



3D Farms & Machine LLC



1-11/16", 2" AND 3" POSITIVE DISPLACEMENT DUMP BAILER SYSTEMS

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Thank you for your interest in 3D Farms & Machine's Positive Displacement Dump Bailer systems. The PDDDB system is a proven oilfield technology that makes dumping cement in oil and gas wells more accurate and reliable. The cement is contained in the bailer and is isolated from wellbore fluids. Once the bailer is run to the desired depth the cement is displaced by a swab and weight to accurately place the cement at the proper depth in the well with minimum contamination of the cement by wellbore fluids. The bailer is then returned to the surface for reuse.

The heart of our PDDDB system is the electro-mechanical actuator. Our actuator is designed to operate at both high temperatures and pressures in hostile wellbore environments. This system does not use any explosives or flammable solids to dump the cement. This makes 3D Farms & Machine's PDDDB systems safe to operate and easy to clean and service. The only expendables used in the PDDDB system are a swab rubber and some small amounts of shear pin rod along with the cement. The swab rubber can be reused several times depending on the operating conditions. This makes the operational expenses of the bailer very low.

All of the actuator parts and dump bailer parts that are exposed to wellbore fluids are made of stainless steel for use in hostile environments. The ends of the bailer are heat treated to increase strength, making the bailer more durable than a lower strength material.

Specifications:

Actuator size: 1-11/16" OD
Max temperature: 350°F
Max pressure: 15,000 psi

1-11/16" Bailer:
Size – 1.688" OD
Lengths – 4', 6' and 10'
Capacity – 0.085 gallons per foot
Weight – 1.7 pounds per foot

2" Bailer:
Size – 2.0" OD
Lengths - 4', 6' and 10'
Capacity – 0.125 gallons per foot
Weight – 2.5 pounds per foot

3" Bailer:
Size – 3.0" OD
Lengths - 4', 6' and 8'
Capacity – 0.281 gallons per foot
Weight – 5.76 pounds per foot

A typical string of the 3D Farms & Machine PDDB consists of:

- 1 – Actuator
- 1 – Weight Housing (with weight inside)
- 1 – Swab holder (Not used with 1-11/16” or 3” Weight Housings)
- 1 or more joints of Bailer
- 1 – Bottom nose assembly

As an example a typical 2” tool string may be:

Correlating tool (CCL or Gamma ray/CCL)

1-11/16” Actuator

2” Weight housing

2” Swab holder

48’ of 2” bailer (capacity of 5.5 to 6 gallons of cement)

2” Bottom nose assembly

Total capacity of 5.5 to 6 gallons of cement and a string length, from top of actuator to bottom of bottom nose assembly, of approximately 58 feet.

The cement is easily loaded into the bailer as it hangs on the wireline by pumping it into the bottom nose. Once the bailer is filled with cement the valve on the bottom nose is closed and the bailer is run into the well to the desired depth and the cement is dumped out of the bottom of the bailer by operating the actuator on negative DC current. The cement is pushed out of the bailer by the weight and swab. The bailer is returned to surface where it can be reused as needed.

We recommend the use of “cement kits” with this bailer system to increase consistency and reliability of the cement mix. Once the cement is mixed it is pumped into the bailer using an air powered pump.

On the following pages are listings of the recommended minimum requirements to make a stand-alone system of each size.

A minimum system is listed below for each size of bailer system:

2" PDDB

QUANTITY	DESCRIPTION
2	1-11/16" ELECTRO MECH ACTUATOR
8	10' JOINT OF 2" BAILER
2	6' JOINT OF 2" BAILER
2	4' JOINT OF 2" BAILER
2	2" BOTTOM NOSE ASSEMBLY
2	SWAB ASSEMBLY
2	WEIGHT HOUSING
2	WEIGHT ASSEMBLY
2	SET OF WEIGHT SPRINGS
1	CEMENT PUMP
1	FILL HOSE WITH QUICK CONNECT ENDS
1	TOOL BOX WITH HAND TOOLS
2	2" SWAB HOLDER

1-11/16" PDDB

QUANTITY	DESCRIPTION
2	1-11/16" ELECTRO MECH ACTUATOR
8	10' JOINT OF 1-11/16" BAILER
2	6' JOINT OF 1-11/16" BAILER
2	4' JOINT OF 1-11/16" BAILER
2	1-11/16" BOTTOM NOSE ASSEMBLY
2	SWAB ASSEMBLY
2	WEIGHT HOUSING
2	WEIGHT ASSEMBLY
2	SET OF WEIGHT SPRINGS
1	CEMENT PUMP
1	FILL HOSE WITH QUICK CONNECT ENDS
1	TOOL BOX WITH HAND TOOLS

The system below is for using 3" bailer with 2" weight housing and 2" bottom nose.

3.00" PDDB WITH 2" WT HOUSING & BN

QTY	DESCRIPTION
2	1-11/16" ELECTRO MECH ACCTUATOR
10	8' JOINT OF 3.00" BAILER
2	6' JOINT OF 3.00" BAILER
2	4' JOINT OF 3.00" BAILER
2	2.00" BOTTOM NOSE ASSEMBLY
2	3" SWAB ASSEMBLY
2	2" WEIGHT HOUSING
2	WEIGHT ASSEMBLY FOR 2" BAILER
2	SET OF WEIGHT SPRINGS
2	2" TO 3" TOP ADAPTER
2	3" TO 2" BOTTOM ADAPTER
1	CEMENT PUMP
1	FILL HOSE WITH QUICK CONNECT ENDS
1	TOOL BOX WITH HAND TOOLS

Thank you for your interest in this Positive Dump Bailer equipment. We believe an investment in this equipment will more than pay for itself in its lifetime of use. If you have any questions please call us at 580-772-5543.

Best regards,

3D Farms & Machine LLC