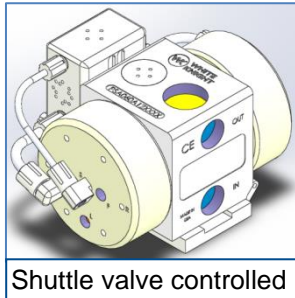
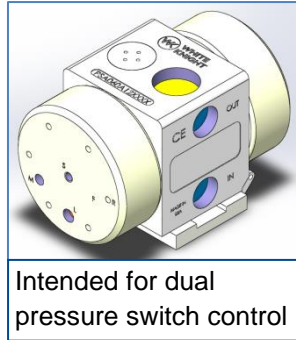


# Solid Model Instructions – Shuttle Pumps

The ZIP folder contains two solid model STEP or IGS files, one model with a shuttle valve and one without. The ZIP folder also contains a folder titled configuration options.



Shuttle valve controlled



Intended for dual pressure switch control

Name	Type
psa060-step	File folder

Name	Type
configuration-options	File folder
psa060-without-shuttle.STEP	STEP File
psa060-with-shuttle.STEP	STEP File

The *-with-shuttle* and the *-without-shuttle* files are the basic models of the pump with minimal attachments and no liquid fittings. Use the configurations-options folder to configure the base model pump to your specific system requirements.

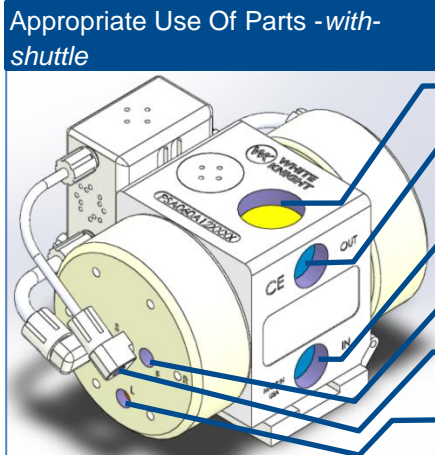
The configurations options folder contains the leak detection, liquid, and stroke detection fittings available for the pump. Mate surfaces of parts and ports are color coded.

Name	Type
leak-detection	File folder
liquid-fittings	File folder
stroke-detection	File folder
d-10-amplifier-for-stroke-and-leak...	STEP File

Name	Type
flaretek	File folder
fnpt	File folder
pillar-s-300	File folder
synchro-flare	File folder
tubeout	File folder
weldable	File folder

Liquid inlet and outlet fittings are available in many types and sizes. You may configure your pump with different inlet and outlet sizes or types. White Knight recommends your outlet fitting be smaller than your inlet fitting. Sizes are referenced in file names as 16<sup>th</sup>s of inches (i.e. 04 = 1/4", 08 = 1/2", 16 = 1", etc.)

Name
08-flaretek-compatible.STEP
12-flaretek-compatible.STEP
16-flaretek-compatible.STEP
20-flaretek-compatible.STEP

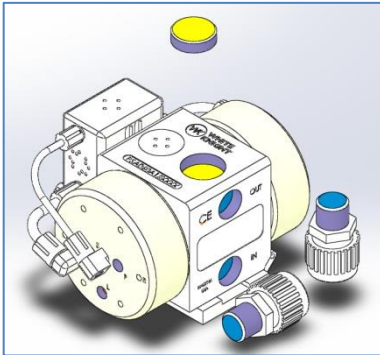


Appropriate Use Of Parts -with-shuttle

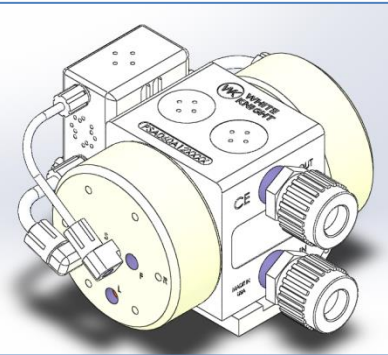
- All top-straight-outlet-only or check-plug-use-with-front-out
- All front-straight-inlet-and-outlet or front-port-plug-use-with-top-out
- All front-straight-inlet-and-outlet
- sf-fiber-optic-stroke-detect
- sp-pressure-switch-fitting-1
- All leak-detection-fittings

The purpose of using a pressure switch with a shuttle driven pump is for stroke detection. Only one pressure switch is needed for this application but it may be installed on either side of the pump.

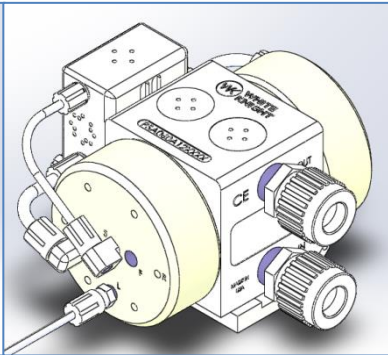
# Examples



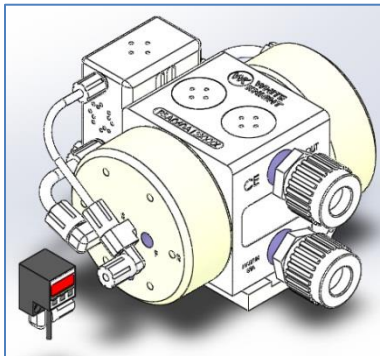
Pump assembly with two straight out liquid fittings and a top check plug.



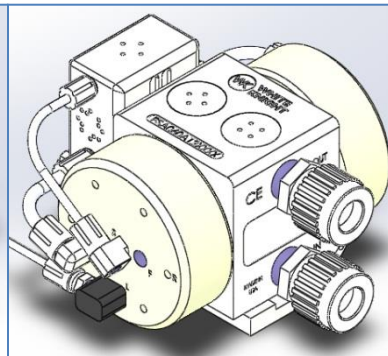
Shuttle pump assembly with two straight out liquid fittings.



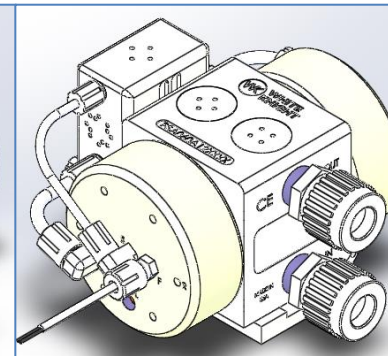
Shuttle pump assembly with two straight out liquid fittings and fiber optic leak detection.



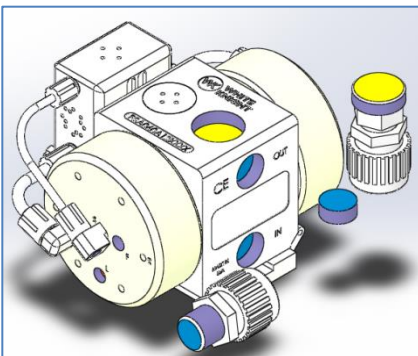
Shuttle pump assembly configured to operate with a single pressure switch for stroke detection.



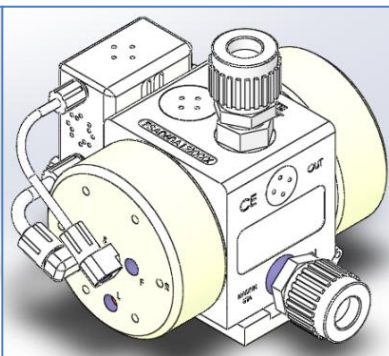
Shuttle pump assembly configured to operate with elbow out fiber optic leak detection.



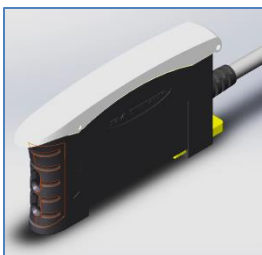
Shuttle pump assembly configured to operate with fiber optic stroke detection.



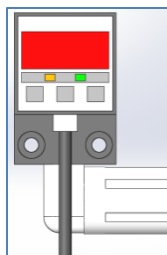
Shuttle pump assembly with a straight inlet fitting, front out plug, and top out liquid fitting.



Shuttle pump assembly with a straight inlet fitting, front out plug, and top out liquid fitting assembled.

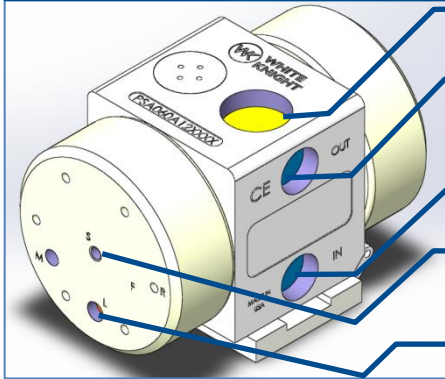


The D10 amplifier is recommended by White Knight for use with fiber optic cables and has been included in your solid models to allow for place assignment in your solid model.



The Sunx pressure switch is the pressure switch recommended by White Knight for stroke detection use with our shuttle pumps. It has been included in your solid models to allow for place assignment in your solid model.

Appropriate Use Of Parts - *without shuttle*



All top-straight-outlet-only or check-plug-use-with-front-out

All front-straight-inlet-and-outlet or front-port-plug-use-with-top-out

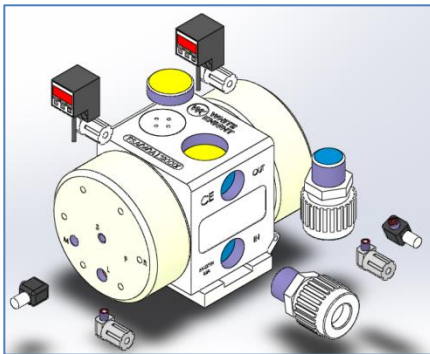
All front-straight-inlet-and-outlet

sp-pressure-switch-fitting-2 with sp-pressure-switch-fitting-1

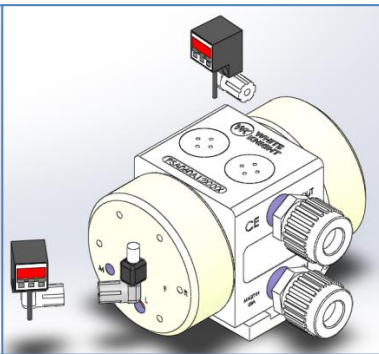
All leak-detection-fittings

The purpose of using pressure switches with a pump with no shuttle is to control the shifting of the pump. Two pressure switches are required for this application, one on each side of the pump side of the pump.

## Examples



Pump assembly without shuttle with all components for operating with dual pressure switches



Pump assembly without shuttle configured to run with dual pressure switches.