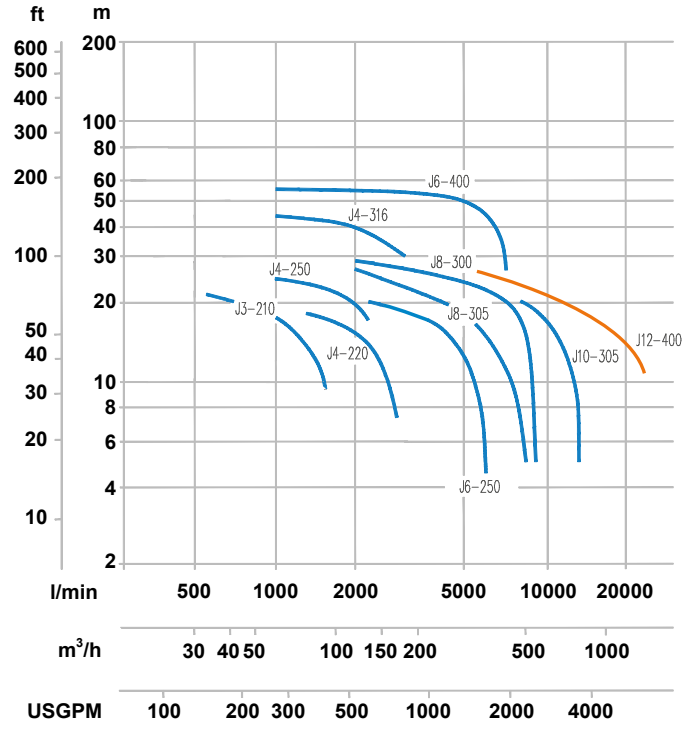


4 poles = 1450 rpm 6 poles = 975 rpm

J Series
Performance curves 60 Hz



2 poles = 3450 rpm



4 poles = 1750 rpm 6 poles = 1150 rpm

ST-R Series
Main features of the range

The ST-R self-priming centrifugal pumps are designed to facilitate unclogging operations in the field and ensure easy maintenance and high levels of reliability.

The front inspection cover can be used to access all internal parts without disconnecting the pipes and without removing the pump from the installation.

Materials
Cast iron
Hardened cast iron
Stainless steel (internal parts only)

Max Head
Up to 35 m (115 ft)

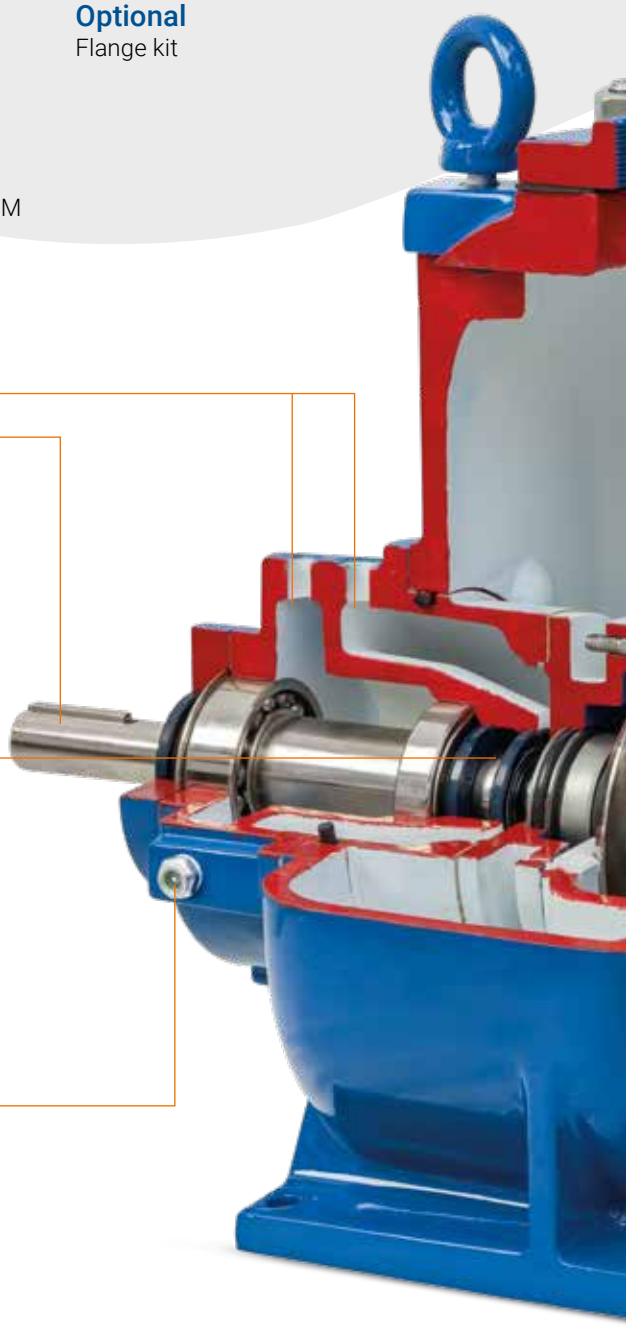
Optional
Flange kit

Ports
Up to 200 mm (8”)

Max Flow
Up to 420 m^3/h - 7.000 l/min - 1.848 USGPM

Solids passage
Up to 76 mm (3”)

Self-priming capacity
Up to 7,5 m (24,6 ft)



SEPARATE OIL CHAMBERS

Mechanical seal and bearings operate in an oil bath in separate and independent chambers. This ensures the lubrication and cooling of individual parts without the possibility of mutual contamination.

SHAFT

The shafts are amply oversized to withstand abnormal loads and thrusts generated by priming operations with particle-laden fluids polluted by dissolved gases.

MECHANICAL SEAL

Prevents leakage of the pumped fluid along the shaft and, at the same time, prevents air or contaminants from entering the pump body, ensuring proper functioning and reliability of the system.



VISUAL INDICATORS

One for each oil chamber, to monitor the level and condition of the lubricant, so that topping up and replacements can be made.

UNCLOGGING OPERATIONS ON THE FIELD

The inspection door (see Figure 1) allows access to all internal parts without removing the pump from the system.

HIGH ABRASION RESISTANCE

Its construction features allow the management of abrasive fluids with minimal wear and facilitated maintenance.

EXTRACTABLE ROTARY UNIT

The ST-R series has a removable and replaceable rotary unit. This feature makes it possible to quickly remove the pump core for maintenance without having to remove the pump from the system. Having a rotary unit in stock avoids the need for a spare pump.





IMPELLER

The Varisco ST-R series self-priming centrifugal pumps feature two-vanes semi-open impellers.

FILLING PORTS

For initial filling of the pump casing.

CHECK VALVE

The check valve prevents the suction pipe from emptying when the pump stops, ensuring the immediate availability of fluid at subsequent start-ups.

Thanks to its position, which does not allow the pump body to be completely drained, any failures (wear, blockage, etc.) do not affect the priming or correct operation of the pump.

WEAR PLATES

Front plate adjustable from outside. Wear plates, whether rubber-coated or not, are easily replaceable components designed to absorb shocks and resist the abrasive action of pumped liquids, protecting the pump casing.

ADJUSTMENT SCREWS

Allow tolerance recovery between the plate and the impeller as abrasion wear progresses, so as to maintain maximum performance efficiency.



INSPECTION COVER

Figure 1

ST-R Series
Advantages

- **Removable front cover** allows washing, unclogging in the field and routine maintenance operations without disconnecting the pipes and removing the pump from the installation.
- **Semi-open impeller** made from casting, with two high thick vanes with the passage of solids up to 76 mm (3”).
- **Rotating unit fully removable from the rear**; if a spacer coupling is fitted, the operation can be performed without disassembling the motor, pump, and pipes.
- **Check valve easily replaceable** through the inspection cover without disconnecting the pipes.
- **Front and rear wear plates rubber** lined to protect the impeller vanes from abrasion.
- **Front wear plate easily adjustable** from the outside (via adjusting screws) to restore original performance
- **Mechanical seal self-aligning** in tungsten carbide with elastomers in Viton®
- Mechanical seal and bearings placed inside separate and **independent oil chambers**, with oil level check visual indicators, to ensure greater reliability in case of dry running
- **Upper cover and lower drain** plug to allow filling, emptying, and washing of the pump casing
- **Relief valve** to protect the pump and system from incorrect operations

Main set-ups



1

BARE SHAFT
ST-R



2

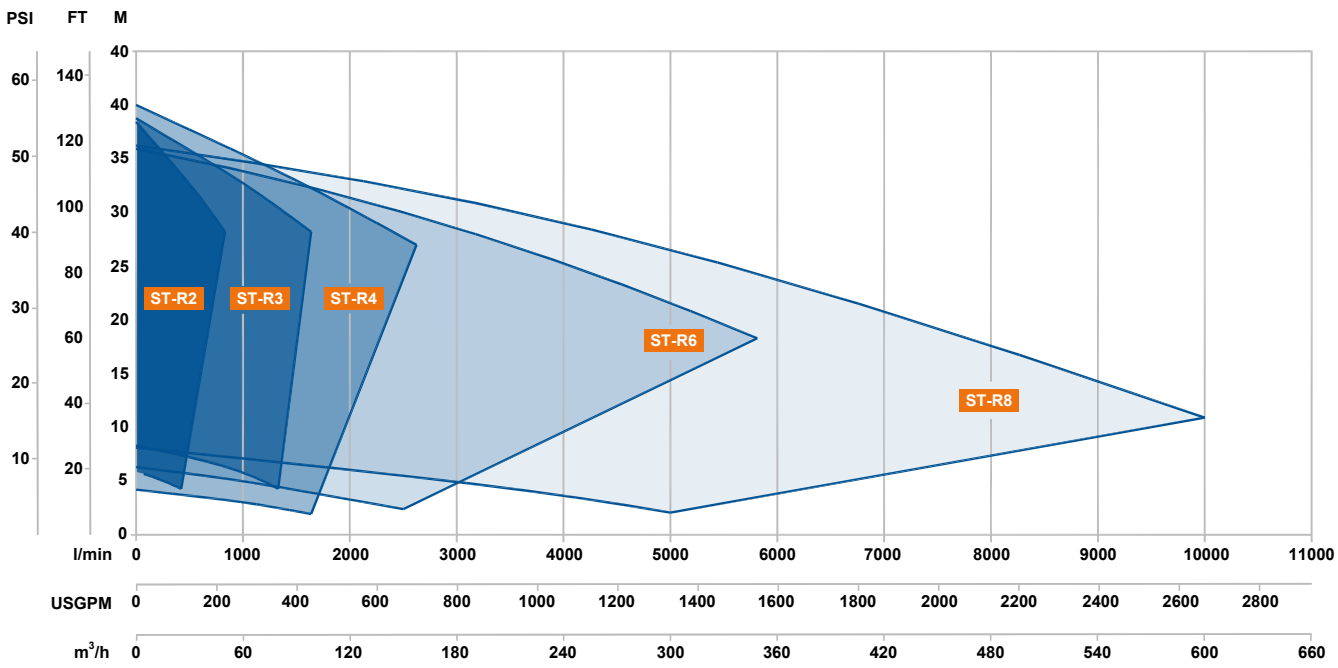
BASE AND JOINT
ST-R BASE

ST-R Series
Technical data

ST-R Series	Ports		Power std	Performance					Power std	Performance					ATEX
Model	ISO 228 (BSP)	DN	Kw-50Hz	rpm	Q max l/min	Q max US GPM	H max m	H max ft	Kw-60Hz	rpm	Q max l/min	Q max US GPM	H max m	H max ft	Zones 1 - 2
ST-R 2	2”	5	7,5	2900	833	220	36	118	⊗	⊗	⊗	⊗	⊗	⊗	⊗
ST-R 2	2”	50	1,5	1450	567	150	9	30	2,2	1750	650	172	16	52	⊗
ST-R 3	3”	80	5,5	1450	1667	440	17	56	11	1750	1833	484	25	82	⊗
ST-R 4	4”	100	11	1450	2833	748	20	66	18,5	1750	3000	792	29	95	⊗
ST-R 6	/	150	30	1450	5667	1496	30	98	⊗	⊗	⊗	⊗	⊗	⊗	⊗
ST-R 6	/	150	7,5	960	4333	1145	14	46	15	1150	5167	1365	19	62	⊗
ST-R 8	/	200	18,5	960	7000	1848	19	62	37	1150	8667	2291	26	85	⊗

⊗ Not available

Performances



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J/ST-R 2025

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