



USFP pumps are designed for firefighting and high volume water supply in industrial, oil and gas, nuclear, municipal, and marine applications. The USFP High Velocity Pump is designed to exceed NFPA 1901 industrial fire pump requirements at ratings of 6000 GPM and more – the highest in the industry.

PUMP END

Impeller - Bronze mixed flow single suction impeller with a closed shroud design with front and rear wear hubs. Brass castle nut, washer and cotter pin hold impeller onto the tapered lock pump shaft.

Wear Rings - Front and rear replaceable bronze wear rings

Pump Shaft - Single piece design made of 17-4PH heat treated stainless steel. Shaft is rigidly supported by a matched set of tapered roller bearings on one end and a roller bearing on the other end. The outboard end of the shaft is stabilized by a bushing.

Seal System - Maintenance free self-adjusting mechanical seal with stainless steel spring and hardware is provided. Seal will have Viton cup and bellows seal, carbon rotating element and a tungsten carbide seat. A Teflon backup-sealing ring is supplied in addition to a pump shaft swinger ring.

Volute - Single cut water, vertically split design, cast iron volute designed to be flipable to change rotation. Volute can be rotated on the 12 bolt connections in 30 degree increments.

Hydrostatic Rating - 500PSI per NFPA 1901

Hydrodynamic Rating - 300PSI

Volute Connections - Suction intake 12" ASA flange size and discharge is an 8" ASA flange size.

Inboard Head - Cast iron housing holding rear wear ring and mechanical seal seat and cup. Head is attached to the volute by (12) 5/8" bolts and is sealed by both a gasket and an O-ring.

Outboard Head - Cast iron housing with 12" ASA intake flange connection, built in stabilized bushing bullet housing and pre-rotation baffles. Head also has 3/4" FNPT top primer tapes positioned for optimum priming. Head is attached to the volute by (12) 5/8" bolts and is sealed by both a gasket and an O-ring.



HVP
High Velocity Pump

2 HIGH VELOCITY PUMP CONFIGURATIONS

MIDSHIP MOUNTED PUMP

Pump is designed to be rated from 4000 to 6000 gpm per the current edition of NFPA 1901. This pump includes a gearbox system for midship split driveline driven chassis installations. Additionally the gearboxes will have optional 120HP power output pad for either PTO drive or hydraulically driven accessories.

Split Drive Line PTO 3 Gearbox

Gear Case - The case, top cap, end cover and tail shaft housing are made of 30,000psi fine grain cast iron. Mounting points will be provided on the top of the cap and on both lower sides of the main case. The top of the gear box is designed for the gear carrier eccentric drive to be installed facing the front or the rear. Pads are provided on the main case to machine an optional port for an auxiliary drive either facing front or rear depending on which side the impeller is installed.

Optional Auxiliary Drive - This insert drives off the idler gear and is available as a SAE C or D, 2 or 4 bolt, hydraulic pad connection. The ratios available are 1:1, 1:1.26 or 1:2.1 with a rating of 120HP.

Bearings - Pump shaft is supported by a matched set of tapered roller bearings on one end and a roller bearing on the other end. The idler gear is supported by a matched set of tapered roller bearings. The lower drive has front and rear matched sets of tapered roller bearings and cages roller bearings between the front and rear drive shafts and under the main drive gear.

Lubrication System - The lubrication system is pressurized and includes a gear pump, pick up strainer, and screw on filter. Case has a magnetic drain plug, filler plug with vent and front oil level plug. Optional pads are cast into the main case to allow special machining for an oil heater. Also there is an optional external oil cooler system available.

Gears - The gears are class 11, 20 degree helical 6DP gears made of heat treated 8620 steel. With ratios available are 1:1, 1:1.26 or 1:1.51. The pinion is carried in an eccentric housing, which allows changing ratios without replacing the main gearbox casing. The main output drive is designed for an output rating of 5700HP.

Oil Seals - Front and rear main drive, along with the top output, will have double lip oil seals.

Drive Shafts - The lower drive shafts are made of heat treated 8620-alloy steel and are splined to fit 2-3/4" X 10 drive shaft yokes. The lower drive is rated for 18,500#ft of torque.

Road to Pump Shifting System - The shifting system shall include a shifting ring, a fork, shifting shaft riding in bushings in the gear case, a hard anodized aluminum air cylinder with piston and end cap, a housing with twin shifter switches and a spring and ball shift position detent system. As part of the design there will be a full neutral position where neither the road nor the pump position is engaged. The end of the shifter shaft extends out of the air cylinder to allow manual shift override.

Oil Seals - The input and output drives and shafts will have double lip oil seals.

DIRECT ENGINE MOUNTED PUMP

Pump is designed to be rated from 4000 to 6000 gpm per the current edition of NFPA 1901. This pump includes a gearbox system for direct engine bell housing mounted installations.

Integrated 3 Gearbox

Gear Case - The case, top cap, end cover and tail shaft housing are made of 30,000psi fine grain cast iron. Mounting points will be provided on the top of the cap and on both lower sides of the main case.

Bell Housing Adapter - Designed to accommodate SAE 1 engine bell housings

Bearings - Pump shaft is supported by a matched set of tapered roller bearings on one end and a roller bearing on the other end. The idler gear is supported by a matched set of tapered roller bearings. The lower drive has front and rear matched sets of tapered roller bearings and cages roller bearings between the front and rear drive shafts and under the main drive gear.

Lubrication System - The lubrication system is pressurized and includes a gear pump, pick up strainer, and screw on filter. Case has a magnetic drain plug, filler plug with vent and front oil level plug. Optional pads are cast into the main case to allow special machining for an oil heater. Also there is an optional external oil cooler system available.

Gears - The gears are class 11, 20 degree helical 6DP gears made of heat treated 8620 steel. With ratios available are 1:1, 1:1.26 or 1:1.51. The pinion is carried in an eccentric housing, which allows changing ratios without replacing the main gearbox casing. The main output drive is designed for an output rating of 700HP.

Oil Seals - Front and rear main drive, along with the top output, will have double lip oil seals.

Drive Shafts - The lower drive shafts are made of heat treated 8620-alloy steel and designed to accept a engine matching elastomeric drive coupling disc.

Oil Seals - The input and output drives and shafts will be double.

