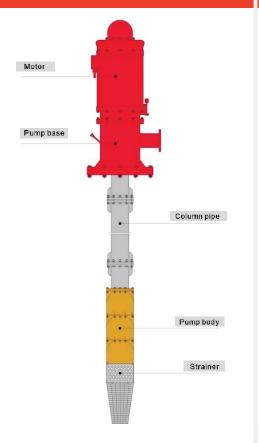
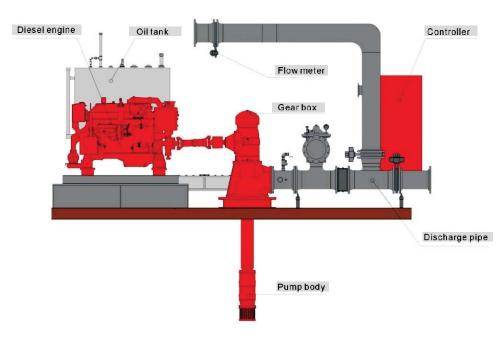


# VERTICAL TURBINE FIRE PUMP VERTICAL SHAFT FIRE PUMP NFPA 20 Std

### **Electric Fire Pumpset**

### **Diesel Engine Fire Pumpset**





### **Application:**

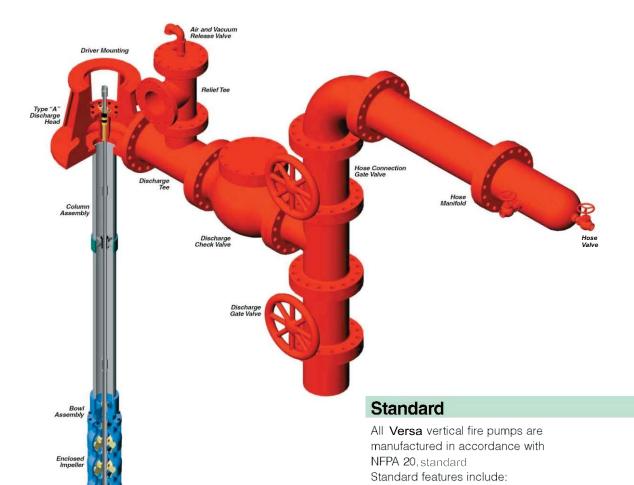
- Commercial Building
- Onshore / Offshore Refineries
- General Industries
- Power Plant
- Municipal







# VERTICAL TURBINE FIRE PUMP VERTICAL SHAFT FIRE PUMP NFPA 20 Std







- PRESSURE RATINGS from 26 to 1740 Psi
- CAPACITY RATINGS labeled from 200 through 10,000 USGPM. In accordance with NFPA-20
- STATIC WATER LEVEL 0-50ft. product lubricated column and shaft asembly. Greater than 50 feet oil lubricated column & shaft assembly.
- TESTING: Testing includes a non-witnessed performance test with a laboratory driver and a non-witnessed hydrostatic test of the discharge head and bowl assembly. Witness testing is available upon request. Diesel engine drivers and pump controllers receive non-witness tests per NFPA-20 at their points of manufacture.

# VERTICAL TURBINE FIRE PUMP NFPA 20 Std

### Strong Point:

#### No Priming Required

Impellers remain submerged in the water supply at all times. Start-up is instantaneous and requires no supervision.

#### **Full Range of Drivers**

Hose Valve Versa offers a full line of electric motor, diesel engine and steam turbine drivers.

#### **Space Saving Design**

When equipped with a vertical electric motor, our vertical pump saves up to 75% in floor space over a comparable horizontal unit.

#### Steep Pump Performance Curves

Vertical pump performance curves are steeper than those of horizontal pumps. This results in smaller changes in capacity during pressure changes.

#### **Adaptable to Different Water Levels**

Because the column length may be varied to fit the application, a vertical fire pump can be tailored to meet virtually any water level situation. This is important when the pump support floor or foundation is above the suction lift of a horizontal fire pump. A vertical fire pump can be installed in wells, offshore platforms, rivers, or wherever a fluctuating water level exists.

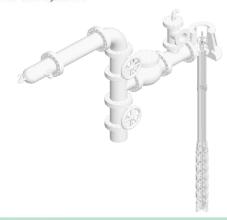
# Adaptable to a Wide Range of Water Supplies

Approved water supplies range from municipal water systems to sea water ... including wells, underground and above ground reservoirs, open ponds, streams, and above and below ground storage tanks.

#### Available to Meet a Wide Range of Capacity and Pressure Requirements

By varying the number of stages and sizes of bowls and impellers, a full range of system pressures and capacities can be obtained from virtually any water level. This allows the system designer maximum flexibility in designing the most effective and reliable fire protection system.

Fire pumps designed and manufactured in accordance with NFPA 20, UL/FM standards must satisfy specific pressure/capacity requirements. These guidelines insure that adequate pressure is provided over a wide capacity range and that maximum pressure at shut-off does not exceed the limits of the system.



#### Low Maintenance

Our pump designs provide for radial hydraulic balance. The hydraulic forces are equalized by multi-vane bowl diffusers. This reduces sleeve bearing radial loading and provides exceptional bearing life.

The weight of all rotating elements (including axial hydraulic thrust) is supported by a single thrust bearing at the top of the driver. Maintenance is minimal, but when required the bearing is easily accessible.







### VERTICAL TURBINE FIRE PUMP

## Performance Table:



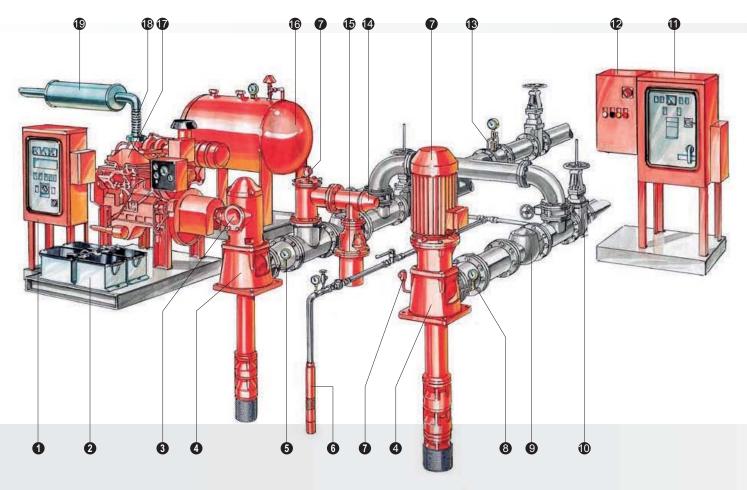
No.         Type         Capacity (Gpm)         Speed (R/M in)         Stage         Pressure (BAR)           1         VT 350         114 (500)         1490         2 - 10         3 - 16           2         VT 350         170 (750)         1490         2 - 10         3 - 15           3         VT 350         170 (750)         1790         2 - 7         4 - 16           4         VT 350         227 (1000)         1790         2 - 7         4 - 14           5         VT 450         285 (1250)         1490         1 - 5         3 - 16           6         VT 400         285 (1250)         1490         2 - 8         4 - 15           7         VT 450         340 (1500)         1490         1 - 5         3 - 16           8         VT 400         340 (1500)         1490         2 - 9         3 - 16           9         VT 450         340 (1500)         1790         1 - 4         4 - 17           10         VT 400         (1500)         1790         1 - 4         4 - 17           11         VT 450         454 (2000)         1790         1 - 4         4 - 16           12         VT 450         680 (3000)         1490         1						
1         VI 350         (500)         1490         2 - 10         3 - 16           2         VI 350         170         1490         2 - 10         3 - 15           3         VI 350         (750)         1790         2 - 7         4 - 16           4         VI 350         227         1790         2 - 7         4 - 14           5         VI 450         (1250)         1490         1 - 5         3 - 16           6         VI 400         285         1490         2 - 8         4 - 15           7         VI 450         (1250)         1490         1 - 5         3 - 16           8         VI 400         340         1490         2 - 8         4 - 15           9         VI 450         (1500)         1490         1 - 5         3 - 16           9         VI 450         (1500)         1790         1 - 4         4 - 17           10         VI 450         (1500)         1790         1 - 4         4 - 16           11         VI 450         (454         1790         1 - 4         4 - 16           11         VI 450         (454         1790         1 - 4         4 - 16           12         V	No.	Туре	(M3/Hr)		Stage	
2	1	V T 350		1490	2 - 10	3 - 16
3         VI 350         (750)         1790         2-7         4-16           4         VT 350         227         (1000)         1790         2-7         4-14           5         VT 450         285         (1250)         1490         1-5         3-16           6         VT 400         285         (1250)         1490         2-8         4-15           7         VT 450         340         (1500)         1490         2-9         3-16           8         VT 400         340         (1500)         1790         1-4         4-17           10         VT 450         340         1790         1-4         4-17           10         VT 400         340         1790         1-4         4-16           11         VT 450         454         1790         1-5         3-14           12         VT 450         454         1490         1-5         3-14           12         VT 450         454         1490         1-4         4-16           13         VT 500         568         1490         2-4         7-15           14         VT 650         680         1490         1-2         6-12	2	V T 350		1490	2 - 10	3 - 15
4         V 1 350         (1000)         1790         2 - 7         4 - 14           5         V T 450         (285)         1490         1 - 5         3 - 16           6         V T 400         285         1490         2 - 8         4 - 15           7         V T 450         340         1490         1 - 5         3 - 15           8         V T 400         340         1490         2 - 9         3 - 16           9         V T 450         340         1790         1 - 4         4 - 17           10         V T 400         340         1790         1 - 4         4 - 17           11         V T 450         454         1790         1 - 5         3 - 14           12         V T 450         454         1790         1 - 4         4 - 16           13         V T 500         454         1790         1 - 4         4 - 16           13         V T 500         680         1490         2 - 4         7 - 15           14         V T 650         680         1490         1 - 2         6 - 12           15         V T 650         795         1490         1 - 2         6 - 12           16         V	3	V T 350		1790	2 - 7	4 - 16
5         VI 400         (1250)         1490         1 - 5         3 - 16           6         VI 400         (285)         1490         2 - 8         4 - 15           7         VI 450         340         1490         1 - 5         3 - 15           8         VI 400         (1500)         1490         2 - 9         3 - 16           9         VI 450         (340)         1790         1 - 4         4 - 17           10         VI 400         (1500)         1790         2 - 6         4 - 16           11         VI 450         (454)         (2000)         1490         1 - 5         3 - 14           12         VI 450         (454)         (2000)         1 - 4         4 - 16         4 - 16           13         VI 500         568         (2500)         1 - 4         4 - 16         4 - 16           13         VI 500         680         (2500)         1 490         1 - 2         6 - 13           14         VI 650         (3800)         1 490         1 - 2         6 - 12           15         VI 650         (3500)         1 490         1 - 2         6 - 12           17         VI 650         (4500) <t< td=""><td>4</td><td>V T 350</td><td></td><td>1790</td><td>2 - 7</td><td>4 - 14</td></t<>	4	V T 350		1790	2 - 7	4 - 14
6         VI 400         (1250)         1490         2 - 8         4 - 15           7         VI 450         340         1490         1 - 5         3 - 15           8         VI 400         340         1490         2 - 9         3 - 16           9         VI 450         (1500)         1790         1 - 4         4 - 17           10         VI 400         (1500)         1790         2 - 6         4 - 16           11         VI 450         454         (2000)         1490         1 - 5         3 - 14           12         VI 450         454         (2000)         1790         1 - 4         4 - 16           13         VI 500         680         (2500)         1790         1 - 4         4 - 16           13         VI 500         568         (2500)         1490         2 - 4         7 - 15           14         VI 650         680         (3000)         1490         1 - 2         6 - 13           15         VI 650         (3500)         1490         1 - 2         6 - 12           17         VI 650         (4500)         1490         1 - 3         6 - 17           18         VI 650         (5000)	5	V T 450		1490	1 - 5	3 - 16
7       VI 430       (1500)       1490       1 - 5       3 - 15         8       VT 400       340 (1500)       1490       2 - 9       3 - 16         9       VT 450       340 (1500)       1790       1 - 4       4 - 17         10       VT 400       340 (1500)       1790       2 - 6       4 - 16         11       VT 450       454 (2000)       1490       1 - 5       3 - 14         12       VT 450       454 (2000)       1790       1 - 4       4 - 16         13       VT 500       568 (2500)       1490       2 - 4       7 - 15         14       VT 650       680 (3000)       1490       1 - 2       6 - 13         15       VT 650       795 (3500)       1490       1 - 2       6 - 12         16       VT 650       1022 (4500)       1490       1 - 2       6 - 12         17       VT 650       1135 (5000)       1490       1 - 3       6 - 17         18       VT 650       1022 (4500)       1490       1 - 3       6 - 17         18       VT 650       103       2900       1 - 8       2 - 20         20       VT 10C       170 (750)       2900       1 - 5	6	V T 400		1490	2 - 8	4 - 15
8       VI 400       (1500)       1490       2 - 9       3 - 16         9       VT 450       340 (1500)       1790       1 - 4       4 - 17         10       VT 400       340 (1500)       1790       2 - 6       4 - 16         11       VT 450       454 (2000)       1490       1 - 5       3 - 14         12       VT 450       454 (2000)       1790       1 - 4       4 - 16         13       VT 500       568 (2500)       1490       2 - 4       7 - 15         14       VT 650       680 (3500)       1490       1 - 2       6 - 13         15       VT 650       795 (3500)       1490       1 - 2       6 - 12         16       VT 650       908 (4500)       1490       1 - 2       6 - 12         17       VT 650       1022 (4500)       1490       1 - 3       6 - 17         18       VT 650       1135 (5000)       1490       1 - 3       6 - 17         19       VT 8E       57 (250)       2900       1 - 8       2 - 20         20       VT 10C       170 (750)       2900       1 - 5       3 - 18         22       VT 10D       227 (10	7	V T 450		1490	1 - 5	3 - 15
9       VI 430       (1500)       1790       1 - 4       4 - 17         10       VT 400       340       1790       2 - 6       4 - 16         11       VT 450       454       1490       1 - 5       3 - 14         12       VT 450       454       1790       1 - 4       4 - 16         13       VT 500       568       1490       2 - 4       7 - 15         14       VT 650       680       1490       1 - 2       6 - 13         15       VT 650       795       (3500)       1490       1 - 2       6 - 12         16       VT 650       908       1490       1 - 2       6 - 12         17       VT 650       1022       (4500)       1490       1 - 3       6 - 17         18       VT 650       1135       (5000)       1490       1 - 3       6 - 17         19       VT 8E       57       2900       1 - 8       2 - 20         20       VT 10C       114       2900       1 - 5       3 - 20         21       VT 10C       170       2900       1 - 5       3 - 18         22       VT 10D       227       2900       1 - 4       3 - 20	8	V T 400		1490	2 - 9	3 - 16
10     VT 400     (1500)     1790     2 - 6     4 - 16       11     VT 450     454 (2000)     1490     1 - 5     3 - 14       12     VT 450     454 (2000)     1790     1 - 4     4 - 16       13     VT 500     568 (2500)     1490     2 - 4     7 - 15       14     VT 650     680 (3000)     1490     1 - 2     6 - 13       15     VT 650     795 (3500)     1490     1 - 2     6 - 12       16     VT 650     908 (4000)     1490     1 - 2     6 - 12       17     VT 650     1022 (4500)     1490     1 - 3     6 - 17       18     VT 650     1135 (5000)     1490     1 - 3     6 - 17       19     VT 8E     57 (250)     2900     1 - 8     2 - 20       20     VT 10C     114 (500)     2900     1 - 5     3 - 20       21     VT 10C     170 (750)     2900     1 - 5     3 - 18       22     VT 10D     227 (1000)     2900     1 - 5     3 - 19       23     VT 12B     285 (1250)     2900     1 - 4     3 - 20	9	V T 450		1790	1 - 4	4 - 17
11       VT 450       (2000)       1490       1 - 5       3 - 14         12       VT 450       454 (2000)       1790       1 - 4       4 - 16         13       VT 500       568 (2500)       1490       2 - 4       7 - 15         14       VT 650       680 (3000)       1490       1 - 2       6 - 13         15       VT 650       795 (3500)       1490       1 - 2       6 - 12         16       VT 650       908 (4000)       1490       1 - 2       6 - 12         17       VT 650       1022 (4500)       1490       1 - 3       6 - 17         18       VT 650       1135 (5000)       1490       1 - 3       6 - 17         19       VT 8E       57 (250)       2900       1 - 8       2 - 20         20       VT 10C       114 (500)       2900       1 - 5       3 - 20         21       VT 10C       170 (750)       2900       1 - 5       3 - 18         22       VT 10D       227 (1000)       2900       1 - 5       3 - 19         23       VT 12B       285 (1250)       2900       1 - 4       3 - 20	1 0	V T 400		1790	2 - 6	4 - 16
12       V T 450       (2000)       1790       1 - 4       4 - 16         13       V T 500       568 (2500)       1490       2 - 4       7 - 15         14       V T 650       680 (3000)       1490       1 - 2       6 - 13         15       V T 650       795 (3500)       1490       1 - 2       6 - 12         16       V T 650       908 (4000)       1490       1 - 2       6 - 12         17       V T 650       1022 (4500)       1490       1 - 3       6 - 17         18       V T 650       1135 (5000)       1490       1 - 3       6 - 17         19       V T 8E       57 (250)       2900       1 - 8       2 - 20         20       V T 10C       114 (500)       2900       1 - 5       3 - 20         21       V T 10C       170 (750)       2900       1 - 5       3 - 18         22       V T 10D       227 (1000)       2900       1 - 5       3 - 19         23       V T 12B       285 (1250)       2900       1 - 4       3 - 20	11	V T 450		1490	1 - 5	3 - 14
13       V I 500       (2500)       1490       2 - 4       7 - 13         14       V T 650       680 (3000)       1490       1 - 2       6 - 13         15       V T 650       795 (3500)       1490       1 - 2       6 - 12         16       V T 650       908 (4000)       1490       1 - 2       6 - 12         17       V T 650       1022 (4500)       1490       1 - 3       6 - 17         18       V T 650       1135 (5000)       1490       1 - 3       6 - 17         19       V T 8E       57 (250)       2900       1 - 8       2 - 20         20       V T 10C       114 (500)       2900       1 - 5       3 - 20         21       V T 10C       170 (750)       2900       1 - 5       3 - 18         22       V T 10D       227 (1000)       2900       1 - 5       3 - 19         23       V T 12B       285 (1250)       2900       1 - 4       3 - 20	12	V T 450		1790	1 - 4	4 - 16
14     VT 650     (3000)     1490     1 - 2     6 - 13       15     VT 650     795 (3500)     1490     1 - 2     6 - 12       16     VT 650     908 (4000)     1490     1 - 2     6 - 12       17     VT 650     1022 (4500)     1490     1 - 3     6 - 17       18     VT 650     1135 (5000)     1490     1 - 3     6 - 17       19     VT 8E     57 (250)     2900     1 - 8     2 - 20       20     VT 10C     114 (500)     2900     1 - 5     3 - 20       21     VT 10C     170 (750)     2900     1 - 5     3 - 18       22     VT 10D     227 (1000)     2900     1 - 5     3 - 19       23     VT 12B     285 (1250)     2900     1 - 4     3 - 20	1 3	V T 500		1490	2 - 4	7 - 15
15     VT 650     (3500)     1490     1 - 2     6 - 12       16     VT 650     908 (4000)     1490     1 - 2     6 - 12       17     VT 650     1022 (4500)     1490     1 - 3     6 - 17       18     VT 650     1135 (5000)     1490     1 - 3     6 - 17       19     VT 8E     57 (250)     2900     1 - 8     2 - 20       20     VT 10C     114 (500)     2900     1 - 5     3 - 20       21     VT 10C     170 (750)     2900     1 - 5     3 - 18       22     VT 10D     227 (1000)     2900     1 - 5     3 - 19       23     VT 12B     285 (1250)     2900     1 - 4     3 - 20	1 4	V T 650		1490	1 - 2	6 - 13
16     V T 650     (4000)     1490     1 - 2     6 - 12       17     V T 650     1022 (4500)     1490     1 - 3     6 - 17       18     V T 650     1135 (5000)     1490     1 - 3     6 - 17       19     V T 8E     57 (250)     2900     1 - 8     2 - 20       20     V T 10C     114 (500)     2900     1 - 5     3 - 20       21     V T 10C     170 (750)     2900     1 - 5     3 - 18       22     V T 10D     227 (1000)     2900     1 - 5     3 - 19       23     V T 12B     285 (1250)     2900     1 - 4     3 - 20	1 5	V T 650		1490	1 - 2	6 - 12
17     V T 650     (4500)     1490     1 - 3     6 - 17       18     V T 650     1135 (5000)     1490     1 - 3     6 - 17       19     V T 8E     57 (250)     2900     1 - 8     2 - 20       20     V T 10C     114 (500)     2900     1 - 5     3 - 20       21     V T 10C     170 (750)     2900     1 - 5     3 - 18       22     V T 10D     227 (1000)     2900     1 - 5     3 - 19       23     V T 12B     285 (1250)     2900     1 - 4     3 - 20	16	V T 650		1490	1 - 2	6 - 12
18     VT 650     (5000)     1490     1 - 3     6 - 17       19     VT 8E     57 (250)     2900     1 - 8     2 - 20       20     VT 10C     114 (500)     2900     1 - 5     3 - 20       21     VT 10C     170 (750)     2900     1 - 5     3 - 18       22     VT 10D     227 (1000)     2900     1 - 5     3 - 19       23     VT 12B     285 (1250)     2900     1 - 4     3 - 20	1 7	V T 650		1490	1 - 3	6 - 17
19     VT 8E     (250)     2900     1 - 8     2 - 20       20     VT 10C     114 (500)     2900     1 - 5     3 - 20       21     VT 10C     170 (750)     2900     1 - 5     3 - 18       22     VT 10D     227 (1000)     2900     1 - 5     3 - 19       23     VT 12B     285 (1250)     2900     1 - 4     3 - 20	18	V T 650		1490	1 - 3	6 - 17
20 V T 10C (500) 2900 1 - 5 3 - 20  21 V T 10C (750) 2900 1 - 5 3 - 18  22 V T 10D 227 (1000) 2900 1 - 5 3 - 19  23 V T 12B 285 (1250) 2900 1 - 4 3 - 20	19	VT 8E		2900	1 - 8	2 - 20
21 V T 10C (750) 2900 1 - 5 3 - 18  22 V T 10D 227 (1000) 2900 1 - 5 3 - 19  23 V T 12B 285 (1250) 2900 1 - 4 3 - 20	20	V T 10C		2900	1 - 5	3 - 20
22 VT 10D (1000) 2900 1 - 5 3 - 19  23 VT 12B 285 (1250) 2900 1 - 4 3 - 20  24 VT 12B 340 2000 1 - 4 3 - 18	2 1	V T 10C		2900	1 - 5	3 - 18
23 VI 12B (1250) 2900 1 - 4 3 - 20	22	V T 10D		2900	1 - 5	3 - 19
	23	V T 12B		2900	1 - 4	3 - 20
(1500)		V T 12B	3 4 0 (1 5 0 0)	2900	1 - 4	3 - 18







#### TYPICAL INSTALLATION OF VERTICAL TURBINE FIRE PUMP



- 1 Diesel enaine fire pump controller
- 2\_Batteries
- 3\_Right angle gear
- 4\_Vertical turbine pump
- 5\_Discharge pressure gauge
- 6\_Jockey pump
- 7\_Automatic air release valve
- 8\_Concentric discharge increaser
- 9\_Check valve
- 10\_OS& Y gate valve
- 11\_Electric motor controller
- 12\_Jockey pump controller
- 13\_Test flow meter
- 14\_Main relief valve
- 15\_Open discharge overflw cone
- 16\_Fuel tank
- 17\_Diesel engine
- 18\_Flexible exhaust connection
- 19\_Exhaust muffle





### VERTICAL TURBINE FIRE PUMP NFPA 20 Std







