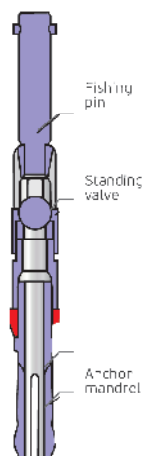
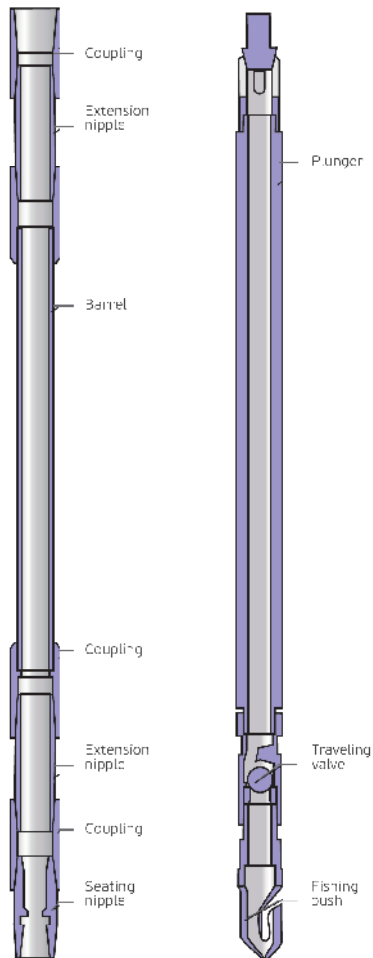


Tubing pumps

TBM tubing pump with mechanical seating arrangement acc. to API, schematically



TYPES AND VERSIONS OF TUBING PUMPS

SEATING ARRANGEMENT OF STANDING VALVE	PUMP BORE, MM	TUBING SIZE, MM	PUMP DESIGNATION
Acc. to API Spec. 11AX with beyond-fishing tool (TNM) or with cup seating arrangement (TNS)	31,8	60,3	20-125 TNM
		73,0	25-125 TNM
	44,5	60,3	20-175 TNM (TNC)
		73,0	25-175 TNM (TNC)
Special (taper)	57,2	73,0	25-225 TNM (TNC)
	69,9	88,9	30-275 TNM
	31,8	73,0	25-125 TNM-K
Non-removable valve (additional drain valve of SKO4 type is used)	44,5	73,0	25-175 TNM-T
	57,2	73,0	25-225 TNM-T
	69,9	88,9	30-275 TNM-T
Non-removable valve, long plunger (10 feet), barre. with side hole	31,8	73,0	25-125 TNM-T 11-10-2-2
	44,5	73,0	25-175 TNM-T 11-10-2-2
	57,2	73,0	25-225 TNM-T 11-10-2-2
	69,9	88,9	30-275 TNM-T 11-10-2-2
Non-removable single (S) or double (SS) valve with built-in drain heating device	31,8	73,0	25-125 TNM-C(CCC)
	38,1	73,0	25-150 TNM-C(CCC)
	44,5	73,0	25-175 TNM-C(CCC)
	57,2	73,0	25-225 TNM-C(CCC)
	69,9	88,9	30-275 TNM-C

Designation of pumps (except TNM-T 11-10-2-2) is given without lengths of barrel, plunger and extensions which shall be selected for each size of pump, depending on required plunger stroke.

PLUNGER STROKE OF STANDART TUBING PUMPS (TNM) DEPENDING ON COMBINATION OF BARREL-PLUNGER-EXTENSION LENGTHS

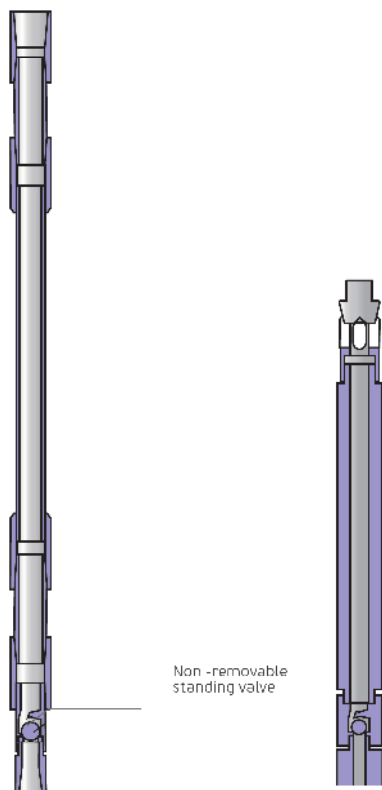
COMBINATION OF BARREL-PLUNGER-EXTENSION LENGTHS,	MAX LENGTH OF PLUNGER STROKE (FROM END TO END), M
7-4-2-2	1,5
9-4-2-2	2,1
11-4-2-2	2,7
11-4-2-3	3,0
14-4-2-2	3,6
11-10-2-2	3,0
22-4-2-2	6,0
14-5-1,5-1,5	3,2
22-4-2-2	6,2

EXAMPLE OF TUBING PUMP DESIGNATION

Diameter 44,5 mm, standard seating arrangement of standing valve (acc. to API), length of barrel – 11 feet, length of plunger – 4 feet, length of extensions – 2 feet each, for installation in tubing with diameter 73 mm: 25-175 TNM 11-4-2-2.

Tubing pumps of special design

Pump with non-removable standing valve of THN-T type



Pumps THM-T with diameters 32, 44, 57 and 70 mm with non-removable standing valve.

Standing valve is set in the bottom of pump instead of seating nipple; fishing tool is not available. Diameter of standing valve (seat and ball) for pumps with diameters 32,44,57 mm is oversized, providing more stable pump operation (free of valve sticking, occurred because of paraffin deposits). Pumps are used together with drain valve (SKOK type or other) placed above pump to drain fluid from tubing when pump is pulled out.

THE FOLLOWING VERSIONS ARE DEVELOPED ON THE BASE OF TNM-T PUMPS:

- pumps with non-removable standing valve, barrel with side drain hole and long plunger (10 feet) (TNM – T 11-10-2-2). Plunger is fitted so that side hole of barrel is constantly covered by plunger; plunger stroke is 3 m. When plunger is in its lower position (at its stop) and when it is pulled out from barrel, drain hole is opened to ensure drain of fluid from tubing both when plunger is pulled out on rods and when rods and plunger components are parted or unscrewed; direct flushing at well completion is provided as well.

- pumps with side standing valve (BVK).

The plant produces BVK valves for TNM-T tubing pumps with diameters of 32 and 44 mm. BVK valve is delivered optionally and set under barrel instead of bottom part of a pump.

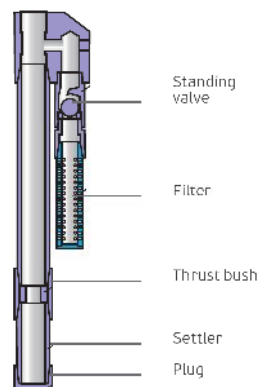
In pumps equipped with BVK valves dead space is almost zero in a barrel, when a plunger is in its lower position. This allows to operate wells with insignificant pump working submergence without risk of failure of fluid feed due to pump blocking by gas.

- pumps with non-removable single (TNM-C) or doubled (TNM-CC) standing valve and built-in drain beating device.

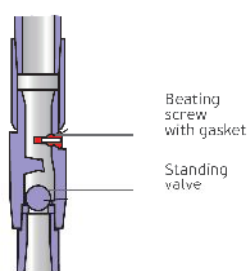
Diameter of standing valve (seat and ball) in pumps of diameters 32, 44, 57 mm is oversized. Fishing tool is not available.

Fluid is drained from tubing through a hole in beating screw which is broken with beating tool thrown into well.

Side standing valve, model BVK



Pump THM-S



Pump THM-SS

