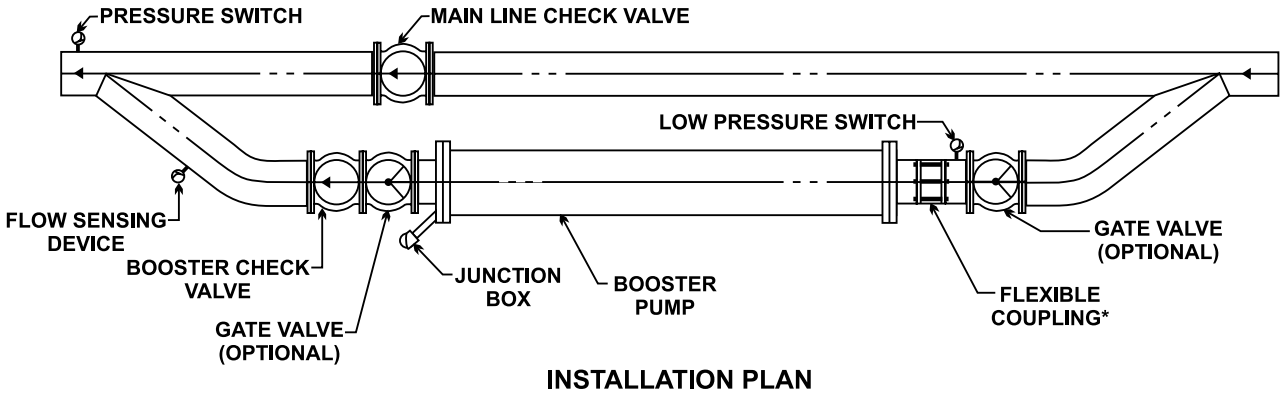
BOOSTER INSTALLATION PLAN, OPERATION & DESIGN



INSTALLATION PLAN

IN-LINE SUBMERSIBLE BOOSTER

*Flexible coupling recommended to facilitate installation and maintenance.

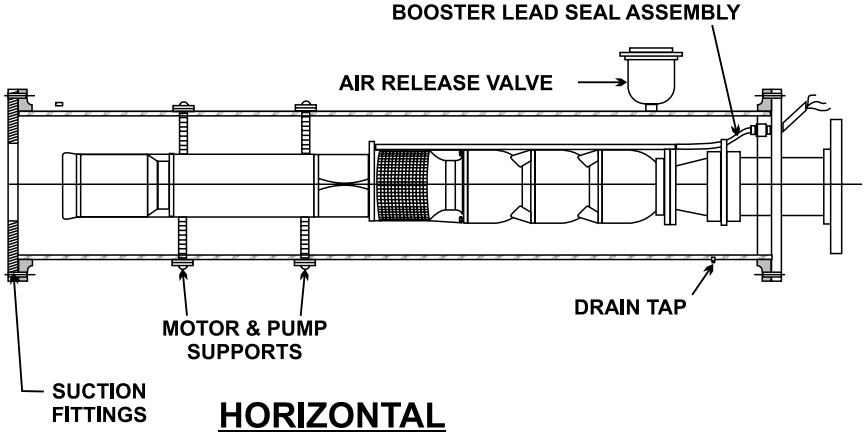
OPERATION

The pressure switch is pre-set to start the booster pump when line pressure drops below limits and stops the pump on high pressure. On start-up, differential pressure closes the main line check valve, preventing reverse flow.

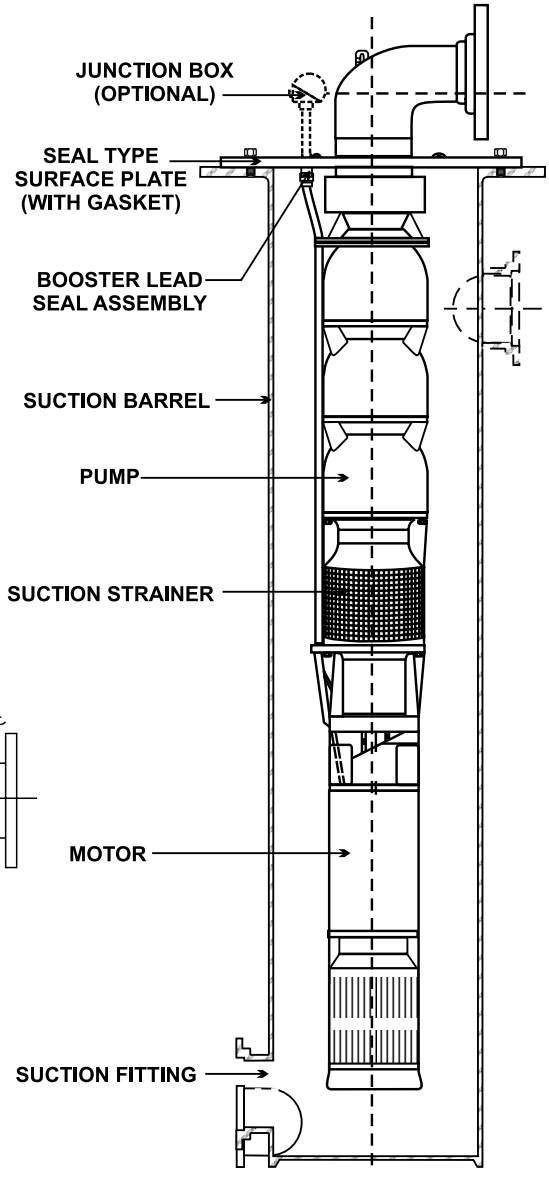
The flow sensing device is connected to a time delay relay to stop the pump after a short time if flow through the booster ceases at any time.

The low pressure (vacuum) switch protects the pump if the suction pressure drops below a safe level.

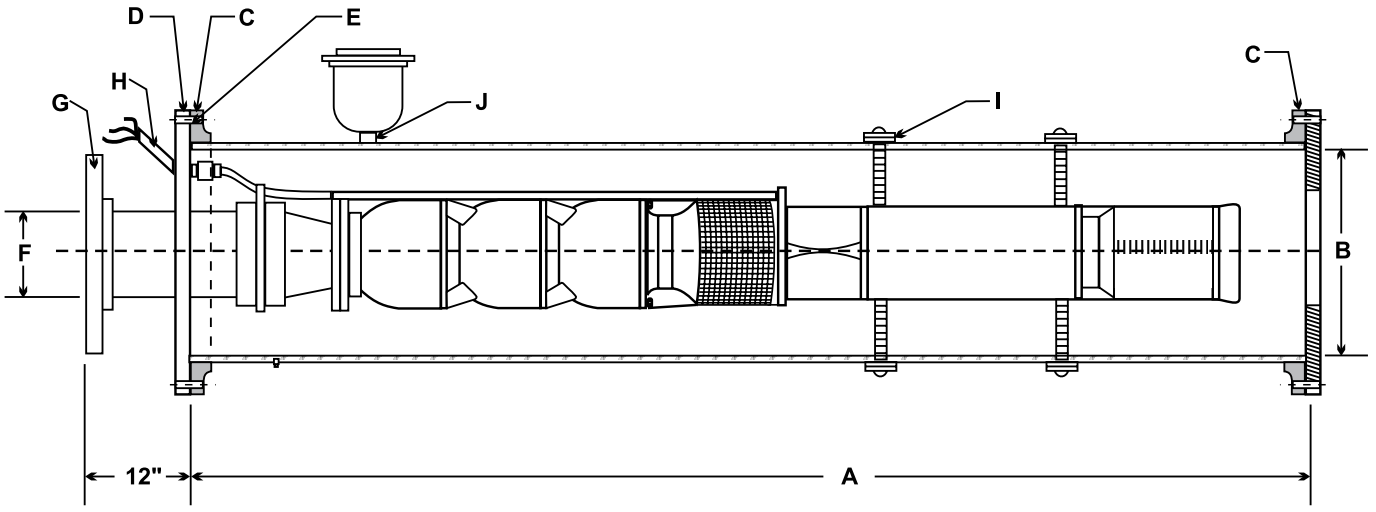
When system flow ceases check valves maintain upstream pressure. Gate valves allow installation and service of the unit without interrupting system service. Gate valves should be locked open when in service.



HORIZONTAL



SUB HORIZONTAL BOOSTER ASSEMBLY



PUMP _____ MOTOR _____ PUMP UNIT _____

LENGTH _____ (Inches) LENGTH _____ (Inches) TOTAL LENGTH _____ (Inches)

BOOSTER BARREL DATA	INCHES
A. LENGTH SUCTION BARREL	
B. DIA. SUCTION BARREL	
C. SIZE & DIA. FLANGES	
D. DIA. OF HEAD PLATE	
E. BOLT CIRCLE & SIZE OF BOLT	
F. DIA. DISCHARGE PIPE	
G. SIZE DISCHARGE FLANGE	
H. TYPE OF CABLE GLAND	
I. NO. OF STABILIZERS	
J. SIZE OF AIR RELEASE VALVE NIPPLE	

CAPACITY

_____ GPM

DISCHARGE HEAD

_____ FT.

STANDARD CONSTRUCTION:

PIPE: A53 GRADE B STEEL

FLANGES & HEAD PLATE:

SIZE 150# STANDARD
SIZE 300# HEAVY DUTY

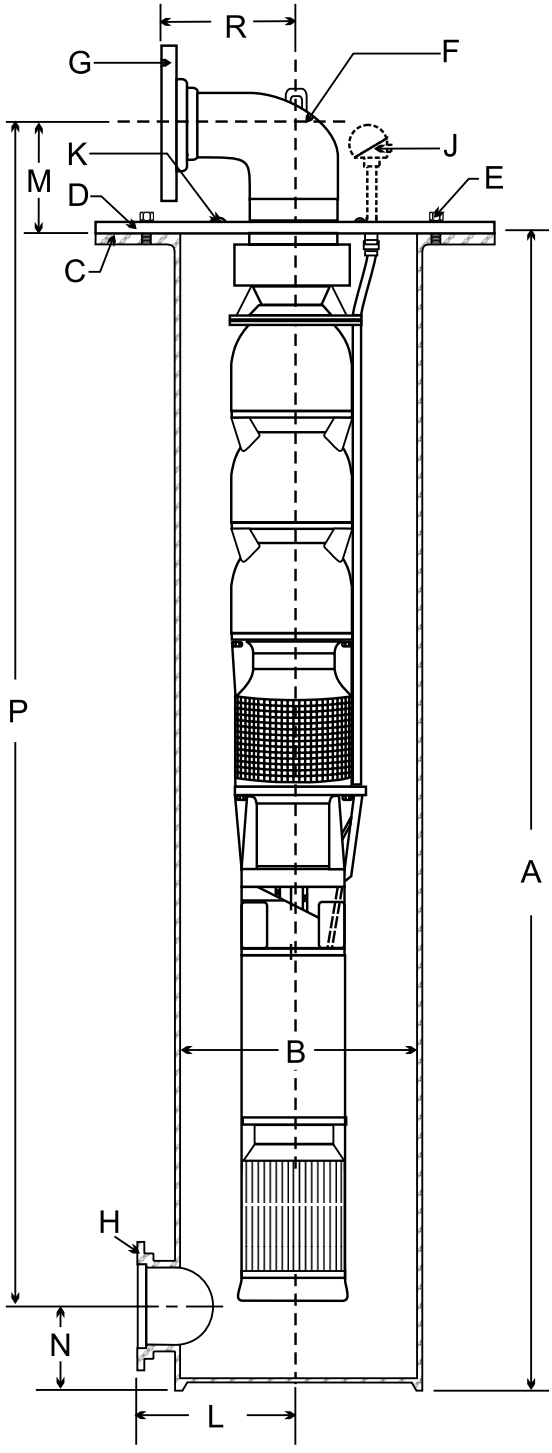
SUB VERTICAL BOOSTER ASSEMBLY

PUMP _____ MOTOR _____ PUMP UNIT _____

LENGTH _____ Inches LENGTH _____ Inches LENGTH _____ Inches

BOOSTER BARREL DATA

	INCHES
A. LENGTH SUCTION BARREL	_____
B. DIA. SUCTION BARREL	_____
C. SIZE & DIA. FLANGES	_____
D. DIA. OF HEAD PLATE	_____
E. BOLT CIRCLE & SIZE OF BOLT	_____
F. DIA. DISCHARGE PIPE	_____
G. SIZE DISCHARGE FLANGE	_____
H. SIZE SUCTION FLANGE	_____
J. SIZE OF CABLE JUNCTION	_____
K. SIZE OF AIR RELEASE VALVE NIPPLE	_____
L. CENTER LINE TO FACE DIMENSION	_____
M. CENTER LINE TO BARREL DIMENSION	_____
N. CENTER LINE SUCTION TO BOTTOM	_____
P. DISCHARGE TO SUCTION	_____
R. CENTER LINE TO FACE	_____



CAPACITY

_____ GPM

DISCHARGE HEAD

_____ GPM

STANDARD CONSTRUCTION:

SCHEDULE 40 STEEL

FLANGES & HEAD PLATE:

SIZE 150# STANDARD
SIZE 300# HEAVY DUTY

OPTIONS:

TEMPERATURE PROBE _____

JUNCTION BOX _____

IN-LINE BOOSTER DATA

The complete Booster Barrel Assembly consists of three basic sub assemblies: Barrel Assembly, Head Plate Assembly, and Pumping Unit. The pumping unit is secured to the head plate assembly and is centered in the barrel by means of brackets or stabilizers. Generally, two brackets are necessary and are positioned at top and bottom end of the submersible motor. However, in the case of an installation requiring a long pump end, it may be necessary to have a third bracket positioned around the pump at the halfway mark; i.e., between the pump outlet and the pump inlet. As the number of bowls in a given length differ, depending on the model of pump end use, it is suggested that you consult the factory when considering six (6) stages or over. The support brackets are necessary on both the Horizontal and the Vertical applications. However, on a Vertical Installation, the brackets can be eliminated if the pumping unit is installed in the barrel at the site. The main reason for support brackets in a Vertical Booster would be to support the pumping unit in transit. The dimensions of the Barrel and the Head Plate Assemblies are governed by the size of the Pump Assembly; and, in turn, the Pump Assembly is sized according to GPM and Head (psi) required.

The Pumping Unit installed in a booster barrel will operate satisfactorily if given the same basic care as a proper deep well installation. The following three rules, however, are of extreme importance. Otherwise, the end result will be the overheating of the motor windings without the necessary amperage draw to activate the circuit breakers in the pump control.

1. The barrel must be vented of all air on start-up.
2. There must be a larger flow (GPM) at the intake than the demand at the pump inlet at all times. This will ensure that the barrel is completely full and the pumping unit is operating under submerged conditions.
3. At no time should the pump be permitted to operate against a closed valve condition or against a pressure high enough to approach its closed valve condition as the proper cooling of the motor depends on a constant flow of liquid past its outer casing. The higher the H.P., the larger the flow necessary. The minimum flow for safe operation is generally considered to be one gallon per minute per H.P. of motor.