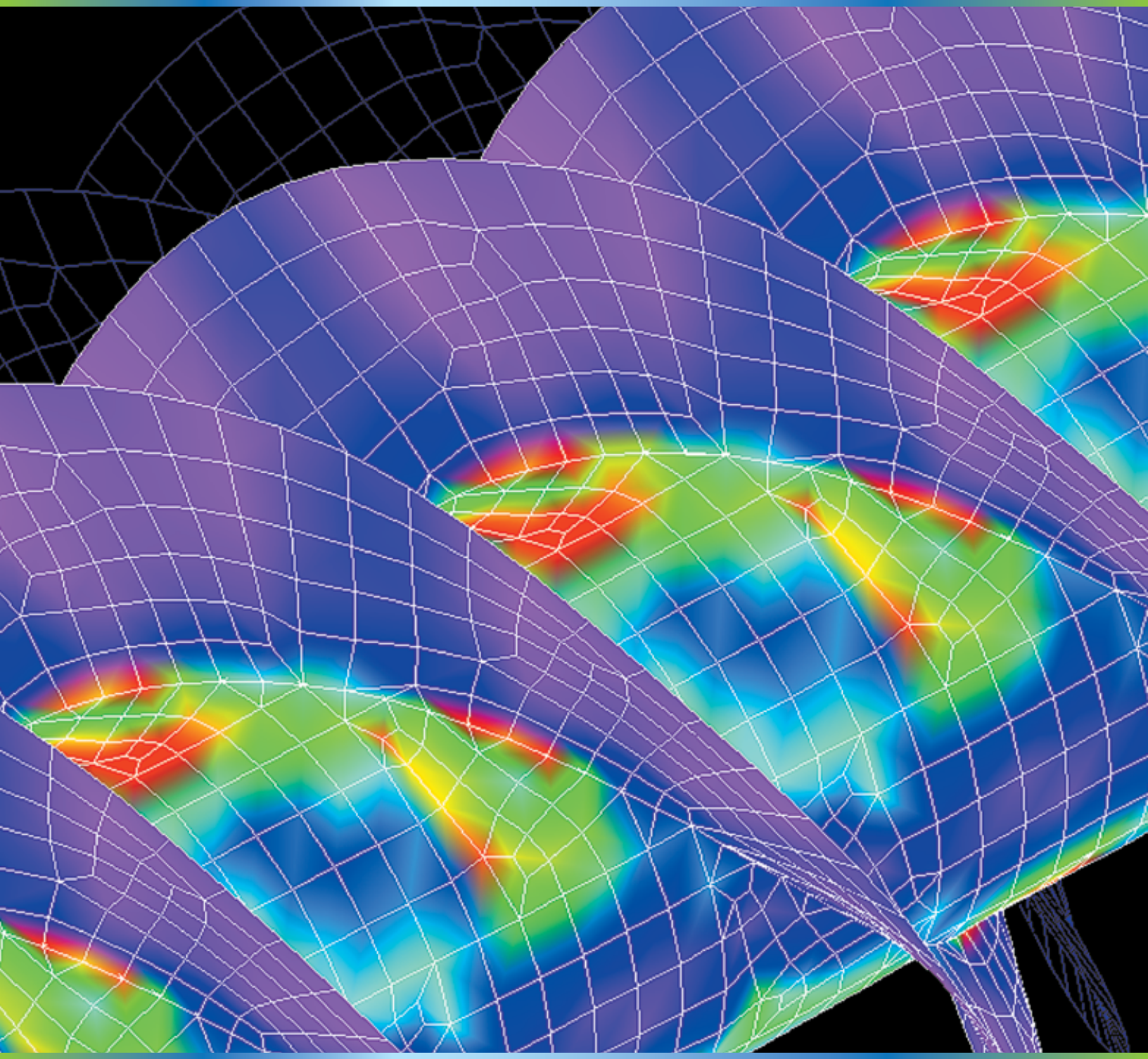
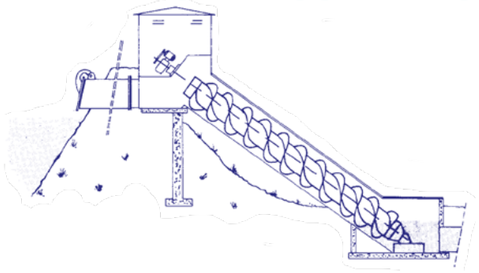
epic
INTERNATIONAL



EPIC SCREW PUMPS

PREFABRICATED SCREW PUMP



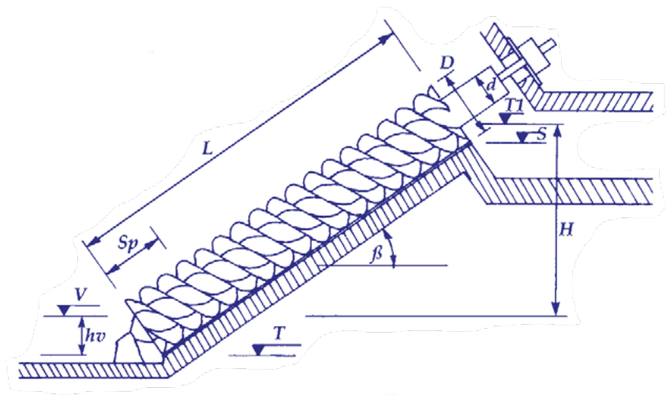
ARCHIMEDEAN SCREW PUMPS

Certified ISO 9001

MAXIMUM DESIGN PUMPING CAPACITY

This table is for reference only. Please contact our engineers for specific design selection. These capacities are for three flight screw pumps with maximum pitch, flight radius, and RPM.

DIAMETER	GPM @ 30 °	GPM @ 38 °
16”	460	330
20”	780	570
24”	1,300	940
30”	2,220	1,570
38”	3,390	2,450
42”	4,750	3,450
48”	6,600	4,750
54”	8,800	6,300
60”	11,000	8,700
66”	14,000	10,000
72”	17,200	12,600
78”	21,700	15,300
80”	22,200	15,700
84”	25,400	18,250
90”	30,000	21,600
96”	35,000	25,200
102”	39,800	28,700
108”	45,400	32,700
114”	51,300	37,000
120”	55,500	40,000
158”	108,600	78,400
196” (max)	182,800	131,900



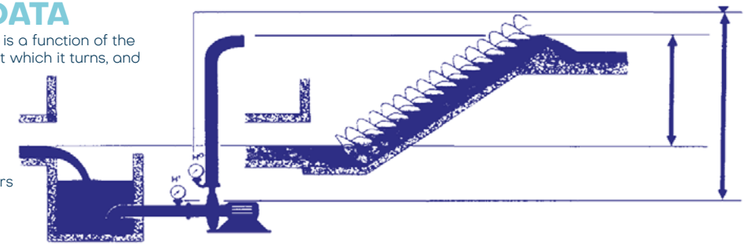
Q	Capacity in meters^3/sec	H = T1 – V
T	Touch point	
S	Discharge point	FLIGHT LENGTH = $\frac{(S-T)}{\sin ß}$
V	Filling point	
T1	Max upstream water level	MAX RPM = $\frac{53}{\sqrt[3]{D^2}}$
L	Length of blades	
Sp	Pitch	hv FILL HEIGHT = $\frac{D+d}{2}$ x cos ß
D	Screw diameter (m)	
d	Torque tube diameter (m)	Q = 1.5 x N x q x D^3
hv	Filling height	
H	Static lift in meters	N = $\frac{Q}{1.5 \times q \times D^3}$
ß	Angle of inclination	
N	RPM	POWER (kw) = $\frac{9.81 \times Q \times H}{\text{EFF NET}}$

BASIC TECHNICAL DATA

The capacity flowing through the screw pump is a function of the physical parameters of the screw, the speed at which it turns, and the inclination of the screw to the horizontal.

viz. $Q = 1.15NqD^3$

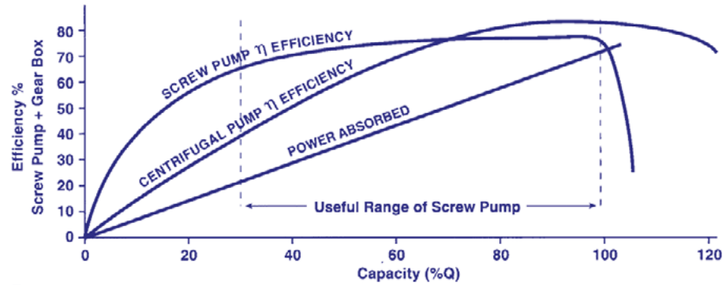
Where Q = capacity in m^3/sec
q = specific capacity (constant)
N = RPM
D = outside diameter of screw in meters
where d = torque tube diameter in meters



The relationship between Q, N, and D will be obvious and the constant q takes into account the relationship of d/D, the number of flights on the screws and the angle of inclination.

The difference in the design-head requirements between the screw and the centrifugal pump is clearly shown in the above diagram for identical outfall and lift conditions. This difference is a major factor when considering operational costs.

EFFICIENCY/CAPACITY CURVE



The curve shows

1. that the screw efficiency stays very high even with flows as low as 20-30% of full capacity.

2. the importance of clearly specifying the maximum value to be pumped as the screw cannot deliver a greater volume than that delivered when the water inlet is up to the fill point.

ADVANTAGES OF SCREW PUMPS

- Low wear/low speed
- High efficiency
- Capable of pumping highly polluted liquids
- Automatic priming
- Easily accessible
- Long service life
- Low maintenance
- High reliability
- May rotate in dry condition
- Self regulating
- Simple construction
- Low noise
- Non-clogging

DRIVE UNITS – FIVE MOST COMMON ARRANGEMENTS

1

Top bearing type: floor-mounted

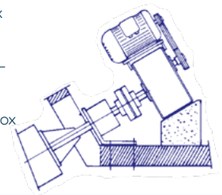
Gear speed reducer type: partially mounted solid shafts

Flexible coupling between gearbox and screw shaft

Motor mounted on top of the gear-box

V-belts between motor and gearbox

Application: all outputs



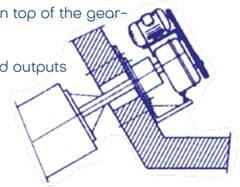
2

Top bearing type: wall-mounted

Gear speed reducer type: shaft-mounted

Motor mounted on top of the gear-box

Application: limited outputs



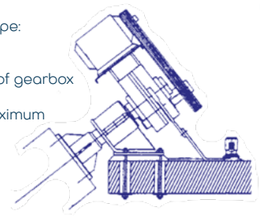
3

Top bearing type: floor-mounted

Gear speed reducer type: shaft-mounted

Motor installed on top of gearbox

Application: 100 HP maximum



4

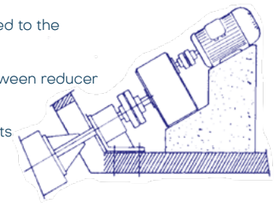
Top bearing type: floor-mounted

Gear speed reducer type: parallel mounted solid shafts

Motor directly coupled to the gearbox

Flexible coupling between reducer and screw shaft

Application: all outputs



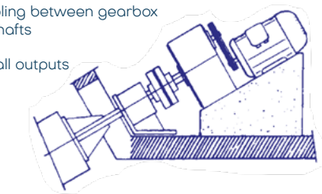
5

Top bearing type: floor-mounted

Gear speed reducer type: parallel mounted solid shafts

Flexible coupling between gearbox and screw shafts

Application: all outputs



SPECIAL FEATURES OF EPIC SCREW PUMPS

ISO 9001 certified

Full penetration welding according to AWS, DIN, ASTM, or API standards

Internal Bulkheads provide additional watertight fail safe sealing of the Torque Tube

Endplates are watertight welded with threaded holes for the shaft connections

Fully self-aligning Upper and Lower Bearing Assemblies

Monolithic Cast Shafts

Minimum of two (2) Seals in Lower Bearings

Separate radial thrust and axial thrust Upper Bearing Assemblies

Permanent Lifting Eyes built in

Screed Bar tack welded to top of flights for screeding

Shot blasting to SA 2.5 (SSPC-SP10) standards

Prime coating is standard for all parts above and below water level

Full factory coating under environmentally controlled conditions is recommended

Reinforced leading edges of the Flights

ADDITIONAL SERVICES & OPTIONAL TESTING

Ultrasonic Liquid Level Sequential Control System

Full Submerged Arc Welding

Left Hand and Right Hand Flights

Double Lift

X-Ray Weld Testing

Ultrasonic Weld Testing

Torque Tube Air Pressure Testing

Finite Element Analysis

PARTIAL INSTALLATION LIST (USA)

Mobridge, SD

Appomattox, VA

Chelsea, MI

Springfield, OH

Englewood, TN

Hope Mills, NC

Santa Rosa, CA

Oyster Bay, NY

LeRoy, NY

Indianapolis, IN

Secaucus, NJ

Coachella, CA

U.S. Army, Ft. Carson CO

Mineral Wells, TX

Fallbrook, CA

Emporia, VA

Des Plains, IL

Barceloneta, PR

Salt Lake City, UT

Williamston, MI

Wauseon, OH

York, PA

Gloucester, MA

Teterboro, NJ

Meridian, ID

Perryville, MD

N. Charleston, SC

Henderson, NV

Lubbock, TX

Mt. Washington, KY

Passaic Valley, NJ

St. George, UT

Pittsburgh, KS

Monett, MO

American Fork, UT

Henrico County, VA

HRSD-Newport News, VA

Caldwell, ID

Gilbert, AZ

Sauget, IL

USAF, Shaw A.F.B, SC

Elkhart, IN

CA Dept. of Corrections
Van Buren, AR

Dallas Center, IA

Newnan, GA

Mesquite, NV

Carthage, MO

Logan, UT

Ocean County Utilities, NJ

Mountain Home, ID

Fulton, NY

Environmental Products for Innovative Conservation

Screw Pumps · Aerators · Mixers · Flight Deks

115 Hanover Avenue, Suite 2
Ashland, Virginia 23005 USA
epicintl.com
try@epicintl.com
Phone: 804.798.3939