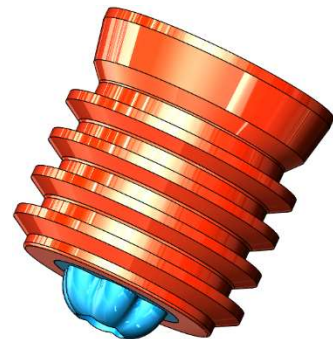
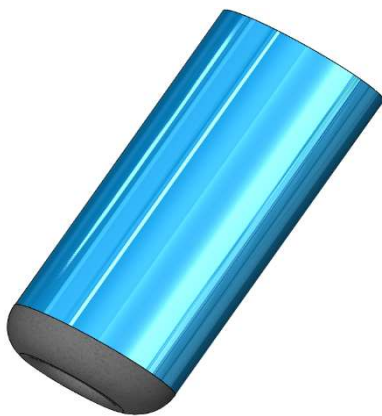




## Standard Float Equipment - Float Shoes, Float Collars, Guide Shoes, and Cement Plugs, etc.

- **Noted Design Appearance Characteristics**
  - PDC drillable
  - Hi-flow rate valves
  - Auto-fill designs
  - Non-rotating and rotating profiles
  - Any size, threads, or material grades available
  - Double valves, Stab-in and Latch-in types
  - Matching Latch down darts available
- **Performance**
  - Ensures no back-flow of cementing into the shoe track
  - Reduces risk of wet shoes tracks
  - Reduces risk of waiting on cement time
  - API RP 10F CAT IIIC Rated
- **Application**
  - Can be ran on all well trajectories
  - Preferred in stable well bores

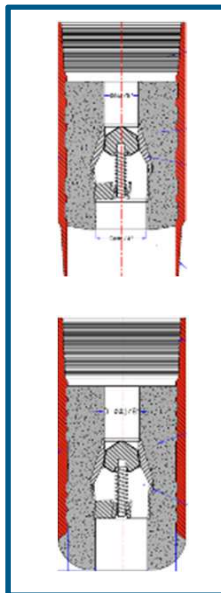




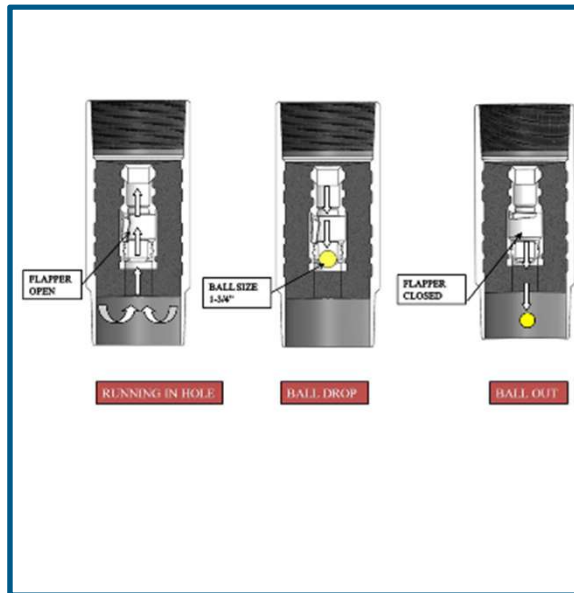
# 3 Float Valve Designs

- Gryphon Float Valve Types

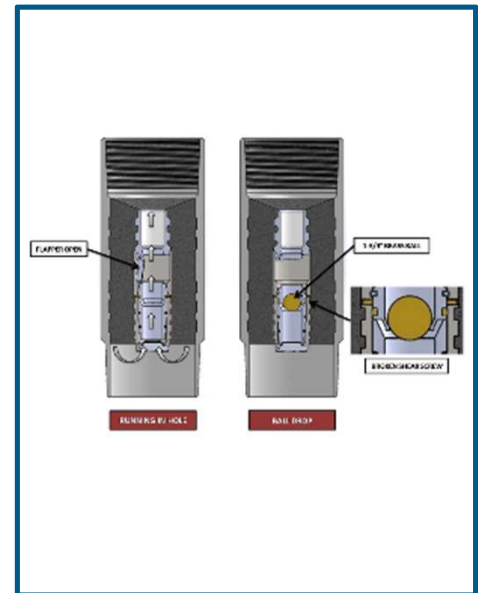
Poppet Type



Auto Fill



Differential Fill





## 3 Sizes of Poppet Valves

- Poppet Valve Portfolio

VALVE SIZE	1"	2 1/2"	4 1/4"
<b>FOR CASING SIZE</b>	2 7/8" - 4 1/2"	5" - 8 5/8"	9 5/8" & ABOVE
<b>INLET DIAMETER</b>	1"	2"	3 1/8"
<b>INLET FLOW AREA</b>	0.82 in <sup>2</sup>	3.14 in <sup>2</sup>	7.67 in <sup>2</sup>
<b>OUTLET FLOW AREA</b>	1.4 in <sup>2</sup>	4.91 in <sup>2</sup>	9.62 in <sup>2</sup>
<b>FLOW RATE</b>	6 - 7 BPM	10 - 12 BPM	10 - 12 BPM
<b>VALVE BODY</b>	HPHT NYLON-GLASS FILLED COMPOSITE		
<b>POPPET BODY</b>	ALUMINUM CORE / HPHT COMPOSITE COATING		
<b>POPPET PLUNGER</b>	VITON/NITRILE/HNBR		
<b>SPRING MATERIAL</b>	PHOSPHORUS BRONZE		
<b>SPRING FORCE</b>	7 Lbs	10 Lbs	12 Lbs
<b>TEMP RATING</b>	400°F		
<b>API FLOW RATING</b>	III (10BPM-24Hrs-5000Psi)		
<b>API TEMP RATING</b>	C (400°F-5000Psi)		



## Specialized Float Shoes – Reamer Shoes, Tapered Nose & Jetting Shoes

- **Noted Design Appearance Characteristics**
  - PDC drillable
  - Jetting ports – high port up jets & down port jets
  - Carbide reaming features
  - Lipstick or tapered nose profile
- **Performance**
  - Jetting ports allow hole cleaning while running in hole
  - Reaming features aid casing to work past consolidated formation cuttings
  - Increases success of FIT tests, with cement places around the full circumference of the shoe track
  - API RP 10F CAT IIIC Rated
- **Application**
  - Critical casing/liner runs
  - Recommended for use in deviated wellbores, ERD liner/casings and tortuous well paths
  - When unconsolidated formations are expected.
  - Aid to work past swelling clay formations

