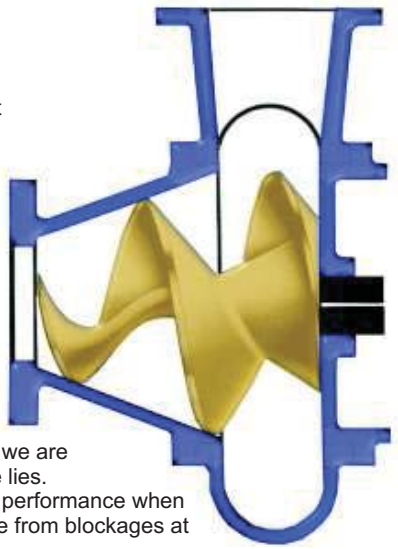
INNO PUMPS-GQ

SC Series

SEWAGE, WASTEWATER & SLUDGE APPLICATIONS

SCREW CENTRIFUGAL IMPELLER PUMPS
(also known as Spiral Vane)



All SC pumps incorporate a unique approach to impeller design which is aimed at delivering real benefits to the user of sewage, wastewater and sludge pumps.

- **Non-clogging**
- **Pumping viscous sludge**
- **Gentle Handling**
- **Hydraulic characteristics that minimise Life Cycle Costs**

By exploiting the benefits of screw centrifugal impeller technology Pump are widely acknowledged as expert in the feld of sludge pumping, a position of which we are justly proud. Pumping unscreened sewage, however, is where our true expertise lies. For over thirty years we have perfected the design of our pumps to give optimum performance when handling raw unscreened sewage. This requires pumps that run continuously free from blockages at high effciency and have materials of construction to resist wear and corrosion.

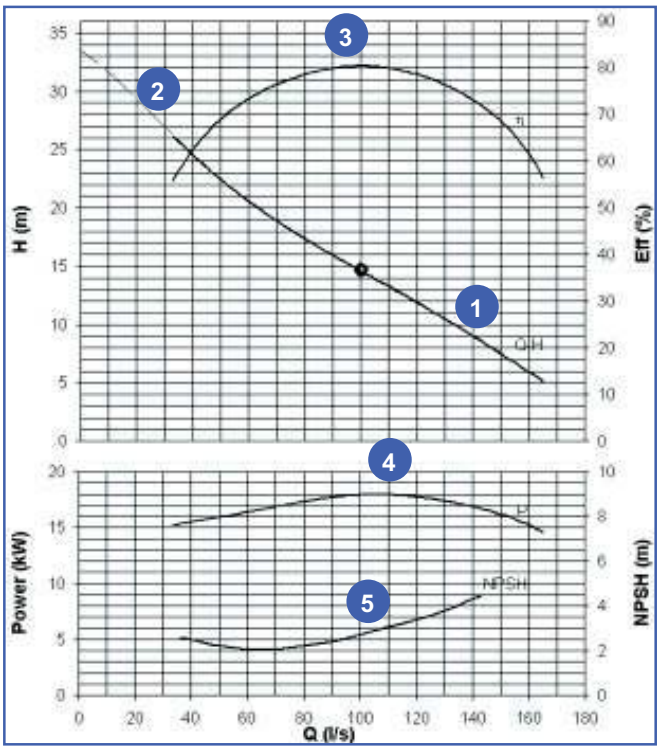
Over the years as society has become more affuent, the material disposed of via the sewerage systems has changed and accordingly we have modifed our designs to cope with increased quantities of man-made fbres, dry wipes etc., all of which present almost insurmountable problems to wastewater pumps of conventional design. The screw centrifugal impeller has no resemblance to conventional impeller designs.

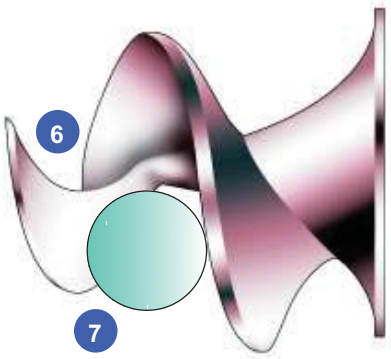
HYDRAULIC CHARACTERISTICS

The hydraulic performance characteristics of the screw-centrifugal pump give a number of important benefits to users of wastewater pumps, particularly those users who are interested in life cycle costs [LCC] and are looking for long term reliable operation.

Typical characteristics

Performance Curve 1465 RPM





[1] Steep Stable H-Q Curve

[2] Closed Valve Head . 2 x BEP

[3] High Peak Effciency also broad effciency curve

[4] Non Overloading power curve

[5] Low NPSH requirement

[6] Special inlet geometry for rag handling

[7] Large free passage

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H-Q curve [1] has a closed valve head [2] of at least twice the best effciency head which ensures that any changes in system head will have the minimum effect on pump output. This means the fow remains closer to the duty point than would be the case with a conventional centrifugal pump which typically has a fatter H-Q curve.

Minimising energy costs is of paramount important to pump users which makes the pump the natural choice. The pump not only has a high effciency at its best effciency point (BEP) [3] but has high values across the entire useful portion of the curve (an essential feature as pumps rarely operate on BEP but across the curve) giving the pump a broad effciency curve.

Another important characteristic is the non-over loading power curve [4], which means the power absorbed by the pump varies very little from max to min fow which enables one optimised motor to be used for all operating conditions.

The combination of high effciency and a non-overloading power curve means the smallest possible motor can be used. This has the beneft of not only reducing the cost of the motor, but it also reduces the cost of cabling, starting equipment and necessary power supply. A very useful saving on plant capital costs.

A screw centrifugal pump has the lowest NPSH requirement [5] of any type of centrifugal wastewater pump. For normal fooded suction pumps, dry installed or submersible even at the high fow end of the curve it is so low cavitation is not an issue for this type of pump.

We have taken advantage of the unique feature by producing a range of electric and diesel drives self-priming sewage/sludge pumps all capable of a substantial suction lift (7.0 m is not unusual)

Another important feature of the impeller is its low shear/gentle handling characteristic. This is derived from the use of a long blade on the axially extended spiral vane impeller which makes a long slow turn from the axial to radial direction. This means return activated sludge can be pumped without damaging the foc and granulated activated carbon can be transported without damaging the crystals.

More importantly, all of these benefts are available from a pump designed to have excellent solids handling capabilities. The impeller has special inlet geometry [6] for handling of rags and fbres and a large ball passage [7] to ensure large solids pass freely through the pump.

This huge package of benefts is available from a single pump where extreme efforts have been made to optimise life cycle costs by minimising energy consumption but ensuring that it is ‘ft for purpose’ to reliably pump unscreened raw sewage and viscous sludges.

Key features of Screw Centrifugal Impeller are:

- Energy savings of up to 50% compared with conventional centrifugal pumps. Same high effciency maintained in emersible, submersibles and end suction pumps
- Non-clog impeller suitable for pumping high consistency media and large diameter solids, beyond the capacity of centrifugal and recessed impeller pumps
- Easy adjustment of impeller clearance permits continuity of original high-effciency performance
- Optional renewable liner to reduce maintenance costs when pumping abrasive media.
- Low N.P.S.H required
- Available in choice of materials

ABRASIVE WEAR AND CORROSION

SC has long recognised that unscreened raw sewage frequently contains abrasive materials and occasionally can also be corrosive. The following standard material options provide solutions for these situations.