

AUXILLARY EQUIP

Flotek Pump Services carries a wide range of auxiliary equipment designed to assist in the running conditions of our equipment. The auxiliary equipment line includes power drop cable, shrouds, screens, solid separators, electrical drives, electrical filters, and miscellaneous fittings in both steel and aluminum bronze.

Power Drop Cable – Flotek stocks two main types of cable in many different sizes to meet our customer's demands. These types are our oilfield derived round armored cable and the CBM field developed flat cable which Flotek developed to provide the highest level of protection in these high demanding markets.

Round Armor Cable– The Flotek brand round armor cable is derived from the power cable ran in the Oilfield ESP market and provides the highest level of protection during installation. The conductors are insulated in 2KV rated polyethylene insulation, intertwined with hygroscopic filler, wrapped in galvanized or aluminum armor, and jacketed with UV resistant PVC. The conductors are a solid soft drawn copper wire and are available in #4 AWG and #6 AWG sizes. The cable can be provided with or without a ground depending on application.

Flat Cable- The Flotek brand flat cable is based on the widely used flat submersible cable but with thicker overall PVC jacketing and sealed webbing between all conductors. The conductors are multi-stranded wire rope insulated with 600V rated HEPR coating. The separate conductors are then jacketed in UV resistant PVC with additional webbing between conductors to provide protection from gas migration. Flotek stocks this cable in sizes #2 AWG, #4 AWG, #6 AWG, #8 AWG, and #10 AWG. All flat cable comes with a #10 AWG ground conductor.

Shrouds- Flotek carries a line of pump shrouds to provide cooling, solids handling, gas breakage, and equipment protection. All electrical submersible motors benefit from a flow inducer shroud by reducing the well bore around the motor which increases the flow rate providing maximum cooling efficiency to the motor. Some of our select models have installed screens which filter out solids from the intake flow keeping solids out of the ESP equipment. Flotek carries two shroud designs which change the direction of intake flow causing gas breakage from the incurred pressure changes. All of our shrouds are manufactured from either Stainless Steel or SCH40 Carbon Steel depending on the application for the highest protection available. The fully enclosed shrouds cannot be ran equipment which has a gas separator installed.

CH4- The CH4 shroud is a full enclosure shroud which total encases equipment with lengths up to 10'. This is one of Flotek's gas breakage shroud which redirects the flow in a lower chamber before entering the intake of the ESP equipment. The shroud is constructed from Stainless Steel and provides the highest protection against corrosion and damage. The shrouds are made with a 3ft section of V-Wire screen for solids filtration. The CH4 shrouds main benefits are motor cooling, gas breakage, corrosion resistant, solids filtration, and equipment protection.

DJ Special – The DJ special is a full enclosure shroud which full encases equipment with lengths up to 10ft. The DJ Special is constructed from Stainless Steel providing the highest levels of protection against corrosion and damage. The DJ Special is built with a 3ft V-Wire screen section on the bottom of the shroud for solids filtration. The main benefits of the DJ Special are motor cooling, corrosion resistant, solids filtration, and equipment protection.

Combo Shroud- The Combo Shroud is partial enclosure flow inducer shroud which is welded to the pump above the intake. The shroud redirects the flow over the motor through the main housing which reduces the bore around the motor increasing the cooling capacity. The Combo shroud is designed to be installed on equipment equipped with Gas Separators and does not impede the release of separated gas from the discharge of the Gas Separator. The shroud is manufacture out of heave duty Carbon Steel and provides the high level of protection. The shrouds have a heavy duty perforated mandrel for the intake and can have a screen installed. The bottom of the mandrel has a round cap to assist with centralizing during installation. The main benefits of the Combo Shroud are the ability to run with a gas separator, motor cooling, solids filtration when installed with a screen, and equipment protection.

Oilfield Cooling Shroud- Flotek carries an Oilfield Cooling shroud which is installed on 375 Series Oilfield motors which assists in cooling motors when ran below well perforations. The shroud redirects the fluid flow down past and back over the motor to assist in the required cooling flow rate. The shroud is constructed out of stainless steel and provides maximum corrosion resistance and equipment protection.

Cooling Shroud- Flotek carries a basic cooling shroud which is a straight cylinder design without any attachments on the bottom of the shroud. The cooling shroud is installed above the Pump Intake and induces flow by reducing the area fluid is pump through over the motor. These shrouds are designed for motor cooling and mild equipment protection. Flotek carries the Cooling Shrouds in 4" and 6" models made from either stainless or carbon steel based on application.

Solids Separator Shroud- Flotek carries solid separator shrouds which are ran in conjunction with our solid separator to provide motor cooling and equipment protection. Flotek carries both a fully enclosed and a partially enclosed shroud so we can provide our customers with protection for equipment setup with a solid separator. Both are constructed out of stainless steel and provide the highest possible corrosion resistance and equipment protection.

Screens – Flotek carries a variety of screens to handle the demands of our customer's filtration needs. Most screens break down into two types- Mesh and V-Wire. The screens are built into our fully enclosed shrouds and can be purchased individually.

Mesh Screen - The mesh screen is a stainless steel wire mesh which provides 10 micron filtration. The screen has shown the most benefit in sandy conditions but also provides excellent filtration of coal fines. The mesh screen is manufactured in 12" and 24" lengths and can be installed straight over the pump intake or on a combo shroud.

V-Wire Screen – The V-Wire screen is a stainless steel wire continuous slot screen which provides excellent filtration of solids and coal fines. The screen is constructed of stainless steel v-wire which is wrapped around a stainless steel wire frame which creates the continuous opening throughout the length of the screen. The distance between slots is how the different filtration and max flow rates are established. The below chart shows the three sizes with the corresponding max flow rates per foot of screen.

Size: #2 (0.02" opening)	Max Flow Rate: 478 BPD/ 14 GPM
Size: #4 (0.04" opening)	Max Flow Rate: 765 BPD/ 22 GPM
Size: #6 (0.06" opening)	Max Flow Rate: 956 BPD/ 28 GPM

Solid Separator – Flotek carries a line of solid separator which are designed to increase pump life in applications with sandy environments. The solid separators are installed on a shroud which redirects the intake flow through the solid separator. The solid separator then uses centrifugal force to separate the heavy particles from the fluid and purged back into the well bore. Flotek stocks 5 different sizes to cover all of our customers' applications. The separators and included shroud are made from PVC composites and ABS. Flotek carries a line of stainless steel shrouds specifically for the solid separator to protect the separators during installation and operation.

	Minimum Well ID	Flow Range
SUB-8-5K	4"	3 - 8 GPM
SUB-12-5K	4"	5 - 12 GPM
SUB-16-5K	4"	10 - 16 GPM
SUB-28-5K	4"	14 - 28 GPM
SUB-52-5K	4"	24 - 52 GPM

Electrical Drives – Flotek provides a range of Electrical VFD Drives from 2HP up to 600HP to meet our customer's needs. The VFD Drive controls the speed of the motor giving the operator the ability to slow down the pump to equal the well fluid entry rate rather than shut off the equipment. This drastically increases the life of the pump by limiting equipment on-off cycles. Flotek can provide VFD rated transformers to condition the incoming voltage to the equipment needs. Flotek provides the expertise to size and install your next pump drive.

- Precise Equipment Control - control pump speed for continuous operation rather than cycle equipment.
- Wide Application Range – 2HP to 600HP sized drives to meet any customer's field application.
- Optional Electrical Filters – Flotek provides optional filters built into the drive panel to control harmonics and voltage spikes.
- Ease of Installation- Panels are setup in shop and need minimal wiring during field installation.
- VFD Rated Transformers- Flotek can provide VFD rated transformers to step up or down voltage for well application.

Transducers – Flotek carries a line of transducers to provide true fluid levels to aid customers with pump performance. The transducer cable is constructed with a heavy duty PVC jacket for abrasion resistance, twisted paired 18AWG wire with Mylar shield, and a tinned copper drain wire for noise reduction. The transducer sensor is constructed with a 303 stainless steel housing with a wall thickness of 0.125” for high impact resistance. The transducer is rated for 600V and has reverse polarity and short circuit protection to ensure the highest level of durability.

- Heavy Duty Construction – Thick PVC Jacket for the highest level of protection for the transducer cable.
- Built-In Noise Reduction – Mylar shielded twisted pair wire with tinned copper drain wire for noise reduction.
- High Impact Resistance – Transducer Sensor housing constructed from 303 stainless steel with 0.125” wall thickness for high level of impact resistance.
- Electrical Protection – Built-In reverse polarity and short circuit protection for high level of electrical durability.

Fittings- Flotek carries the most popular sizes of downhole fittings to meet the needs of our customers. The fittings are made from aluminum bronze for high strength and high corrosion resistance. Flotek carries swage nipples, collars, change over collars, box to pins, check valves, tubing drains, combo check and drain valves, and replacement drain plugs. Flotek’s fittings are designed for well applications with tubing in the following sizes - 1.9 10rd, 2 3/8 8rd, and 2 7/8 8rd fittings. Please contact your local Flotek Pump Services Store to assist you in your downhole tubing needs.