



Total  
Engineering  
Solutions

# VERTICAL TURBINE PUMPS

## TES VTP SERIES

Engineered and supported for the U.S. market

**by Total Engineering Solutions**

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TECHNICAL CATALOG - U.S. 60 Hz

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# U.S. CUSTOMER ACCESS. SAUDI MANUFACTURING.

Total Engineering Solutions LLC provides the U.S. commercial and technical interface for TES vertical turbine pumps manufactured in Saudi Arabia under the TES white-label program.

## U.S. MARKET SUPPORT

- Application review and pump selection
- Technical and commercial coordination
- Documentation and project support
- Direct contact through TES in Texas

## PRODUCT PLATFORM

- Vertical lineshaft turbine pumps
- Water- and oil-lubricated configurations
- Cast or fabricated discharge heads
- Multiple materials and hydraulic selections

## OPERATING ENVELOPE

### FLOW

**Up to 20,000 GPM**

4,500 m<sup>3</sup>/h

### HEAD

**Up to 2,000 ft**

630 m

### PRESSURE

**Up to 1,500 psi**

10,340 kPa

### BOWL SIZE

**6 to 28 in**

152 to 700 mm

### POWER

**Up to 2,600 HP**

2,000 kW

### TEMPERATURE

**Up to 500°F**

260°C

Performance limits shown are the catalog envelope; final duty selection is subject to engineering review.



## Operating Parameters

- Flows to 20,000 GPM (4,500 m<sup>3</sup>/Hr)
- Heads to 2,000 feet (630 m)
- Pressures to 1,500 psi (10,340 kPa)
- Bowl sizes from 6" to 28" (152 mm to 700 mm)
- Temperatures to 500°F (260°C)
- Horsepower to 2,600 HP (2,000 KW)

## Design Advantages

- ◆ Advanced hydraulic model and structure design, Ashland process for core, epoxy coated in blade passage of impeller, reasonable material selection, excellent product performance, long service life
- ◆ High efficiency, higher 2~8%, than Local J、JD、JC Pump, with flat efficiency curve wide area for high efficiency add 10~20% separation range, significant energy saving effort
- ◆ Cast or Fabricated discharge head and flanged column
- ◆ Flanged bowl construction
- ◆ Stainless steel shafting
- ◆ Alloy construction with external flush of critical wear areas available for corrosive/abrasive services
- ◆ Built-in alignment and simple piping for less costly installation and ease of maintenance / reduced downtime
- ◆ The sand throwing apparatus, a labyrinth structure make the sand cannot enter the bearing
- ◆ Impeller and motor shafts are supported by copper bearing, shaft runout control within American standard 0.13mm, smooth running, low noise.

## Applications

- ★ Raw water intake: from rivers, lakes, reservoirs, and deep wells for water treatment plants
- ★ Booster water supply: urban water supply networks (secondary booster for high buildings, regional water pressure compensation)
- ★ Emergency water supply: municipal pipe network maintenance or water shortage
- ★ Large-scale farmland irrigation (grain fields, cash crops, greenhouse planting) in plain and hilly areas
- ★ Central water supply for rural communities, well water extraction and booster for villages and towns
- ★ Irrigation and drainage for aquaculture ponds (water exchange, oxygenation auxiliary)
- ★ Process water supply for manufacturing industries (petrochemical, power, metallurgy, food and beverage)
- ★ Circulating cooling water for industrial equipment (power plant condenser cooling, steel mill smelting cooling, chemical reactor cooling)
- ★ Raw water extraction and wastewater reuse for industrial parks
- ★ Rainwater and sewage drainage for urban low-lying areas, underground garages, and municipal pipe networks
- ★ Process wastewater drainage for industrial plants (light industrial wastewater, non-corrosive industrial sewage)
- ★ Sump drainage for construction sites (foundation dewatering, tunnel engineering water discharge)
- ★ Fire water supply: as a fire water pump for high-rise buildings, industrial parks, and large commercial complexes
- ★ Seawater intake/discharge: for coastal industries (desalination plants, port terminals, coastal power plants)
- ★ Mine dewatering: shallow mine underground water dewatering, surface water drainage for mine goaf



## CONFIGURATION FLEXIBILITY

TES vertical turbine pumps combine flexible hydraulic selection with robust mechanical design. We configure the bowl assembly, column, discharge head, shafting and materials for each duty.

### ***Pump bowl assembly***

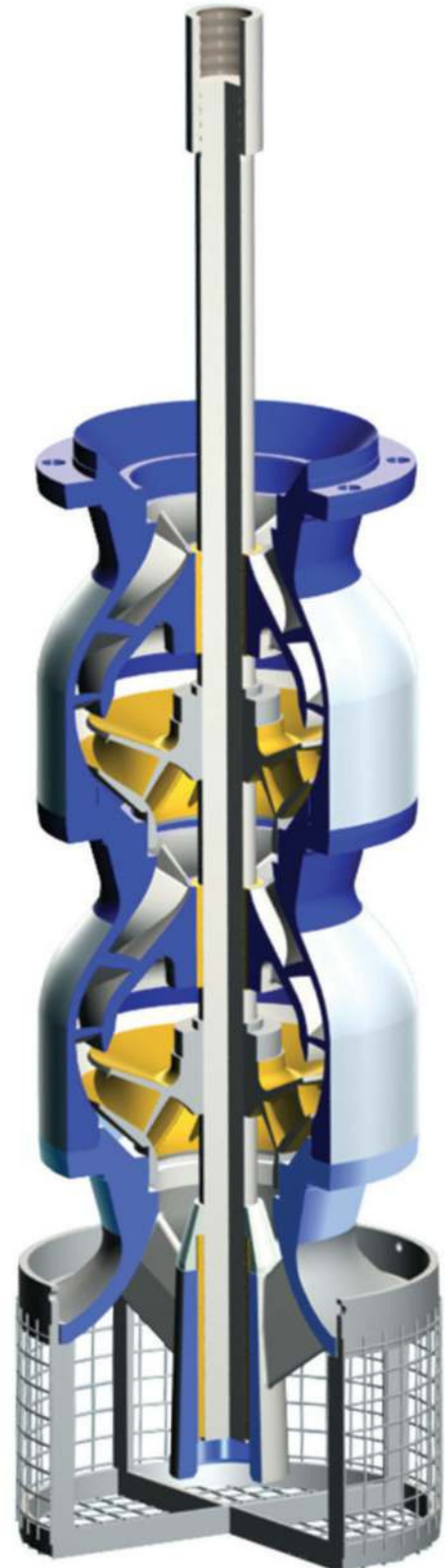
*The bowl assembly is the heart of the vertical turbine pump. The impeller and diffuser type casing are designed to deliver the head and capacity that your system requires in the most efficient way possible. The fact that the vertical turbine pump can be multi-staged allows maximum flexibility both in the initial pump selection and in the event that future system modifications require a change in the pump rating.*

*A variety of material options allows the selection of a pump best suited for even the most severe services. The many bowl assembly options available ensure that the vertical turbine pump satisfies the users' needs for safe, efficient, reliable and maintenance-free operation.*

### ***Bowl Assembly Features And Options***

#### ***Including but not limited to:***

- Semi-open or enclosed impellers.
- Dynamically balanced impellers.
- Low NPSH first stage construction available.
- Bowl and/or impeller wear rings.
- Colleted or keyed construction.
- Sleeve-type bearings of carbon, bronze, rubber, Vesconite, steel-backed rubber or phenolic-backed rubber at each stage assure stable operation.
- Hard facing of shaft journals and bearings protects against abrasion and increases interval between maintenance periods.
- Pump shaft made from heavy duty 416SS standard; available in 316SS, 17-4 PH, Monel and other alloys for high strength and corrosion resistance.
- Rifle drilling of bowl shafts available to protect bearing in abrasive services.
- Interior coating on bowls improves efficiency.
- Stages are flanged and bolted together for ease of maintenance. Registered fit assures positive alignment.
- Double bolting available for high pressure applications.
- Sand collar prevents solids from entering the suction bearing.
- Suction bell lets liquid enter impeller eye smoothly and minimizes vortex formation.
- Vortex suppressors for challenging water levels.
- Basket or cone strainer prevents foreign objects from entering the pump.
- Impeller and bowl materials in a variety of cast materials provide reliable service in the most severe applications.



## LINESHAFT Water Lubrication

### 1 - Adjusting Nut

Permits exact impeller adjustment for maximum performance.

### 2 - Discharge Head

Heavy-duty head provides maximum accessibility to service packing box assembly.

### 3 - Prelube Connection

### 4 - Column Adapter - Optional

Accepts threaded or flanged column.

### 5 - Adjusting Nipple - Optional

Threads directly into column adapter. Headshaft stickup set exactly by threading head on column as required.

### 6 - Discharge Bowl Bearing

NBR, Teflon, Bronze or Thordon.

### 7 - Discharge Bowl

Close-grained casting.

### 8 - Pump Shaft

Oversized high strength polished stainless steel.

### 9 - Intermediate Bowls

Close-grained casting. Waterways glass lined for maximum efficiency (optional).

### 10 - Impellers

Designed for maximum efficiency. Precision balanced for smooth operation.

### 11 - Intermediate Bowl Bearings

NBR, Teflon, Bronze or Thordon for long pump life under any well conditions.

### 12 - Lock Collets

Steel construction secures impeller to pump shaft.

### 13 - Sand Collar - Optional

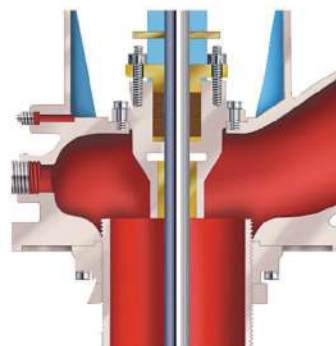
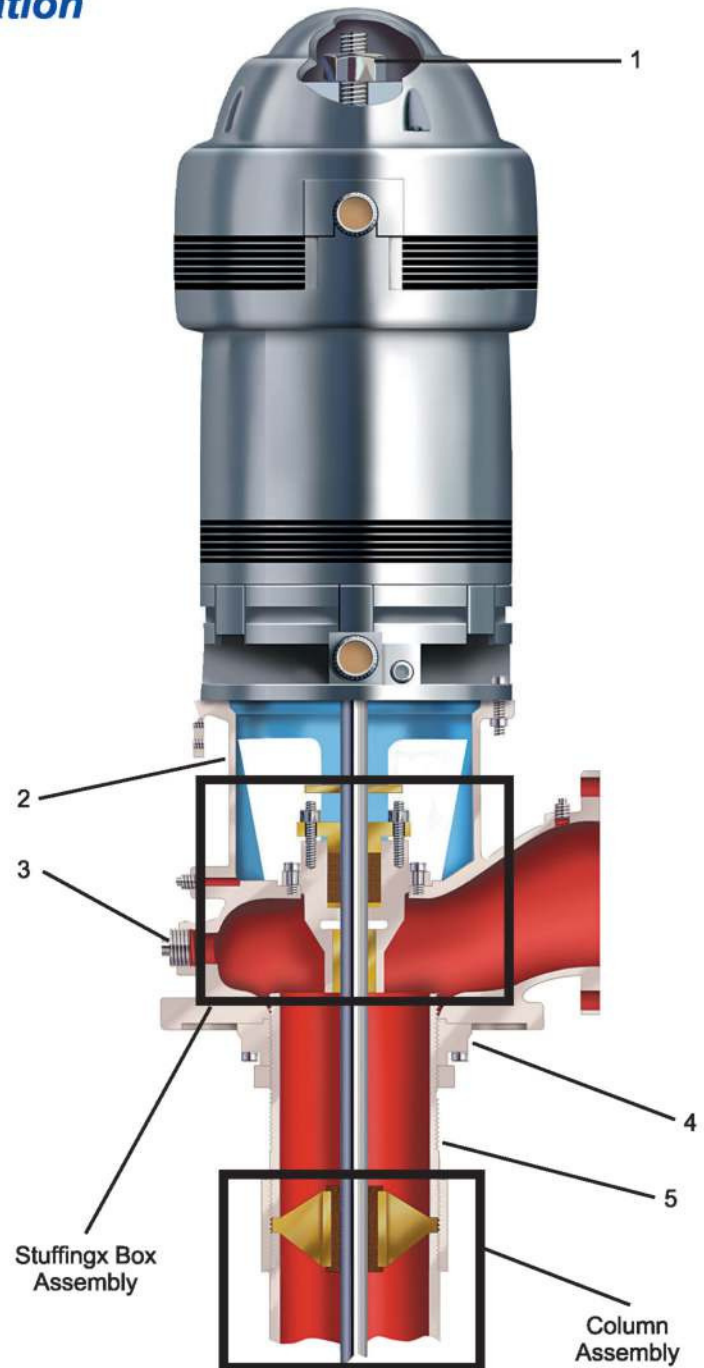
Accurately located at suction bowl bearing to eliminate possible sand buildup.

### 14 - Suction Bowl (or Bell) Bearing

Bronze. Grease packed for long trouble-free life.

### 15 - Suction Strainer

Provides protection from large solids.



### Headshaft

Stainless Steel

### Cast Stuffing Box Throttle Bushing

Extra length bronze for better shaft support, longer packing life.



## Impellers



Closed Impeller



Semi-Open Impeller



## Glass Lined Bowls

Heavy-duty cast intermediate bowls with optional feature of vitra-glass lined waterways for maximum efficiency and wear protection.

## Design Flexibility

TES offers a wide variety of design options for vertical turbine applications.

## Vertical Hollow Shaft or Solid Shaft Motors

## Cast Iron or Fabricated Discharge Head

Designed for mounting electric motor, right angle or combination gear.

## Packed Stuffing Box or Mechanical Seal

## Threaded or Flanged Column Assemblies

With bronze or cast iron bearing retainers.

## Lineshaft

Polished high strength stainless steel. Other alloys available.

## Intermediate Bowls

Waterways glass lined for maximum efficiency.

## Impellers

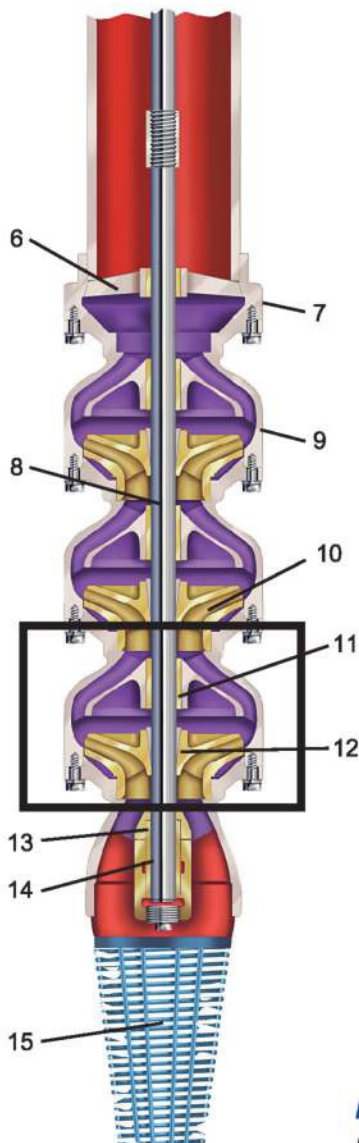
Taperlocked or keyed construction. Precision balanced for smooth operation.

## Intermediate Bowl Bearings

Bronze, rubber or carbon for long pump life under any conditions.

## Suction Bell Bearing

Grease-packed for long trouble-free life.



## Lineshaft

High strength stainless steel. Ground and polished for exact bearing fit. Available in carbon steel.

## Bearing Retainer (Spider)

Cast Iron, stainless steel, or Bronze.

## Lineshaft Bearings

Fluted rubber, designed to flush sand and grit rapidly. Available in Teflon, Bronze, or Thordon.

## Column Pipe

-Parallel thread, accurately machined for easy installation, accurate alignment.  
-Flanged connection, easy for assembly and maintenance

## Column Assembly

## LINESHAFT Oil Lubrication

### 1 - Adjusting Nut

Permits exact impeller adjustment for maximum performance.

### 2 - Manual or Solenoid Oiler - Optional

Assures constant oil supply.

### 3 - Discharge Head

Heavy-duty head provides maximum accessibility to service tube tension assembly.

### 4 - Lock Ring

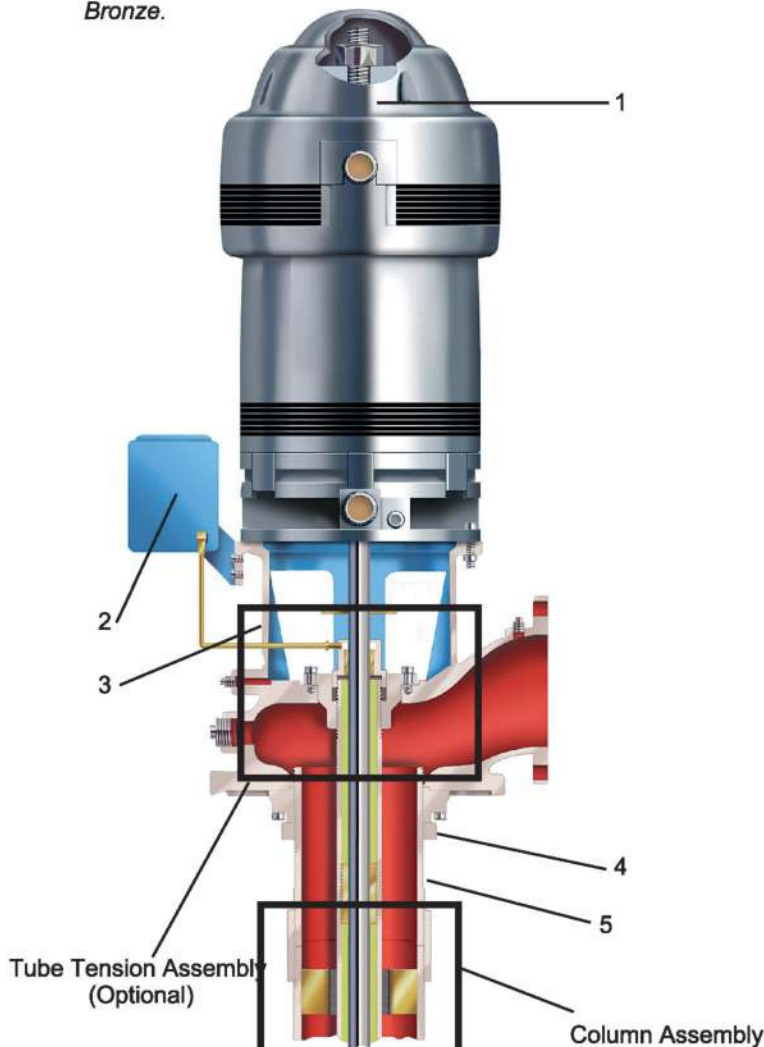
Positively locks adjusting nipple to discharge head.

### 5 - Adjusting Nipple - Optional

Threads directly into column adapter. Headshaft stickup set exactly by threading head on column as required.

### 6 - Tube Adapter Bushing

Bronze.



### 7 - Double Bowl Seal

Provides positive sealing of developed head.

### 8 - Pump Shaft

Oversized high strength polished stainless steel.

### 9 - Discharge Bowl

Close-grained casting. Relief ports insure positive bearing lubrication.

### 10 - Discharge Bowl Bearing

Bronze. Close tolerance fit for minimum leakage.

### 11 - Impellers

Designed for maximum efficiency. Precision balanced for smooth operation.

### 12 - Intermediate Bowls

Close grained casted. Waterways glass lined for maximum efficiency (optional).

### 13 - Intermediate Bowl Bearings

NBR, Teflon, Bronze or Thordon for long pump life under any well conditions.

### 14 - Lock Collets

Steel construction secures impeller to pump shaft.

### 15 - Sand Collar

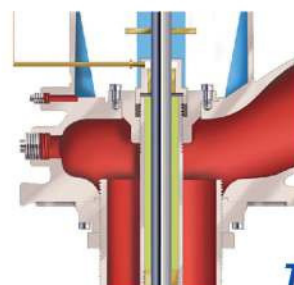
Accurately located at suction bowl bearing to eliminate possible sand buildup.

### 16 - Suction Bowl (or Bell) Bearing

Bronze. Grease packed for long trouble-free life.

### 17 - Suction Strainer

Provides protection from large solids.



**Headshaft**

Stainless Steel

**Tube Tension Nut**

Heavy-duty cast

**Tension Nut Bushing**

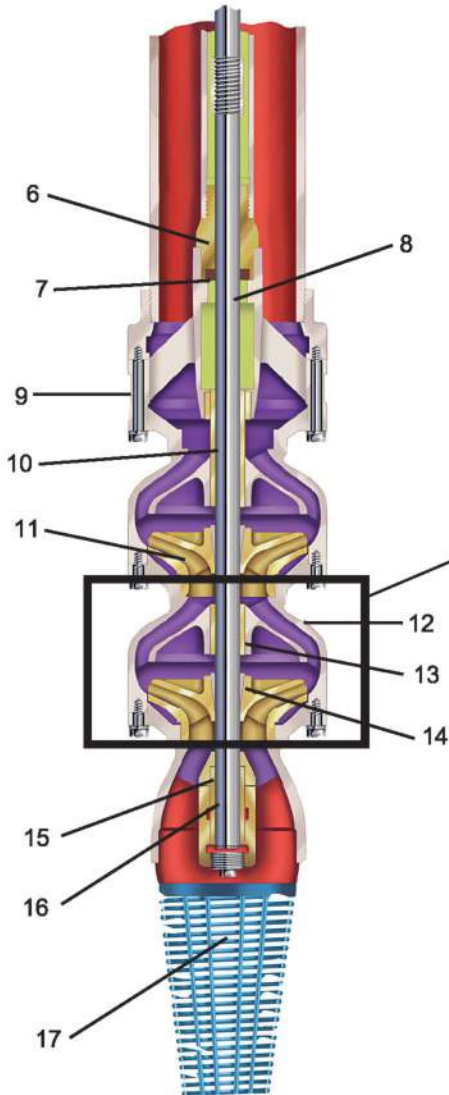
Bronze construction. Spiral groove insures positive lubrication to lineshaft bearings.

**Heavy-Duty Tension Plate**

For positive alignment of lineshaft bearings.



## Impellers



*Semi-Open Impeller*



*Closed Impeller*



## Glass Lined Bowls

Heavy-duty cast intermediate bowls with optional feature of vitra-glass lined waterways for maximum efficiency and wear protection.



## Optional Long Lateral

Long lateral adjustment for maximum setting capabilities. Available in some sizes.



## Lineshaft

High strength Stainless steel. Ground and polished for exact bearing fit.

## Enclosing Tube

Extra heavy steel tubing for positive bearing alignment.

## Enclosed Lineshaft Bearings

Bronze Construction — High strength bearing bronze, spiral grooved for positive lubrication.

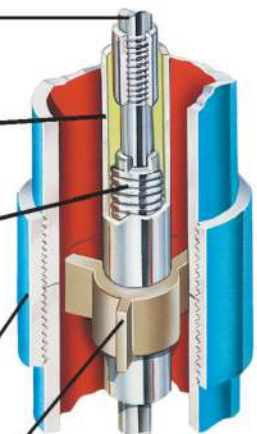
## Column Pipe

Accurately machined for easy installation, accurate alignment.

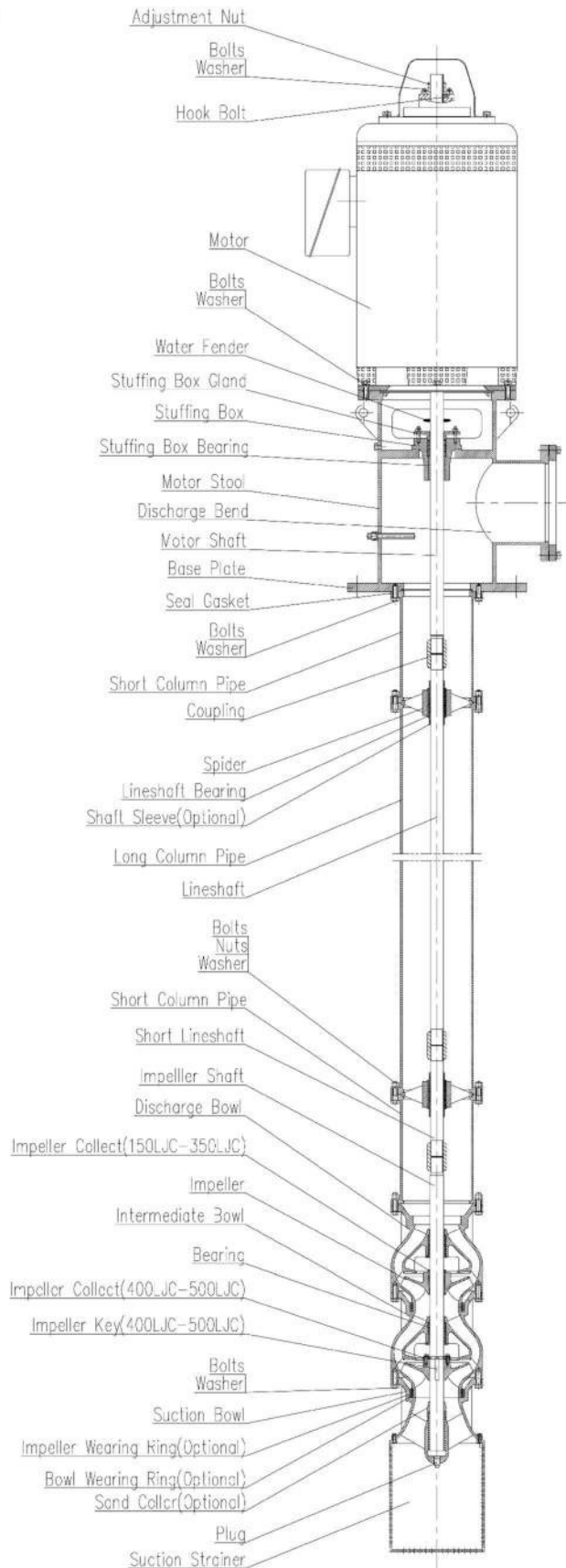
## Tube Centering Spider

Stabilizes enclosing tube for smoother operation.

## Column Assembly

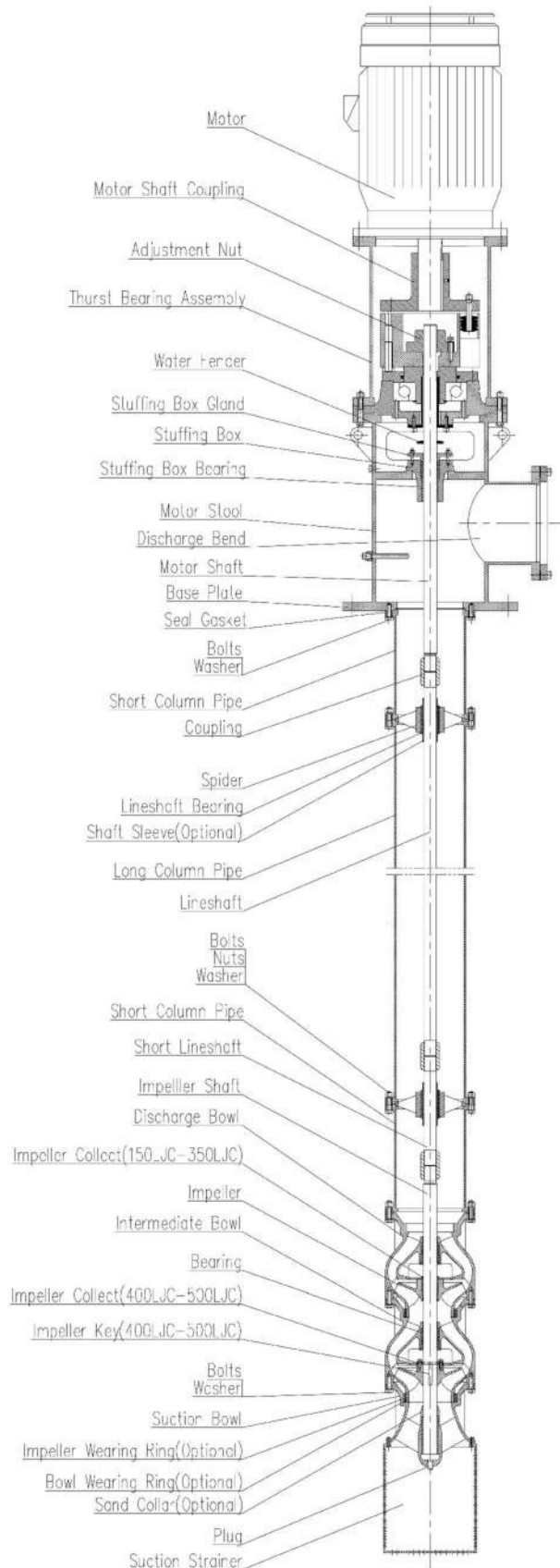


## Structure Drawing

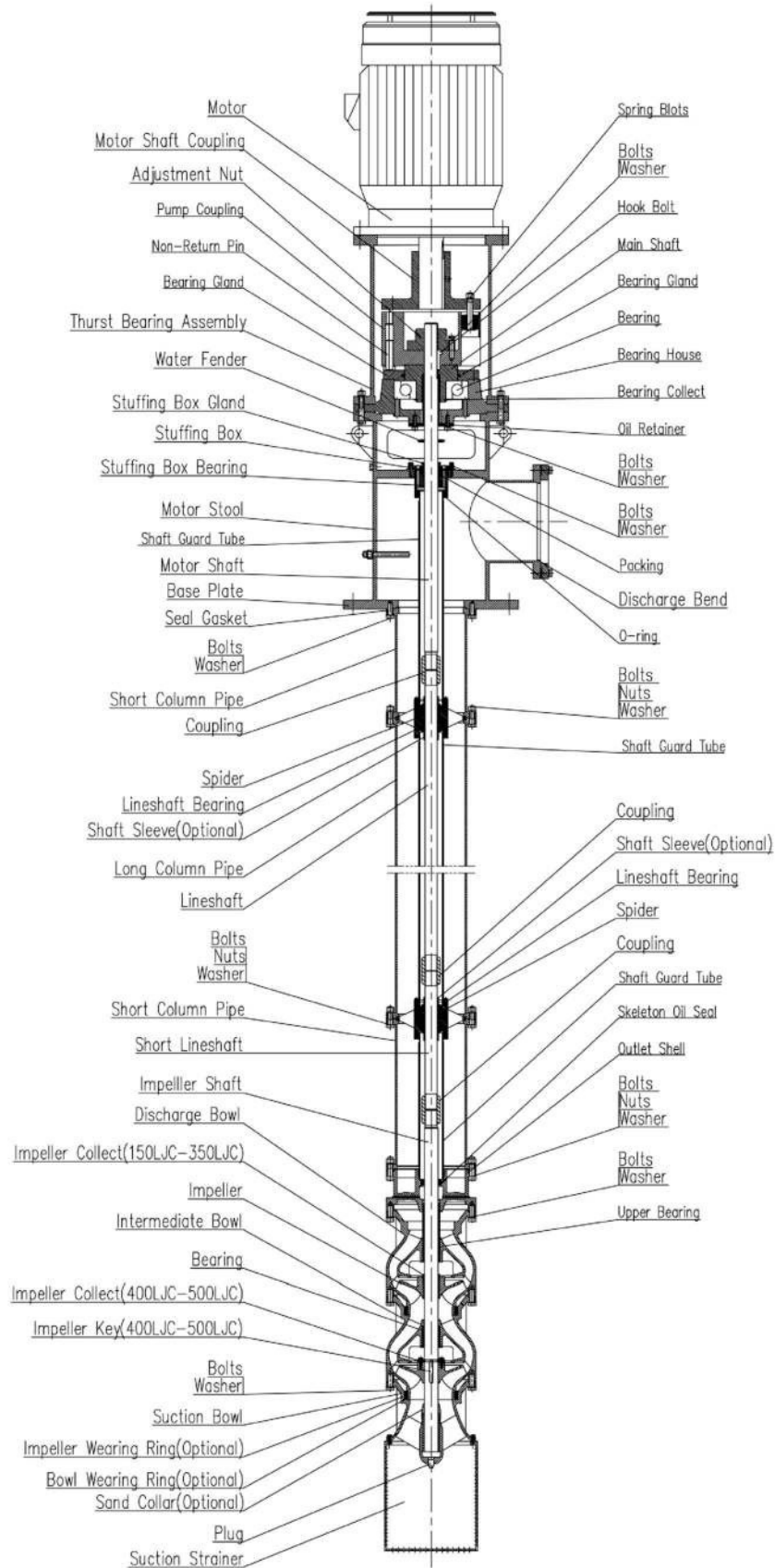


**Cross Sectional Drawing  
(Vertical Turbine Pump Driven by VHS Motor)**

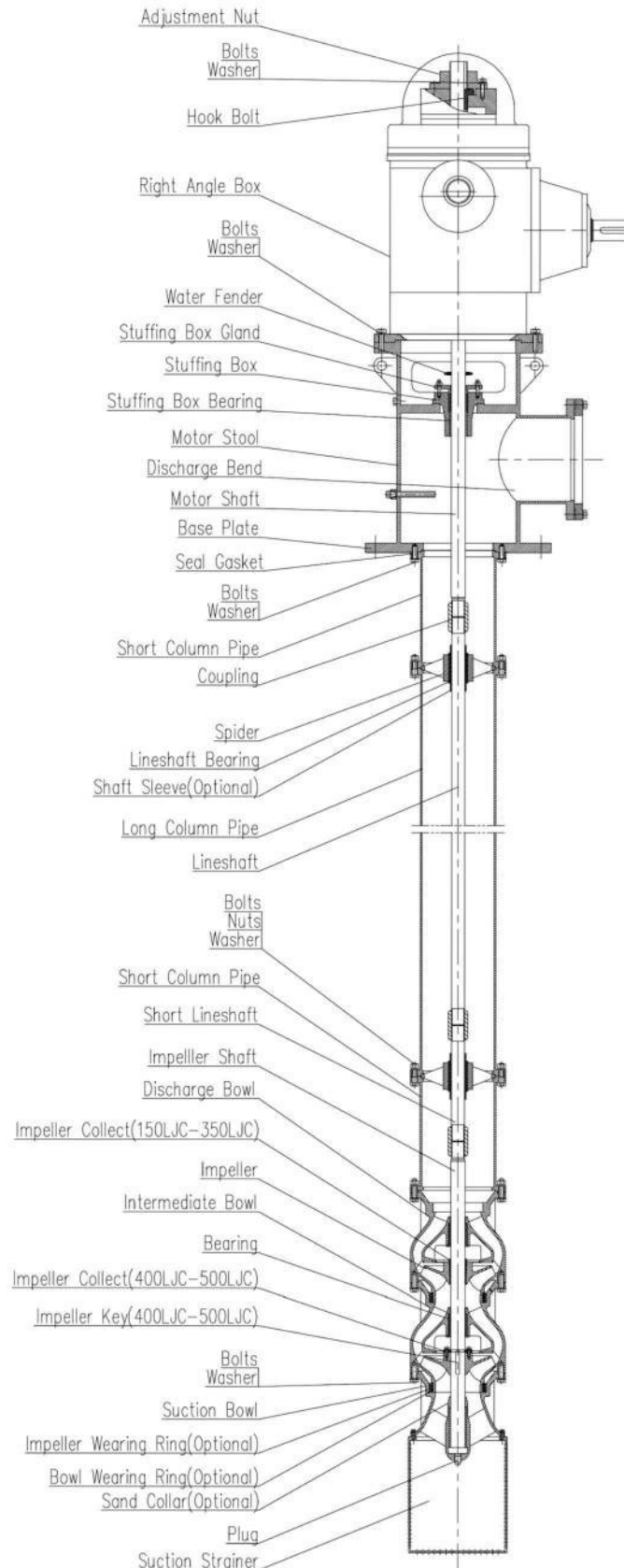




**Cross Sectional Drawing  
(Vertical Turbine Pump Driven by VSS Motor)**



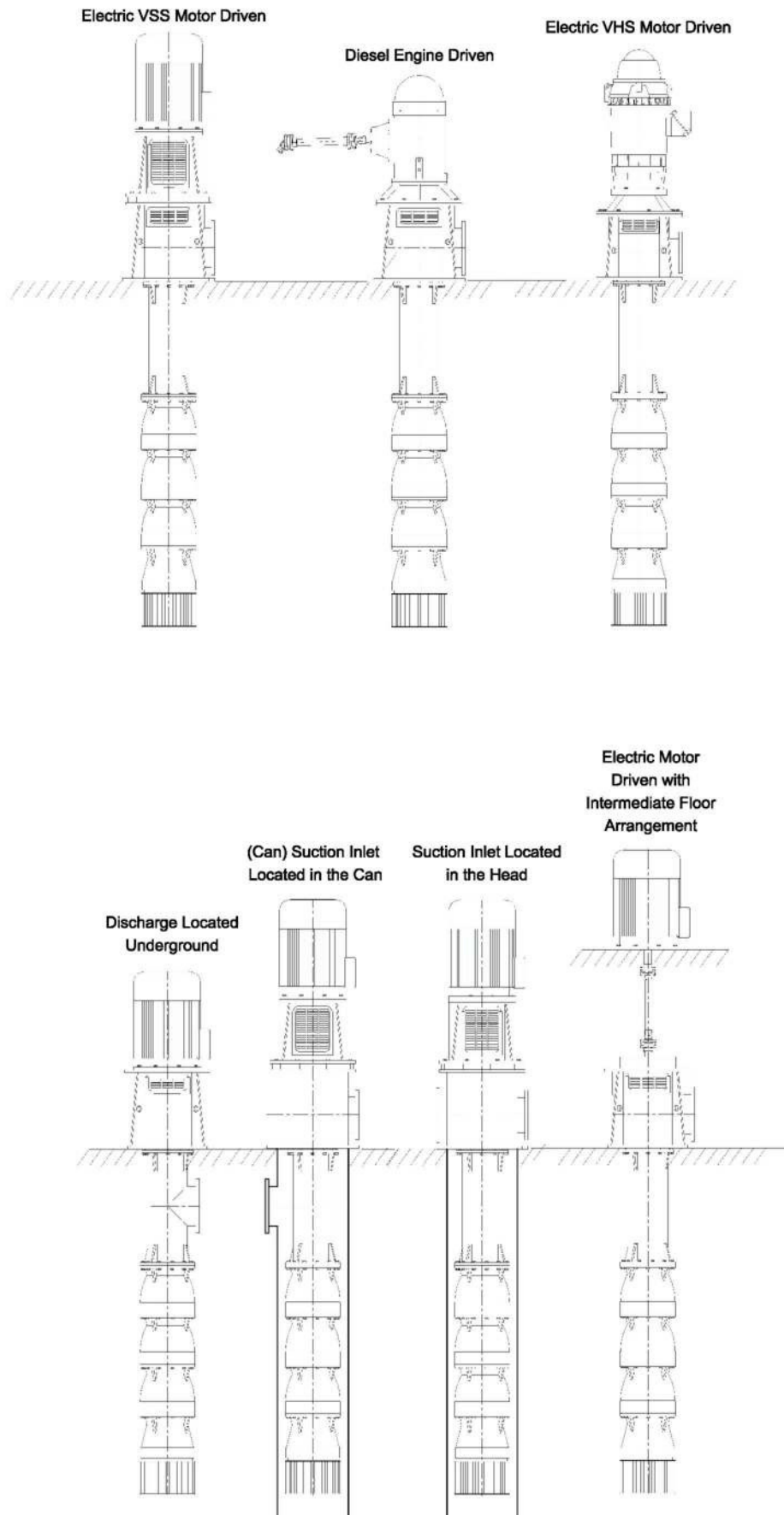
**Cross Sectional Drawing  
(Vertical Turbine Pump with Oil Lubrication)**



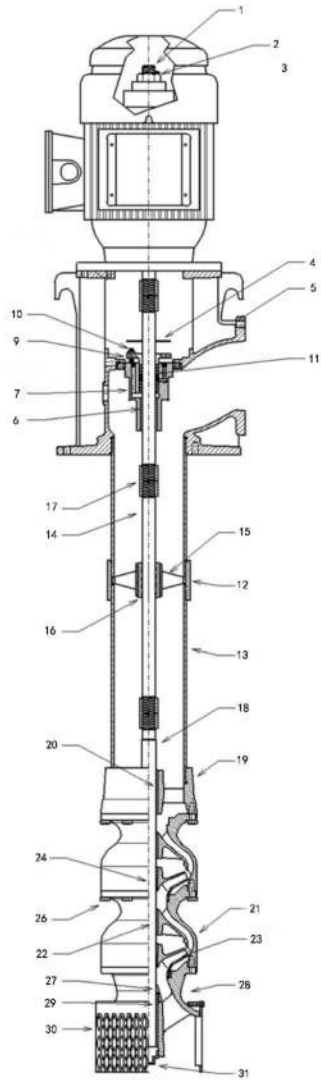
**Cross Sectional Drawing  
(Vertical Turbine Pump Driven by Right Angle Gear Drive)**



## Installation Options



## Main Components & Materials



### DISCHARGE HEAD ASSEMBLY

| Item | Description           | Material                                                                             |
|------|-----------------------|--------------------------------------------------------------------------------------|
| 1    | Head Shaft            | Carbon Steel, 420SS, 416SS, 316SS, Duplex SS, Super Duplex SS, 17-4PH SS, Monel K500 |
| 2    | Adjusting Nut         | Cast Iron, Ductile Iron, Carbon Steel, Bronze                                        |
| 3    | Gib Key               | Carbon Steel                                                                         |
| 4    | Slinger               | Rubber                                                                               |
| 5    | Discharge Head        | Cast Iron, Ductile Iron, Fabricated Steel, Fabricated Stainless Steel                |
| 6    | Stuffing Box Bearing  | Bronze, Teflon, Thordon                                                              |
| 7    | Stuffing Box          | Cast Iron, Ductile Iron, Stainless Steel                                             |
| 8    | Stuffing Box Gasket   | Paper, Rubber                                                                        |
| 9    | Stuffing Box Gland    | Cast Iron, Ductile Iron, Stainless Steel                                             |
| 10   | Gland Adjusting Screw | Galvanized Steel, 304SS, 316SS, Duplex SS, Super Duplex SS, 17-4PH SS                |
| 11   | Packing               | Oil Asbestos, Graphite, GFO Fiber                                                    |

### COLUMN PIPE ASSEMBLY

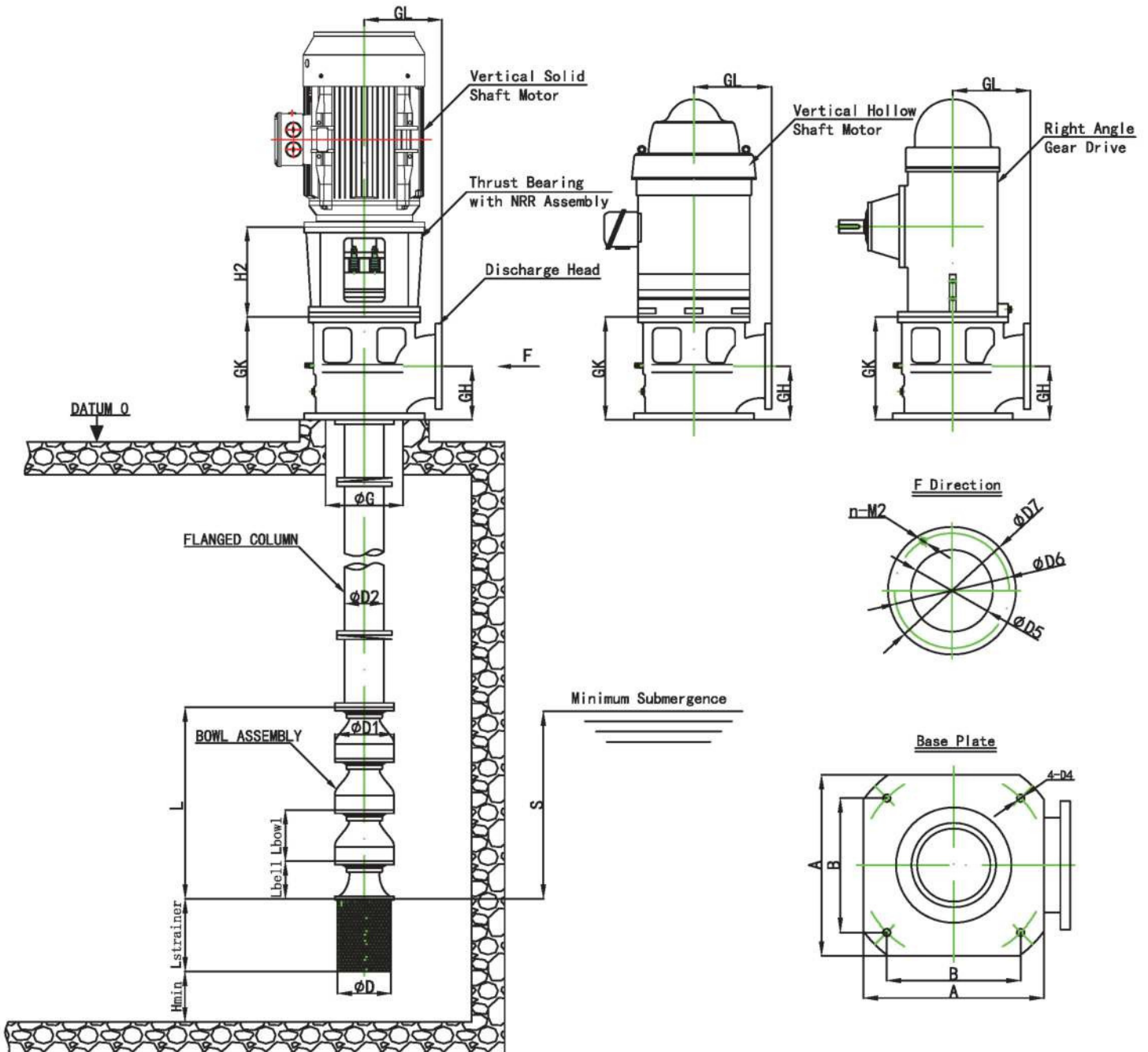
|    |                             |                                                                                      |
|----|-----------------------------|--------------------------------------------------------------------------------------|
| 12 | Column Pipe Coupling/Flange | Cast Iron, Ductile Iron, Bronze/Carbon Steel, Stainless Steel, Duplex SS             |
| 13 | Column Pipe                 | Carbon Steel, 304SS, 316SS, Duplex SS, Super Duplex SS                               |
| 14 | Lineshaft                   | Carbon Steel, 420SS, 416SS, 316SS, Duplex SS, Super Duplex SS, 17-4PH SS, Monel K500 |
| 15 | Bearing Retainer (Spider)   | Cast Iron, Ductile Iron, Bronze, 304SS, 316SS, Duplex SS, Super Duplex SS            |
| 16 | Lineshaft Bearing           | Rubber, Teflon, Bronze, Thordan                                                      |
| 17 | Lineshaft Coupling          | Carbon Steel, 420SS, 416SS, 304SS, 316SS, Duplex SS, Super Duplex SS                 |

### BOWL ASSEMBLY

|    |                           |                                                                                      |
|----|---------------------------|--------------------------------------------------------------------------------------|
| 18 | Bowl Shaft                | Carbon Steel, 420SS, 416SS, 316SS, Duplex SS, Super Duplex SS, 17-4PH SS, Monel K500 |
| 19 | Discharge Bowl            | Cast Iron, Ductile Iron, 420SS, 304SS, 316SS, Duplex SS, Super Duplex SS, Bronze     |
| 20 | Discharge Bowl Bearing    | Rubber, Teflon, Bronze, Thordan                                                      |
| 21 | Intermediate Bowl         | Cast Iron, Ductile Iron, 420SS, 304SS, 316SS, Duplex SS, Super Duplex SS, Bronze     |
| 22 | Intermediate Bowl Bearing | Rubber, Teflon, Bronze, Thordan                                                      |
| 23 | Impeller                  | Cast Iron, Ductile Iron, 420SS, 304SS, 316SS, Duplex SS, Super Duplex SS, Bronze     |
| 24 | Impeller Collet           | Carbon Steel, 304SS, 316SS, Duplex SS, Super Duplex SS                               |
| 25 | Wear Ring (Optional)      | Cast Iron, Ductile Iron, 304SS, 316SS, Duplex SS, Super Duplex SS, Bronze            |
| 26 | Bowl Bolting              | Galvanized Steel, 304SS, 316SS, Duplex SS, Super Duplex SS, 17-4PH SS                |
| 27 | Sand Collar (Optional)    | 304SS, 316SS, Duplex SS, Super Duplex SS, Bronze                                     |
| 28 | Suction Bowl/Bell         | Cast Iron, Ductile Iron, 420SS, 304SS, 316SS, Duplex SS, Super Duplex SS, Bronze     |
| 29 | Suction Bowl/Bell Bearing | Bronze, Teflon, Thordon                                                              |
| 30 | Suction Strainer          | Galvanized Steel, 304SS, 316SS, Duplex SS, Super Duplex SS, Bronze                   |
| 31 | Plug                      | Galvanized Steel, 304SS, 316SS, Duplex SS, Super Duplex SS                           |

\*Note: Materials can also be customized as per standard from the end user

## Main Dimensions





| Pump Model | Column Dia<br>(In.) | φD<br>(mm) | φD1<br>(mm) | φD2<br>(mm) | φG<br>(mm) | S<br>(mm) | Hmin<br>(mm) | L (mm)<br>(1st Stage) | Lbowl (mm)<br>Each add Stage | Lbell<br>(mm) | Lstrainer<br>(mm) |
|------------|---------------------|------------|-------------|-------------|------------|-----------|--------------|-----------------------|------------------------------|---------------|-------------------|
| 6WYD       | 4                   | 114        | 152         | 114         | 300        | 250       | 200          | 257                   | 127                          | 130           | 300               |
| 6WYG       | 4                   | 114        | 152         | 114         | 300        | 250       | 200          | 257                   | 127                          | 130           | 300               |
| 7WYD       | 4                   | 159        | 190         | 114         | 300        | 325       | 200          | 329                   | 164                          | 165           | 350               |
| 7WYG       | 6                   | 159        | 190         | 159         | 300        | 325       | 200          | 329                   | 164                          | 165           | 350               |
| 8WYD       | 6                   | 159        | 190         | 159         | 300        | 325       | 200          | 329                   | 164                          | 165           | 350               |
| 8WYG       | 6                   | 159        | 190         | 159         | 300        | 325       | 200          | 329                   | 164                          | 165           | 350               |
| 10WYG      | 6                   | 159        | 242         | 159         | 330        | 450       | 200          | 460.5                 | 247                          | 213.5         | 350               |
| 11WYD      | 7                   | 219        | 280         | 194         | 330        | 500       | 200          | 507                   | 257                          | 250           | 400               |
| 11WYZ      | 7                   | 219        | 280         | 194         | 330        | 500       | 200          | 507                   | 257                          | 250           | 400               |
| 11WYG      | 7                   | 219        | 280         | 194         | 330        | 500       | 200          | 507                   | 257                          | 250           | 400               |
| 12WYD      | 7                   | 194        | 295         | 194         | 330        | 500       | 200          | 508                   | 264                          | 244           | 400               |
| 12WYZ      | 7                   | 194        | 295         | 194         | 330        | 500       | 200          | 508                   | 264                          | 244           | 400               |
| 12WYG      | 7                   | 194        | 295         | 194         | 330        | 500       | 200          | 508                   | 264                          | 244           | 400               |
| 14WYD      | 8                   | 219        | 340         | 219         | 430        | 550       | 200          | 559                   | 267                          | 292           | 500               |
| 14WYZ      | 8                   | 219        | 340         | 219         | 430        | 550       | 200          | 559                   | 267                          | 292           | 500               |
| 14WYG      | 8                   | 219        | 340         | 219         | 430        | 550       | 200          | 559                   | 267                          | 292           | 500               |
| 16WYD      | 10                  | 370        | 410         | 273         | 430        | 610       | 200          | 616                   | 260                          | 355           | 500               |
| 16WYG      | 10                  | 370        | 410         | 273         | 480        | 650       | 200          | 660                   | 273                          | 387           | 500               |
| 18WYD      | 12                  | 370        | 445         | 325         | 480        | 540       | 200          | 546                   | 216                          | 330           | 500               |
| 18WYG      | 16                  | 480        | 451         | 402         | 580        | 720       | 200          | 731                   | 306                          | 425           | 500               |
| 20WYDD     | 16                  | 480        | 481         | 402         | 580        | 750       | 200          | 763                   | 306                          | 457           | 500               |
| 20WYDG     | 17                  | 480        | 481         | 426         | 580        | 750       | 200          | 763                   | 306                          | 457           | 500               |
| 20WYGG     | 19                  | 480        | 532         | 480         | 580        | 850       | 200          | 858                   | 312                          | 546           | 500               |
| 20WYXGG    | 19                  | 480        | 532         | 480         | 580        | 850       | 200          | 858                   | 312                          | 546           | 500               |
| 20WYGD     | 19                  | 480        | 532         | 480         | 580        | 850       | 200          | 858                   | 312                          | 546           | 500               |
| 20WYXGD    | 19                  | 480        | 532         | 480         | 580        | 850       | 200          | 858                   | 312                          | 546           | 500               |

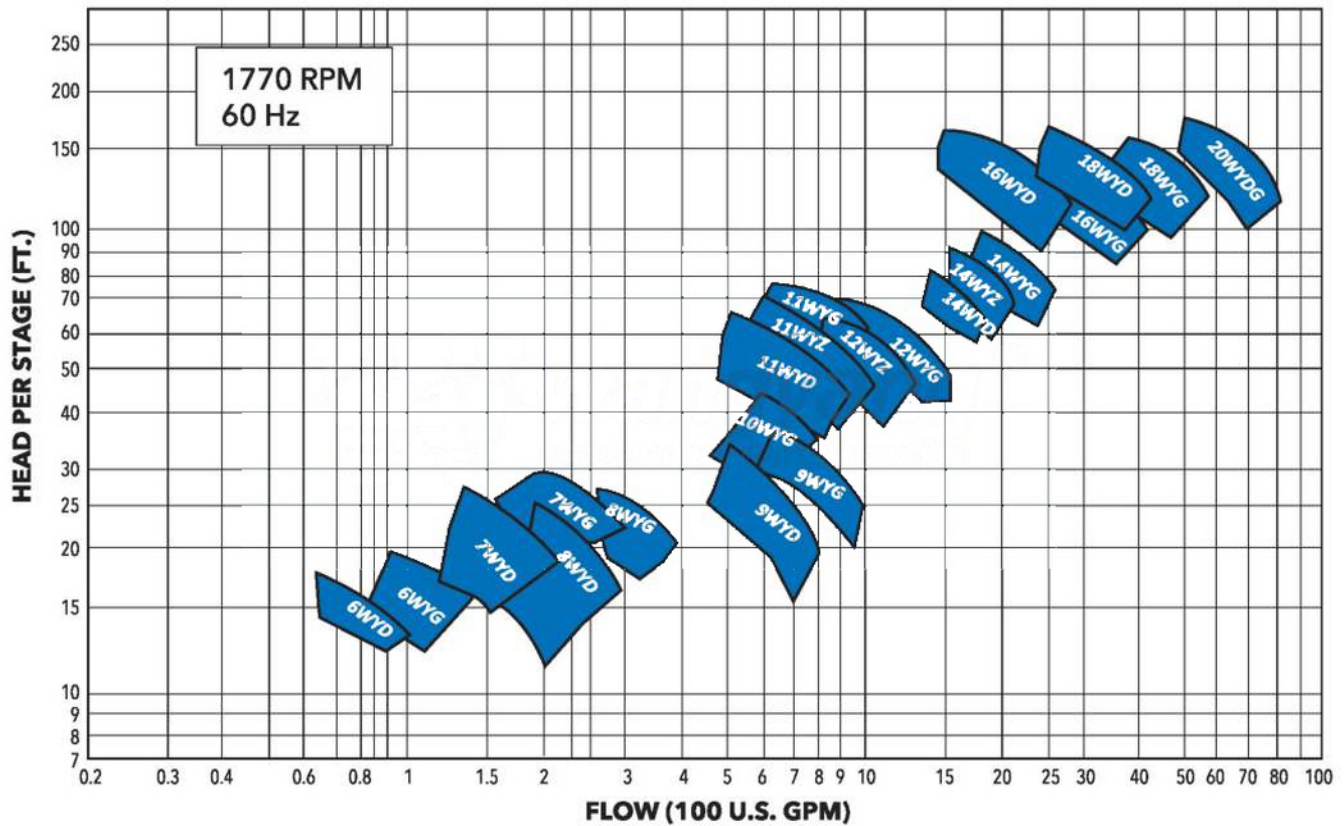
| Pump Model  | Motor       | GH<br>(mm) | GL<br>(mm) | GK<br>(mm) | A<br>(mm) | B<br>(mm) | D4<br>(mm) | D5<br>(mm) | D6<br>(mm) | D7<br>(mm) | n-M2  | H2<br>(mm) |  |  |
|-------------|-------------|------------|------------|------------|-----------|-----------|------------|------------|------------|------------|-------|------------|--|--|
| 6WYD        | 11kw-15kw   | 172        | 305        | 395        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 337        |  |  |
|             | 18.5kw-22kw |            |            |            |           |           |            |            |            |            |       | 349        |  |  |
|             | 11kw-15kw   | 172        | 305        | 395        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 337        |  |  |
| 18.5kw-37kw | 349         |            |            |            |           |           |            |            |            |            |       |            |  |  |
| 7WYD        | 11kw-15kw   | 172        | 305        | 395        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 337        |  |  |
|             | 18.5kw-37kw |            |            |            |           |           |            |            |            |            |       | 349        |  |  |
| 7WYG        | 15kw        | 172        | 305        | 395        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 337        |  |  |
|             | 18.5kw-37kw |            |            |            |           |           |            |            |            |            |       | 349        |  |  |
| 8WYD        | 11kw-15kw   | 172        | 305        | 395        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 337        |  |  |
|             | 18.5kw-45kw |            |            |            |           |           |            |            |            |            |       | 349        |  |  |
| 8WYG        | 11kw-15kw   | 172        | 305        | 395        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 337        |  |  |
|             | 18.5kw-45kw |            |            |            |           |           |            |            |            |            |       | 349        |  |  |
| 10WYG       | 18.5kw-30kw | 172        | 305        | 455        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 349        |  |  |
|             | 37kw-45kw   |            |            |            |           |           |            |            |            |            |       | 377        |  |  |
|             | 55kw-90kw   | 190        | 330        | 200        |           |           |            | 340        |            | 412        |       |            |  |  |
|             | 110kw-185kw |            |            |            |           |           |            |            |            | 442        |       |            |  |  |
| 11WYD/Z/G   | 18.5kw-30kw | 172        | 305        | 455        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 349        |  |  |
|             | 37kw-45kw   |            |            |            |           |           |            |            |            |            |       | 377        |  |  |
|             | 55kw-90kw   | 190        | 330        | 200        |           |           |            | 340        |            | 412        |       |            |  |  |
|             | 110kw-185kw |            |            |            |           |           |            |            |            | 442        |       |            |  |  |
| 12WYD       | 18.5kw-30kw | 172        | 305        | 455        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 349        |  |  |
|             | 37kw-45kw   |            |            |            |           |           |            |            |            |            |       | 377        |  |  |
|             | 55kw-90kw   | 190        | 330        | 200        |           |           |            | 340        |            | 412        |       |            |  |  |
|             | 110kw-185kw |            |            |            |           |           |            |            |            | 442        |       |            |  |  |
| 12WYZ       | 18.5kw-30kw | 172        | 305        | 455        | 500       | 382       | 20         | 150        | 240        | 280        | 8-M20 | 349        |  |  |
|             | 37kw-45kw   |            |            |            |           |           |            |            |            |            |       | 377        |  |  |

|             |             |     |     |     |     |     |    |     |     |     |     |        |     |  |     |
|-------------|-------------|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|--------|-----|--|-----|
|             | 55kw-90kw   | 190 | 330 | 580 |     |     |    |     | 200 | 295 | 340 | 8-M20  | 412 |  |     |
|             | 110kw-185kw |     |     |     |     |     |    |     |     |     |     |        | 442 |  |     |
|             | 18.5kw-30kw | 172 | 305 | 455 | 500 | 382 | 20 | 150 | 240 | 280 |     |        | 349 |  |     |
|             | 37kw-45kw   |     |     |     |     |     |    |     |     |     |     |        |     |  | 377 |
|             | 55kw-90kw   | 190 | 330 | 580 |     |     |    |     |     |     |     |        |     |  | 412 |
| 110kw-185kw |             |     |     |     |     |     |    |     |     |     |     |        | 442 |  |     |
| 12WYG       | 37kw-45kw   |     |     |     |     |     |    |     |     |     |     | 12-M20 | 377 |  |     |
|             | 55kw-90kw   |     |     |     |     |     |    |     |     |     |     |        | 412 |  |     |
|             | 110kw-185kw | 245 | 355 | 470 | 550 | 408 | 23 | 250 | 350 | 390 |     |        | 442 |  |     |
|             | 200kw       |     |     |     |     |     |    |     |     |     |     |        | 485 |  |     |
|             | 220kw-280kw |     |     |     |     |     |    |     |     |     |     |        | /   |  |     |
| 14WYD       | 37kw-45kw   |     |     |     |     |     |    |     |     |     |     | 12-M20 | 377 |  |     |
|             | 55kw-90kw   |     |     |     |     |     |    |     |     |     |     |        | 412 |  |     |
|             | 110kw-185kw | 245 | 355 | 470 | 550 | 408 | 23 | 250 | 350 | 390 |     |        | 442 |  |     |
|             | 200kw       |     |     |     |     |     |    |     |     |     |     |        | 485 |  |     |
|             | 220kw-280kw |     |     |     |     |     |    |     |     |     |     |        | /   |  |     |
| 14WYZ       | 37kw-45kw   |     |     |     |     |     |    |     |     |     |     | 12-M20 | 377 |  |     |
|             | 55kw-90kw   |     |     |     |     |     |    |     |     |     |     |        | 412 |  |     |
|             | 110kw-185kw | 245 | 355 | 470 | 550 | 408 | 23 | 250 | 350 | 390 |     |        | 442 |  |     |
|             | 200kw       |     |     |     |     |     |    |     |     |     |     |        | 485 |  |     |
|             | 220kw-280kw |     |     |     |     |     |    |     |     |     |     |        | /   |  |     |
| 14WYG       | 37kw-45kw   |     |     |     |     |     |    |     |     |     |     | 12-M20 | 377 |  |     |
|             | 55kw-90kw   |     |     |     |     |     |    |     |     |     |     |        | 412 |  |     |
|             | 110kw-185kw | 245 | 355 | 470 | 550 | 408 | 23 | 250 | 350 | 390 |     |        | 442 |  |     |
|             | 200kw       |     |     |     |     |     |    |     |     |     |     |        | 485 |  |     |
|             | 220kw-280kw |     |     |     |     |     |    |     |     |     |     |        | /   |  |     |
| 16WYD       | 55kw-90kw   |     |     |     |     |     |    |     |     |     |     | 12-M20 | 412 |  |     |
|             | 110kw-185kw | 245 | 355 | 470 | 550 | 408 | 23 | 250 | 350 | 390 |     |        | 442 |  |     |
|             | 200kw       |     |     |     |     |     |    |     |     |     |     |        | 485 |  |     |
|             | 220kw-280kw |     |     |     |     |     |    |     |     |     |     |        | /   |  |     |
|             | 55kw-90kw   |     |     |     |     |     |    |     |     |     |     |        | 412 |  |     |
| 16WYG       | 110kw-185kw | 245 | 355 | 470 | 550 | 408 | 23 | 250 | 350 | 390 |     | 12-M20 | 442 |  |     |
|             | 200kw       |     |     |     |     |     |    |     |     |     |     |        | 485 |  |     |
|             | 220kw-280kw |     |     |     |     |     |    |     |     |     |     |        | /   |  |     |
|             | 55kw-90kw   |     |     |     |     |     |    |     |     |     |     |        | 412 |  |     |
|             | 110kw-185kw | 245 | 355 | 470 | 550 | 408 | 23 | 250 | 350 | 390 |     |        | 442 |  |     |
| 16WYG       | 200kw       |     |     |     |     |     |    |     |     |     |     | 485    |     |  |     |
|             | 220kw-280kw |     |     |     |     |     |    |     |     |     |     | /      |     |  |     |



## 60 Hz PERFORMANCE RANGE - 4 POLE

1770 RPM nominal motor speed | Flow in U.S. GPM | Head per stage in feet



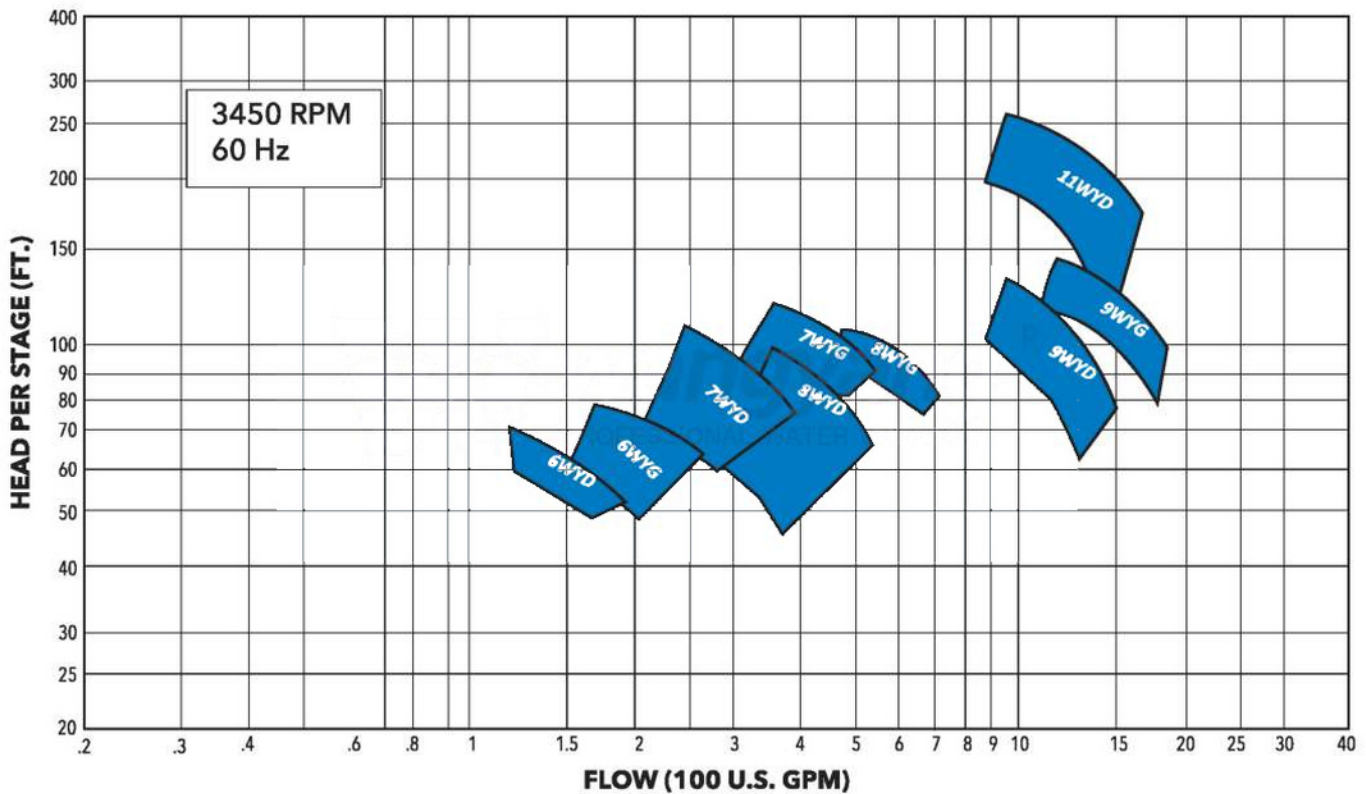
### PRELIMINARY SELECTION GUIDE

Operating envelopes indicate the available 60 Hz model families by flow and head per stage.

Final pump selection, number of stages, efficiency, power and NPSH are confirmed for the project duty point and issued in the TES project-specific technical submittal.

## 60 Hz PERFORMANCE RANGE - 2 POLE

3450 RPM nominal motor speed | Flow in U.S. GPM | Head per stage in feet

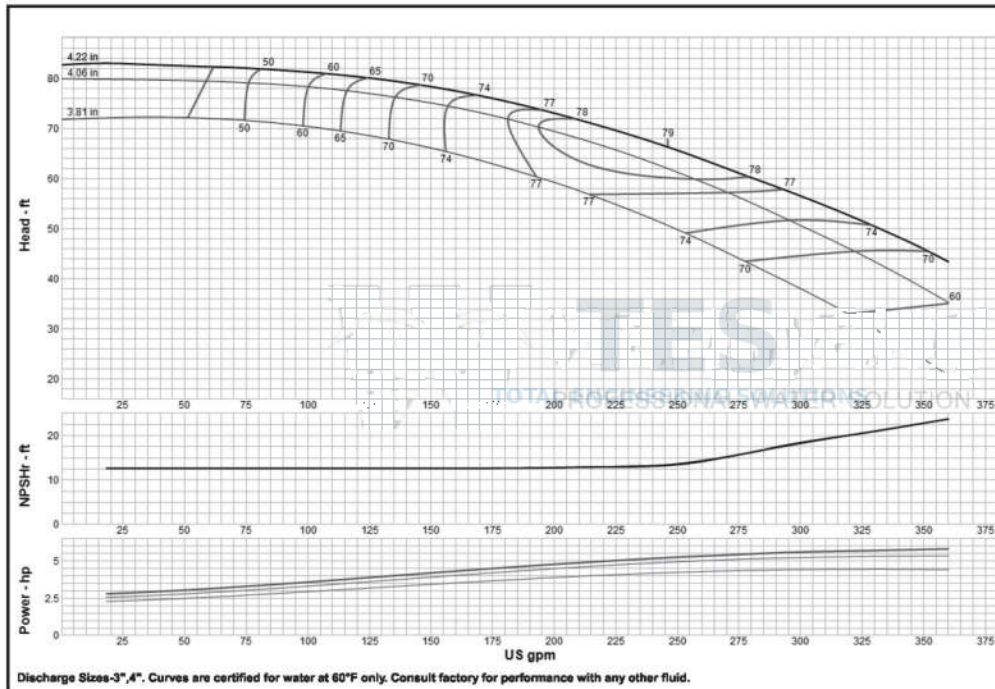


### PRELIMINARY SELECTION GUIDE

Operating envelopes indicate the available 60 Hz model families by flow and head per stage.

Final pump selection, number of stages, efficiency, power and NPSH are confirmed for the project duty point and issued in the TES project-specific technical submittal.

## Performance Curve - 60 Hz - 2 Poles - 1 Stage



### MODEL: 6WYG

**RPM 3550**

**EFFICIENCY CORRECTION**

|         |      |
|---------|------|
| 1-STAGE | -3   |
| 2-STAGE | -2   |
| 3-STAGE | -0.5 |
| 4-STAGE | 0    |

**Impeller ENCLOSED**

**Ns = 2340**

**K = 2.1**

Bowl O. D. 5.88 in

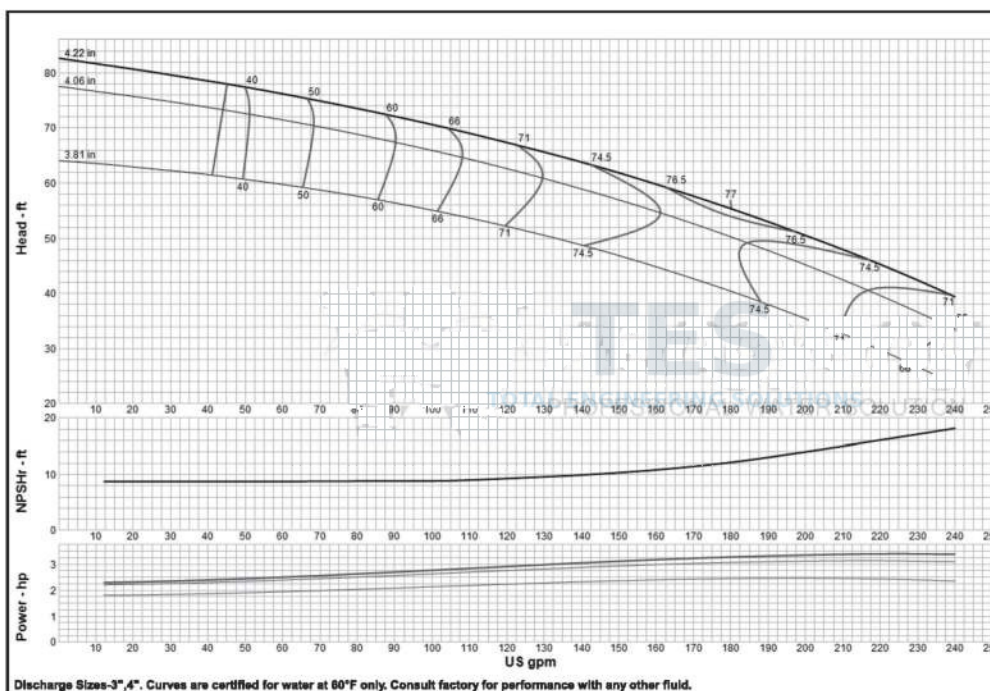
Bowl Lateral 0.25

Max. PSI 420

Disch size 3", 4"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



### MODEL: 6WYD

**RPM 3550**

**EFFICIENCY CORRECTION**

|         |      |
|---------|------|
| 1-STAGE | -3   |
| 2-STAGE | -2   |
| 3-STAGE | -0.5 |
| 4-STAGE | 0    |

**Impeller ENCLOSED**

**Ns = 2292**

**K = 2.1**

Bowl O. D. 5.88 in

Bowl Lateral 0.25

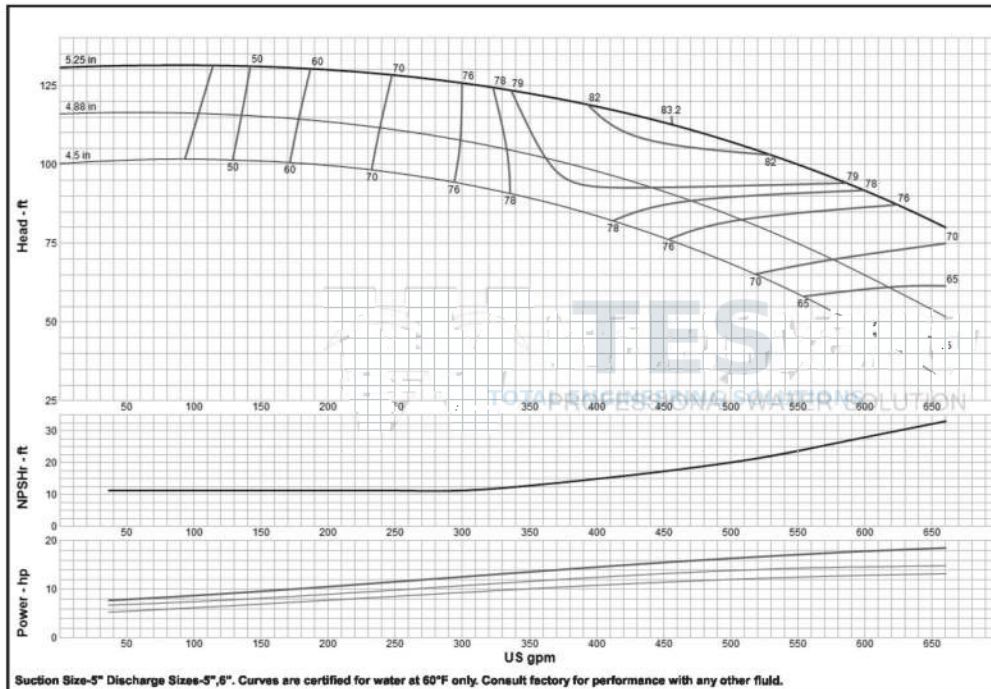
Max. PSI 420

Disch size 3", 4"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL: 7WYG

**RPM 3550**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -3 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

**Impeller ENCLOSED**

**Ns = 2210**

**K = 3.5**

**Bowl O. D. 7.13 in**

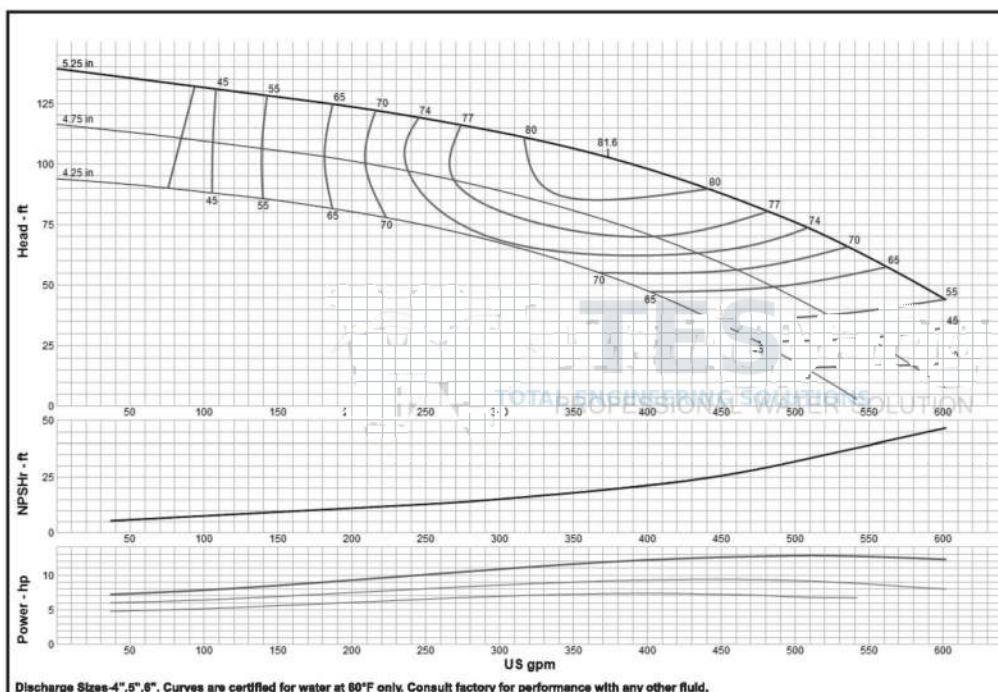
**Bowl Lateral 0.5**

**Max. PSI 415**

**Disch size 4", 5", 6"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL: 7WYD

**RPM 3550**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -3 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

**Impeller ENCLOSED**

**Ns = 2422**

**K = 3.5**

**Bowl O. D. 7.13 in**

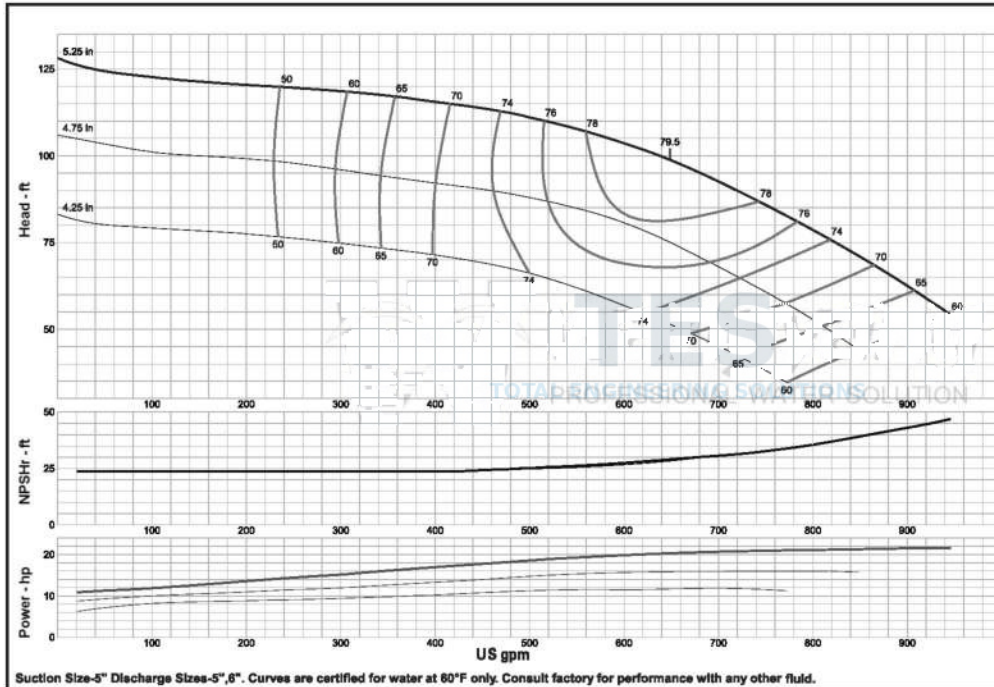
**Bowl Lateral 0.5**

**Max. PSI 415**

**Disch size 4", 5", 6"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL: 8WYG

**RPM 3550**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 2849**

**K = 4**

Bowl O. D. 7.50 in

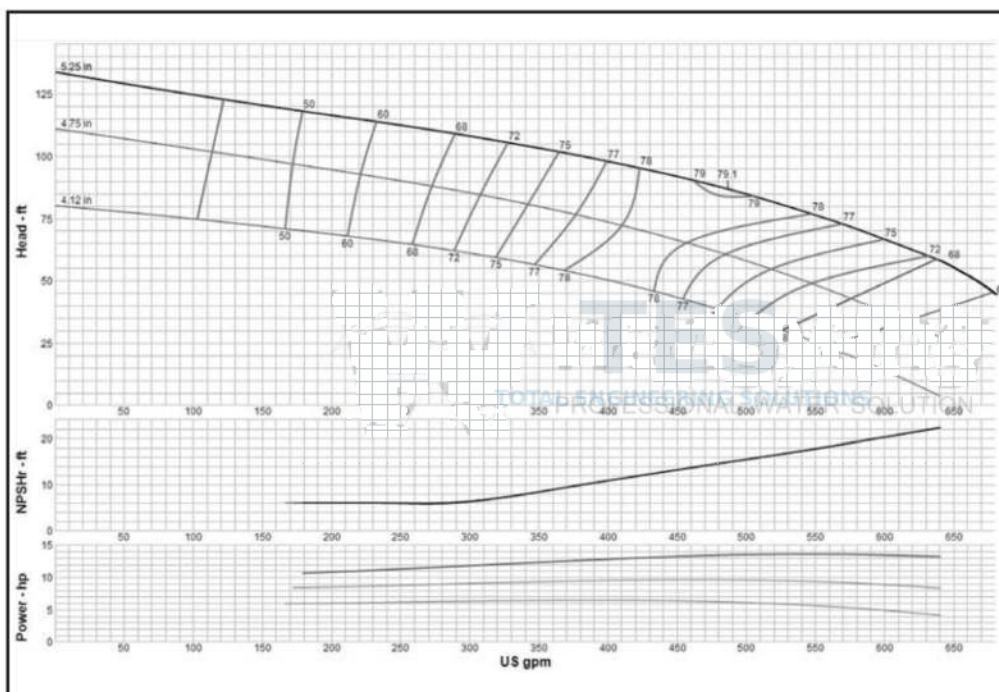
Bowl Lateral 0.63

Max. PSI 425

Disch size 4", 5", 6"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL: 8WYD

**RPM 3550**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 2815**

**K = 4**

Bowl O. D. 7.50 in

Bowl Lateral 0.62

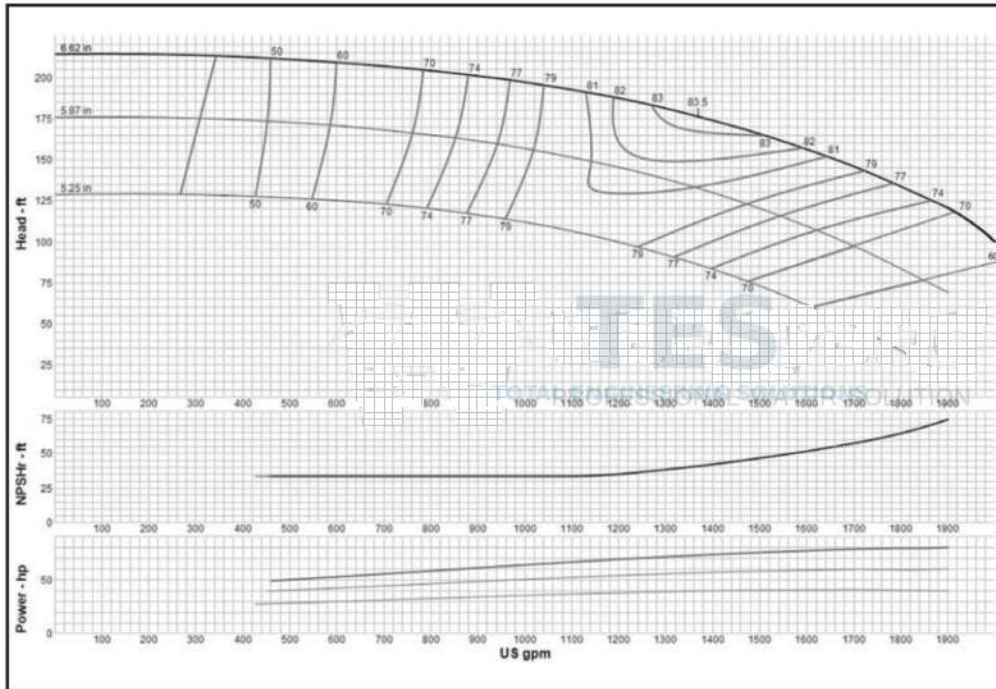
Max. PSI 425

Disch size 4", 5", 6"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:10WYG

**RPM 3550**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 2760**

**K = 7**

**Bowl O. D. 9.50 in**

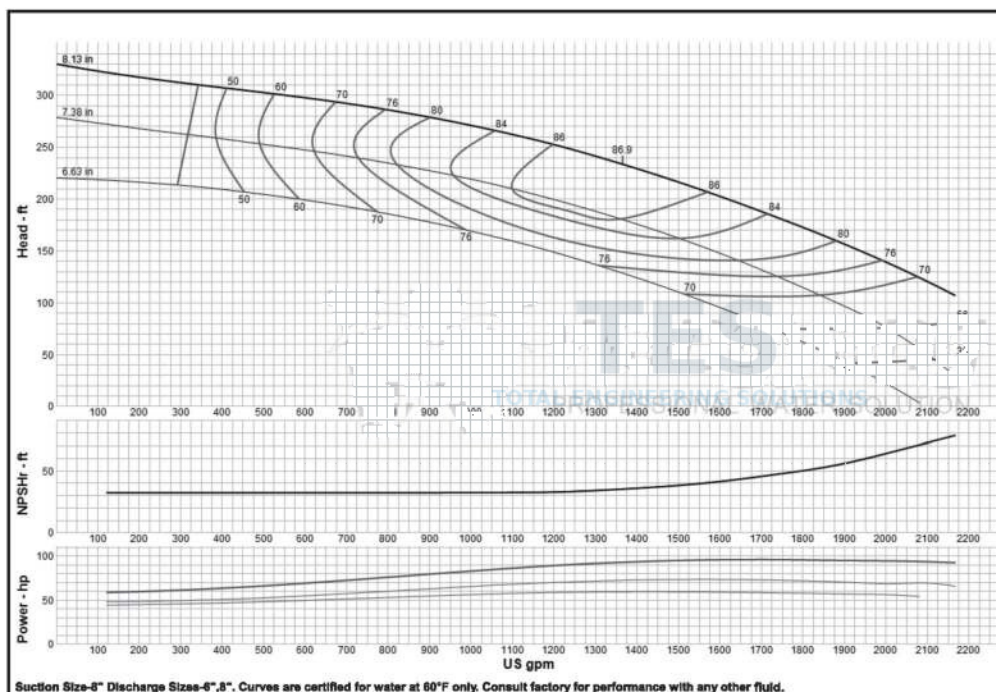
**Bowl Lateral 0.75**

**Max. PSI 430**

**Disch size 6", 8"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL: 11WYD

**RPM 3550**

**EFFICIENCY CORRECTION**

|         |      |
|---------|------|
| 1-STAGE | -1.5 |
| 2-STAGE | -1   |
| 3-STAGE | -0.5 |
| 4-STAGE | 0    |

**Impeller ENCLOSED**

**Ns = 2230**

**K = 7**

**Bowl O. D. 11.00 in**

**Bowl Lateral 0.75**

**Max. PSI 380**

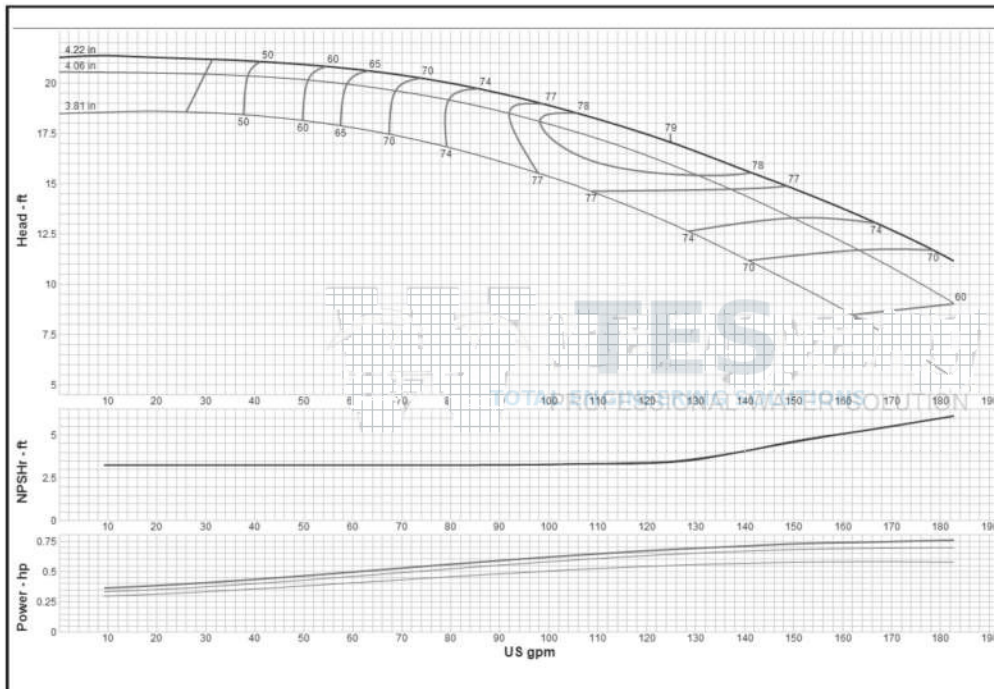
**Disch size 6", 8", 10"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## Performance Curve - 60 Hz - 4 Poles - 1 Stage



### MODEL: 6WYG

**RPM 1750**

**EFFICIENCY CORRECTION**

|         |      |
|---------|------|
| 1-STAGE | -3   |
| 2-STAGE | -2   |
| 3-STAGE | -0.5 |
| 4-STAGE | 0    |

**Impeller ENCLOSED**

**Ns = 2340**

**K = 2.1**

**Bowl O. D. 5.88 in**

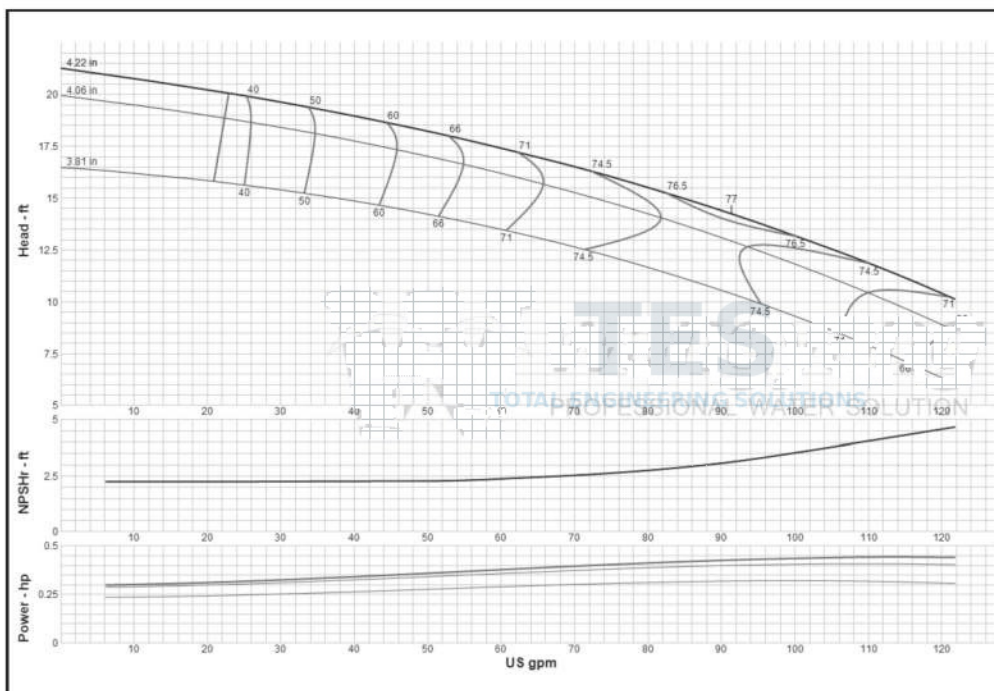
**Bowl Lateral 0.25**

**Max. PSI 420**

**Disch size 3", 4"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



### MODEL: 6WYD

**RPM 1750**

**EFFICIENCY CORRECTION**

|         |      |
|---------|------|
| 1-STAGE | -3   |
| 2-STAGE | -2   |
| 3-STAGE | -0.5 |
| 4-STAGE | 0    |

**Impeller ENCLOSED**

**Ns = 2292**

**K = 2.1**

**Bowl O. D. 5.88 in**

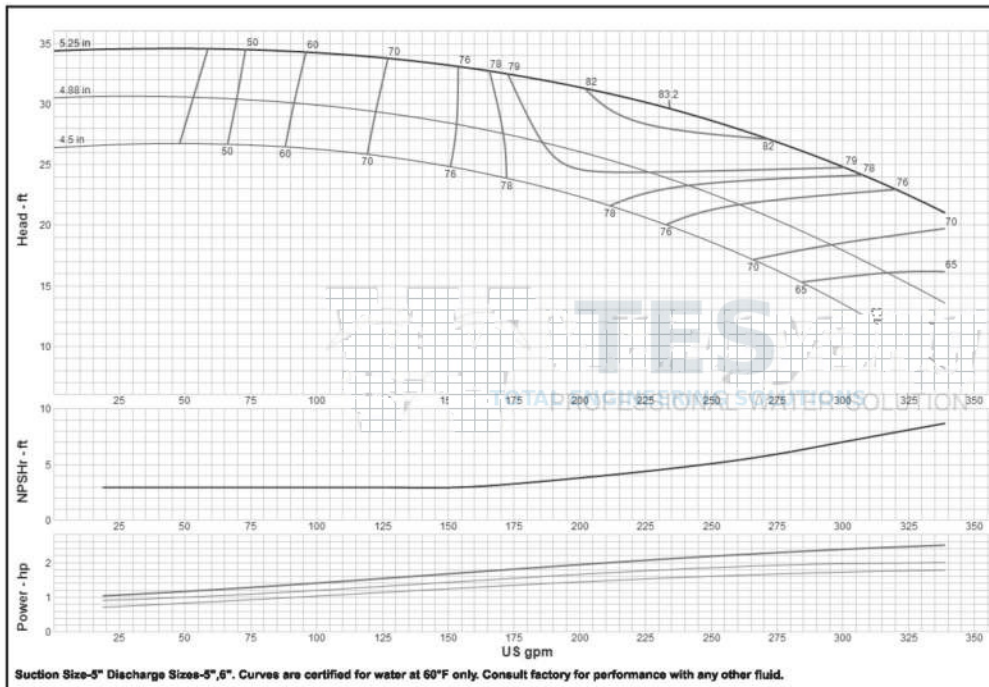
**Bowl Lateral 0.25**

**Max. PSI 420**

**Disch size 3", 4"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:7WYG

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -3 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

Impeller **ENCLOSED**

Ns = **2210**

K = **3.5**

Bowl O. D. 7.13 in

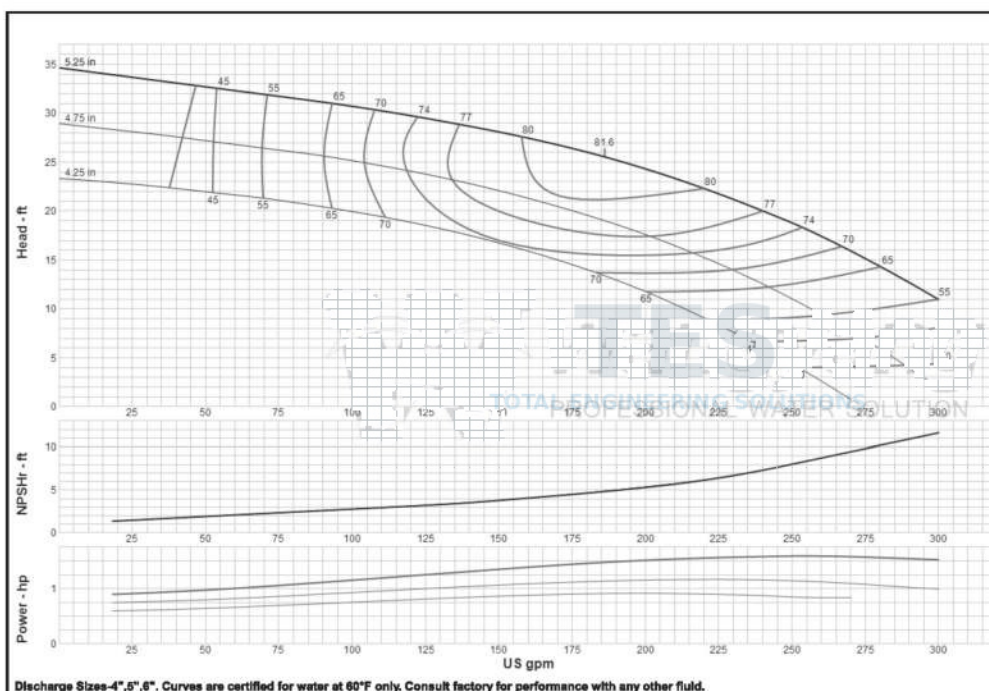
Bowl Lateral 0.5

Max. PSI 415

Disch size 4", 5", 6"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:7WYD

**RPM 1750**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -3 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

Impeller **ENCLOSED**

Ns = **2422**

K = **3.5**

Bowl O. D. 7.13 in

Bowl Lateral 0.5

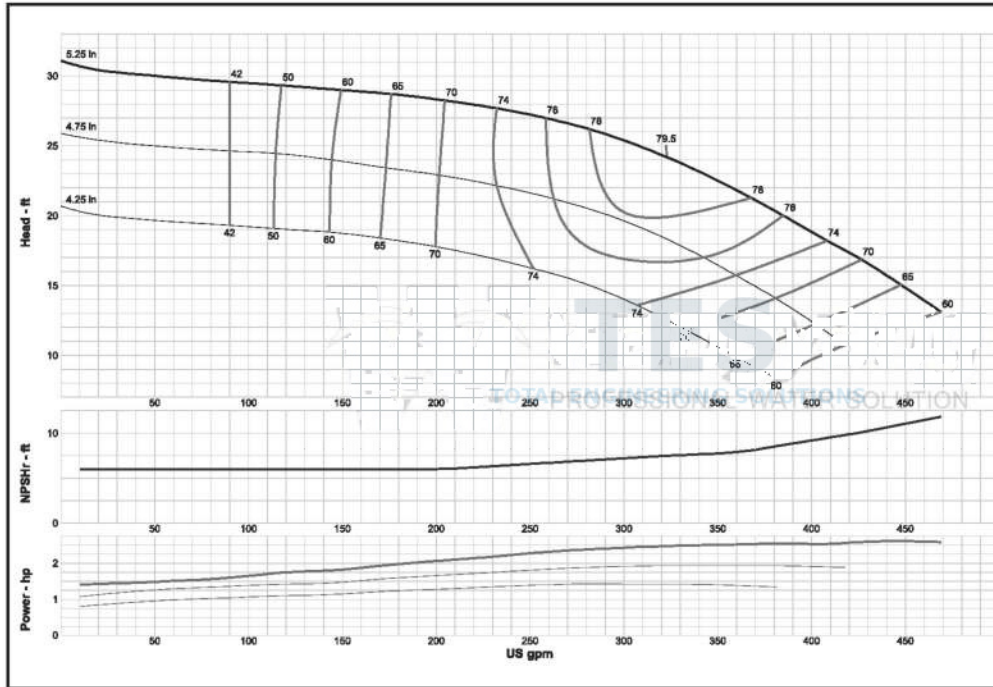
Max. PSI 415

Disch size 4", 5", 6"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:8WYG

**RPM 1760**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 2765**

**K = 4**

**Bowl O. D. 7.50 in**

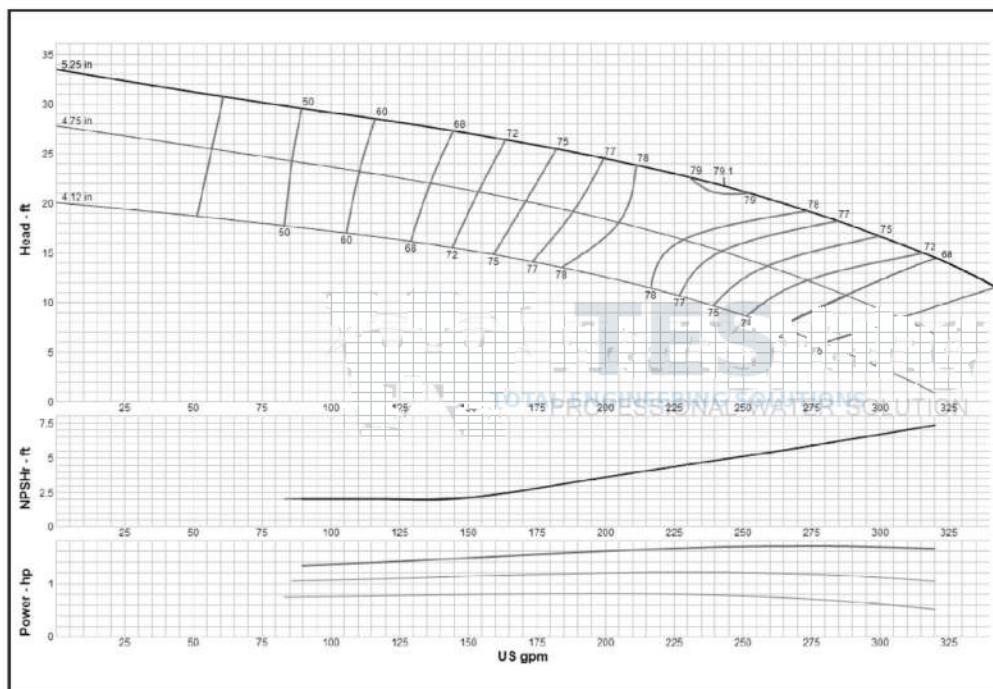
**Bowl Lateral 0.63**

**Max. PSI 425**

**Disch size 4", 5", 6"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:8WYD

**RPM 1760**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 2815**

**K = 4**

**Bowl O. D. 7.50 in**

**Bowl Lateral 0.62**

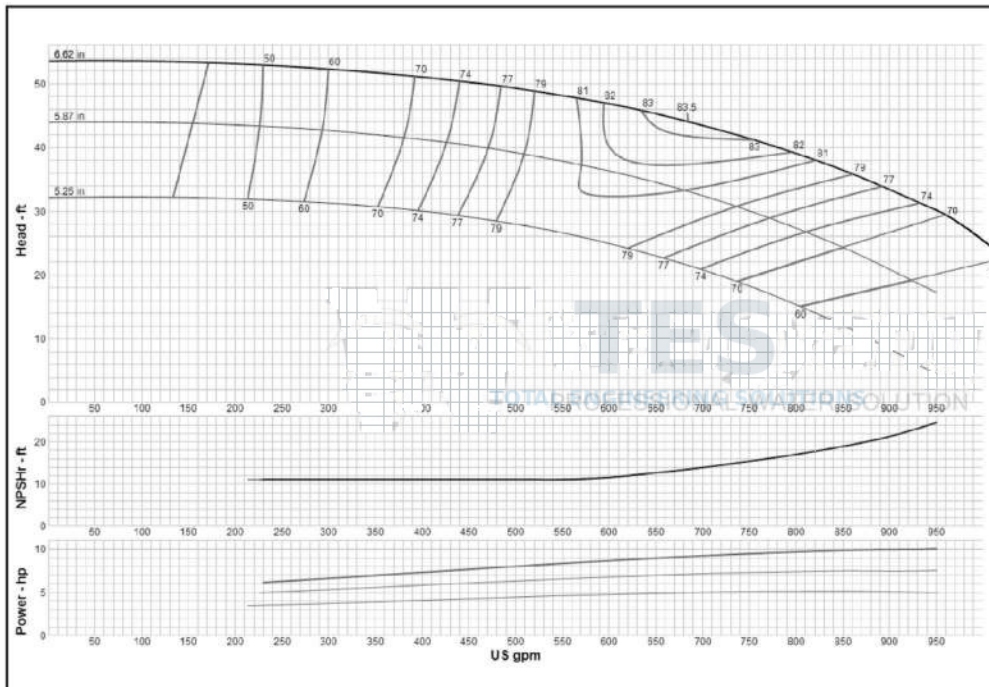
**Max. PSI 425**

**Disch size 4", 5", 6"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:10WYG

**RPM 1760**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 2880**

**K = 7**

**Bowl O. D. 9.50 in**

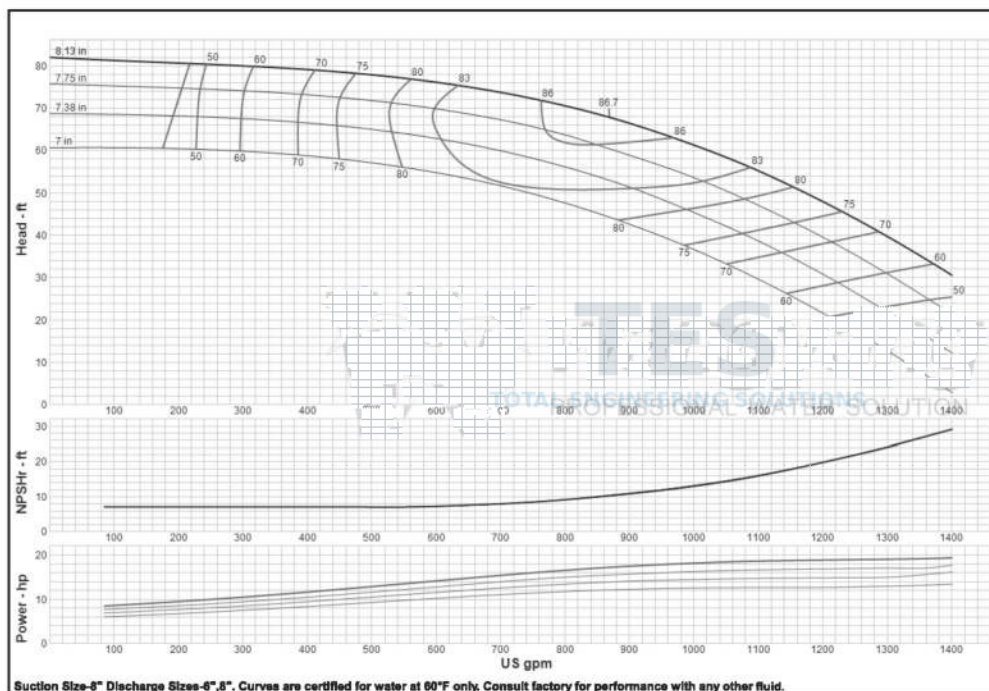
**Bowl Lateral 0.75**

**Max. PSI 430**

**Disch size 6", 8"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:11WYG

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |      |
|---------|------|
| 1-STAGE | -1.5 |
| 2-STAGE | -1   |
| 3-STAGE | -0.5 |
| 4-STAGE | 0    |

**Impeller ENCLOSED**

**Ns = 2130**

**K = 7**

**Bowl O. D. 11.00 in**

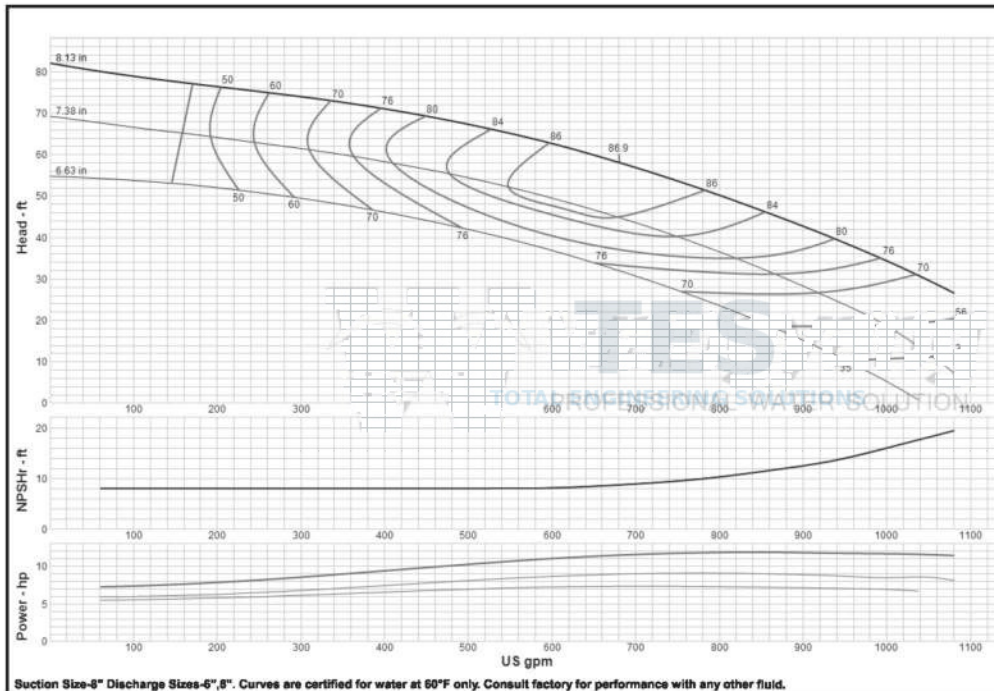
**Bowl Lateral 0.88**

**Max. PSI 380**

**Disch size 6", 8", 10"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:11WYD

**RPM 1770**

EFFICIENCY CORRECTION

|         |      |
|---------|------|
| 1-STAGE | -1.5 |
| 2-STAGE | -1   |
| 3-STAGE | -0.5 |
| 4-STAGE | 0    |

Impeller **ENCLOSED**

Ns = **2230**

K = **7**

Bowl O. D. 11.00 in

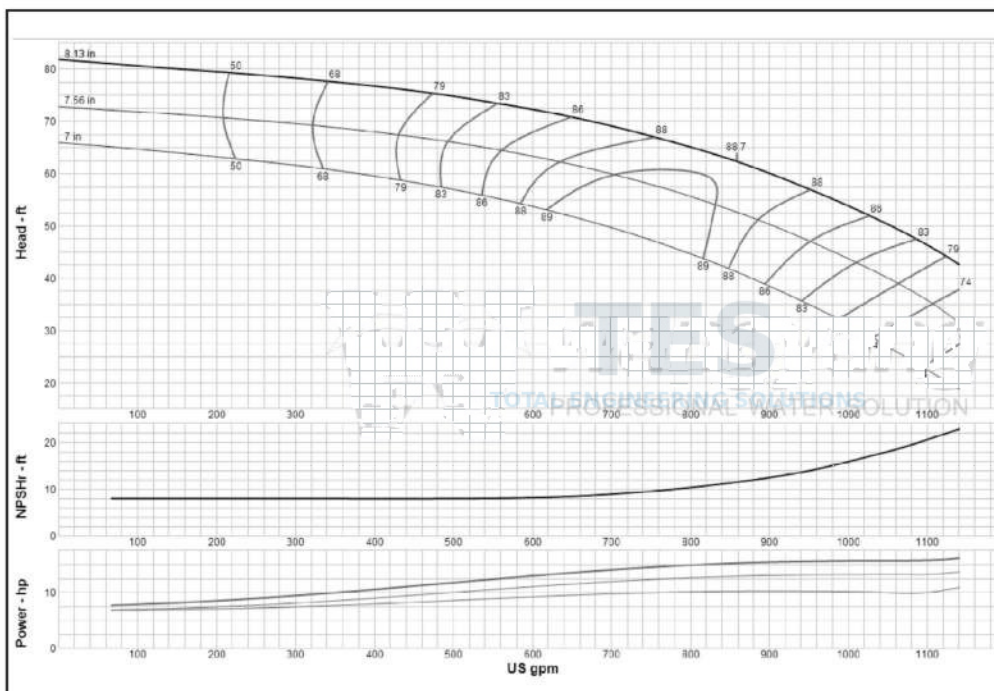
Bowl Lateral 0.88

Max. PSI 380

Disch size 6", 8", 10"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:11WYZ

**RPM 1770**

EFFICIENCY CORRECTION

|         |      |
|---------|------|
| 1-STAGE | -1.5 |
| 2-STAGE | -1   |
| 3-STAGE | -0.5 |
| 4-STAGE | 0    |

Impeller **ENCLOSED**

Ns = **2195**

K = **7**

Bowl O. D. 11.00 in

Bowl Lateral 0.88

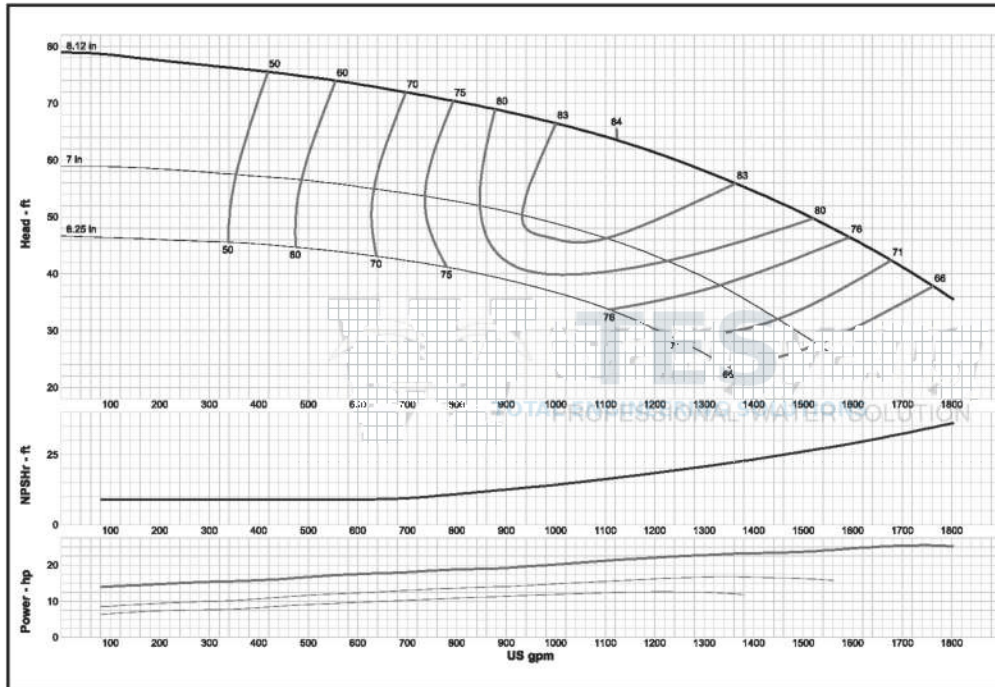
Max. PSI 380

Disch size 6", 8", 10"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:12WYG

**RPM 1760**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 0**

**K = 9.5**

Bowl O. D. 11.60 in

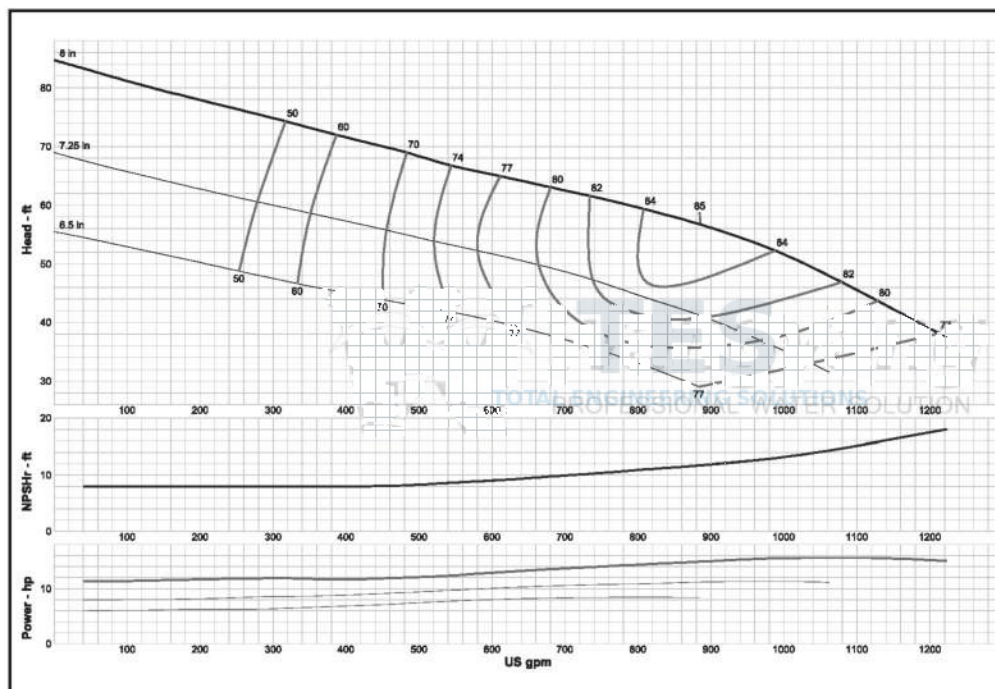
Bowl Lateral 1

Max. PSI 340

Disch size 6", 8", 10"

### TOTAL ENGINEERING SOLUTIONS

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:12WYD

**RPM 1760**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 2580**

**K = 9.5**

Bowl O. D. 11.60 in

Bowl Lateral 1

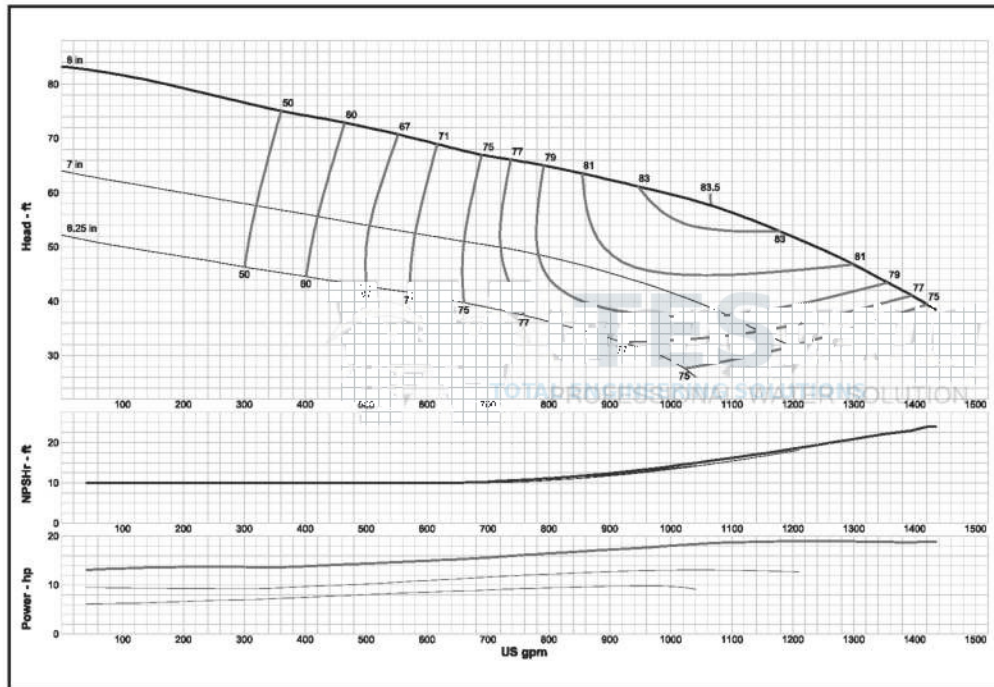
Max. PSI 340

Disch size 6", 8", 10"

### TOTAL ENGINEERING SOLUTIONS

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:12WYZ

**RPM 1760**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 2760**

**K = 9.5**

Bowl O. D. 11.60 in

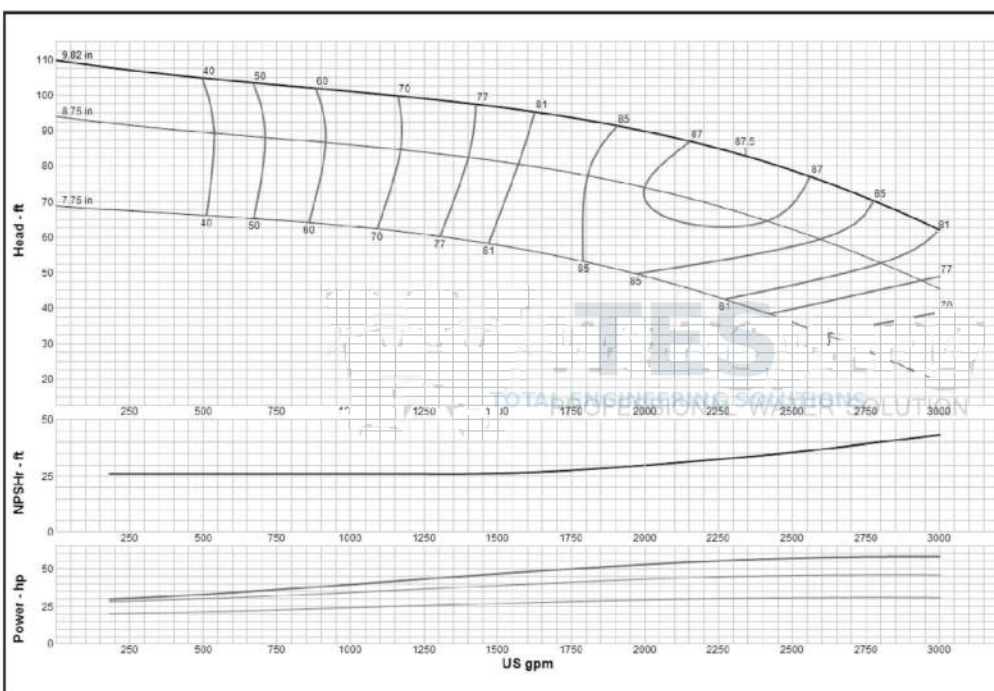
Bowl Lateral 1

Max. PSI 340

Disch size 6", 8", 10"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:14WYG

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |      |
|---------|------|
| 1-STAGE | -1   |
| 2-STAGE | -0.5 |
| 3-STAGE | 0    |
| 4-STAGE | 0    |

**Impeller ENCLOSED**

**Ns = 3032**

**K = 13**

Bowl O. D. 13.63 in

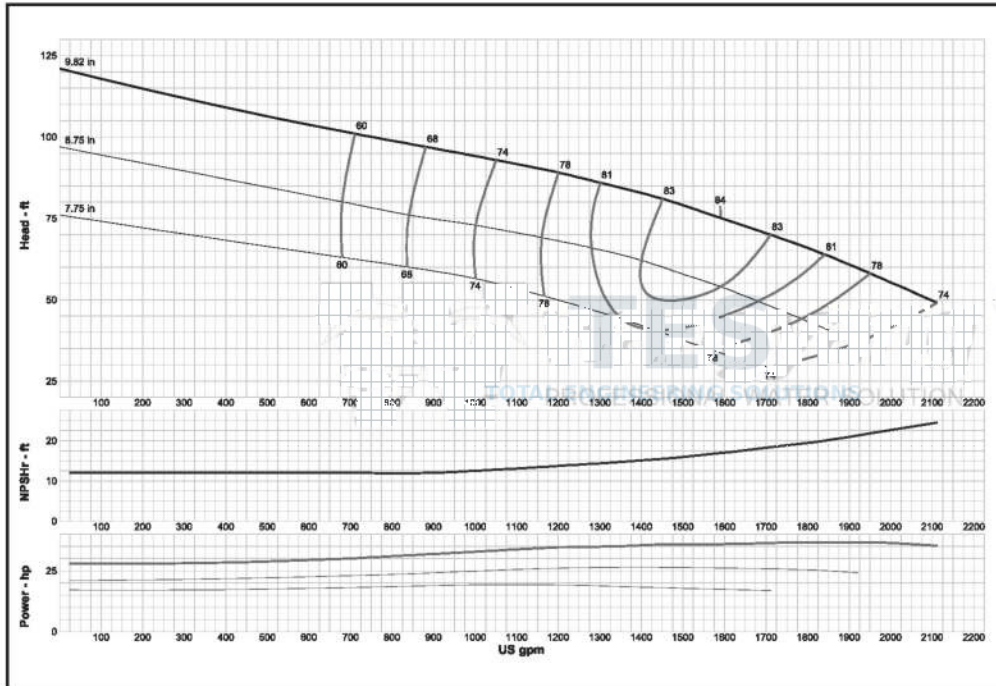
Bowl Lateral 1

Max. PSI 340

Disch size 8", 10", 12"

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:14WYD

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -3 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

**Impeller ENCLOSED**

**Ns = 2750**

**K = 13**

**Bowl O. D. 13.63 in**

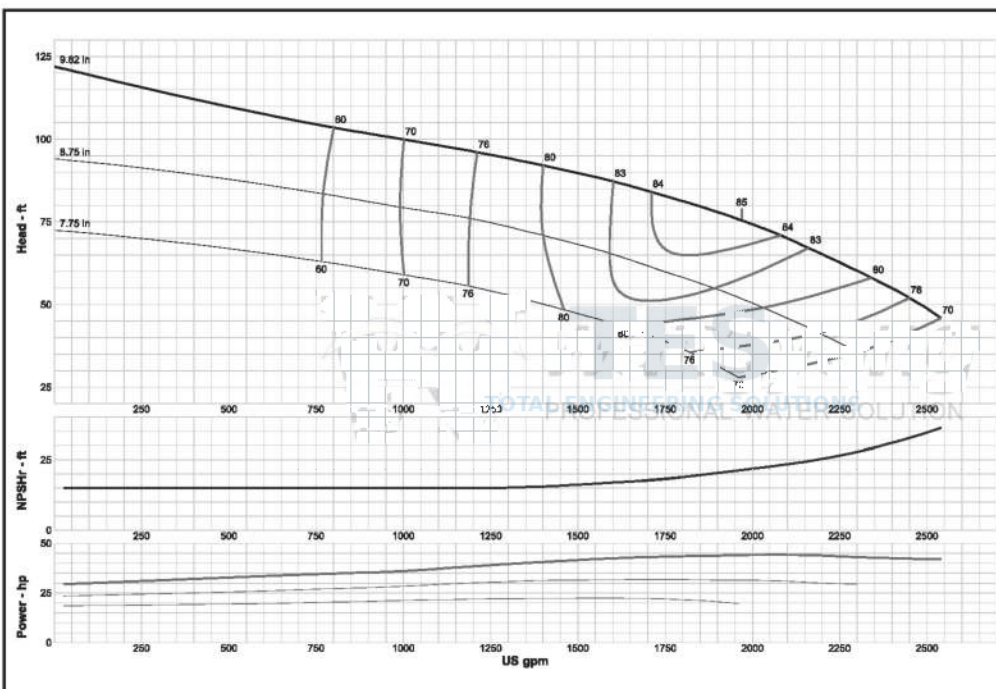
**Bowl Lateral 1**

**Max. PSI 340**

**Disch size 8", 10", 12"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:14WYZ

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -2 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

**Impeller ENCLOSED**

**Ns = 2990**

**K = 13**

**Bowl O. D. 13.63 in**

**Bowl Lateral 1**

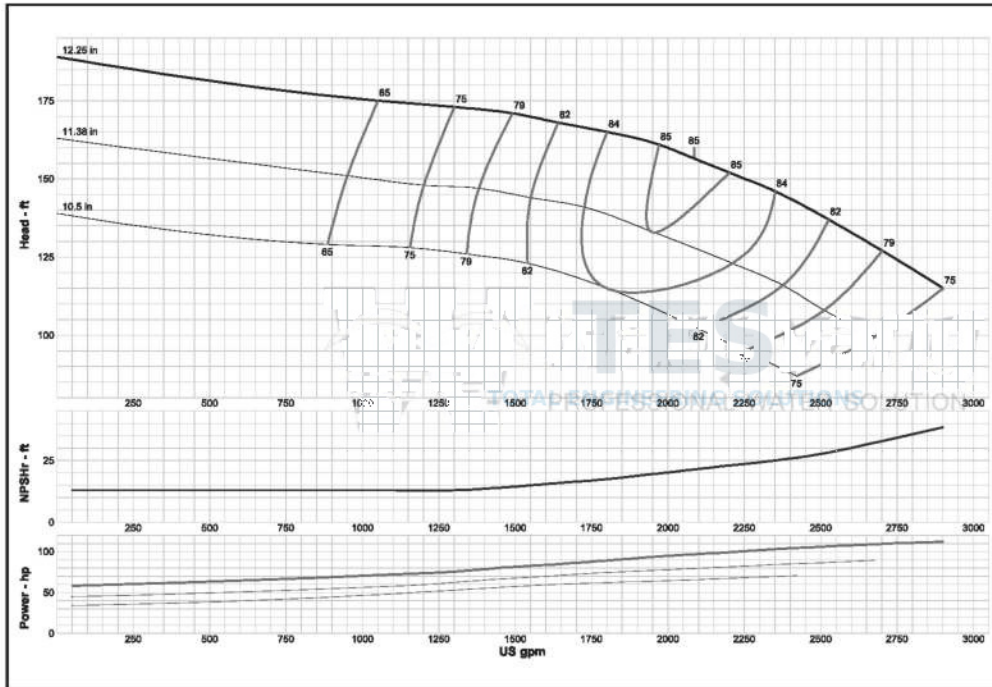
**Max. PSI 340**

**Disch size 8", 10", 12"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:16WYD

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -2 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

**Impeller ENCLOSED**

**Ns = 1825**

**K = 14.1**

**Bowl O. D. 16.13 in**

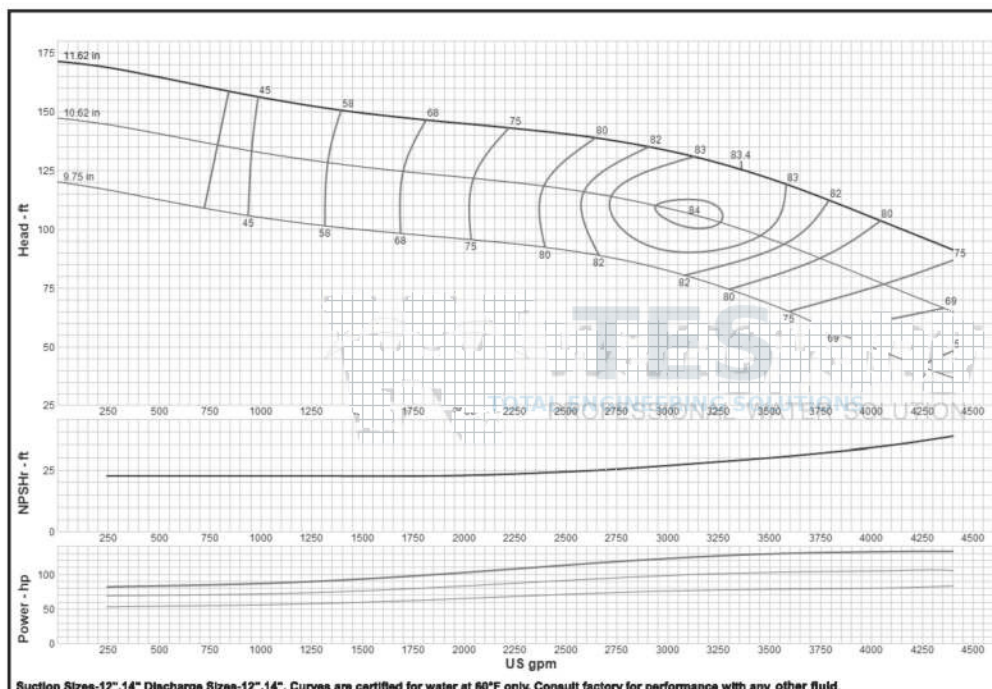
**Bowl Lateral 0.88**

**Max. PSI 322**

**Disch size 8", 10", 12"**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:16WYG

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -1 |
| 2-STAGE | 0  |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

**Impeller ENCLOSED**

**Ns = 2859**

**K = 18**

**Bowl O. D. 15.25 in**

**Bowl Lateral 0.75**

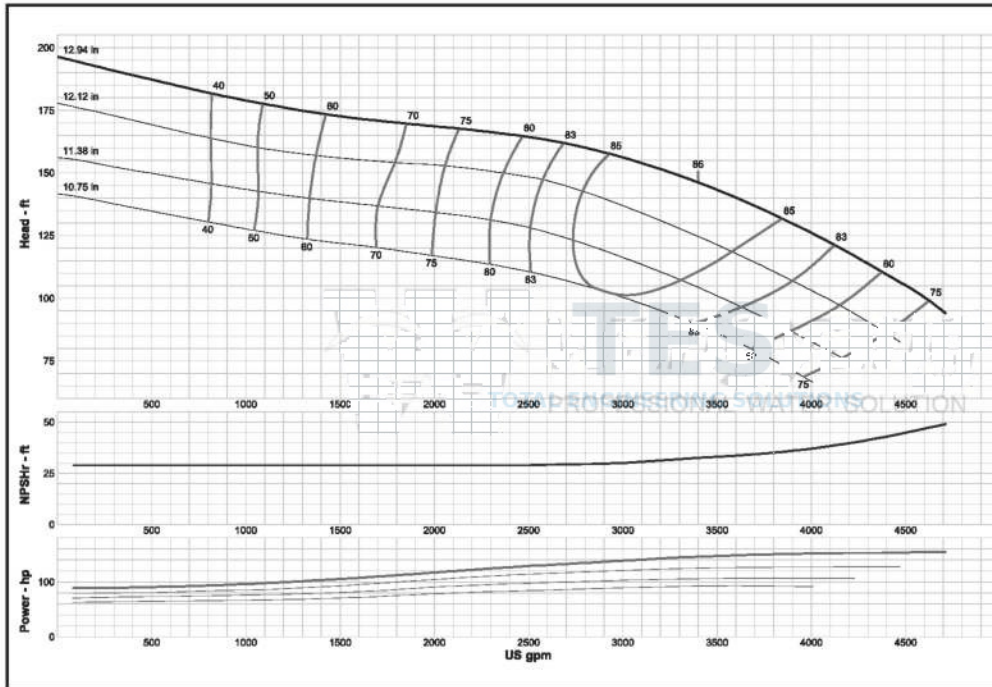
**Max. PSI 335**

**Disch size --**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:18WYD

**RPM 1770**

EFFICIENCY CORRECTION

|         |    |
|---------|----|
| 1-STAGE | -3 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

Impeller **ENCLOSED**

Ns = **2418**

K = **27.5**

Bowl O. D. 17.50 in

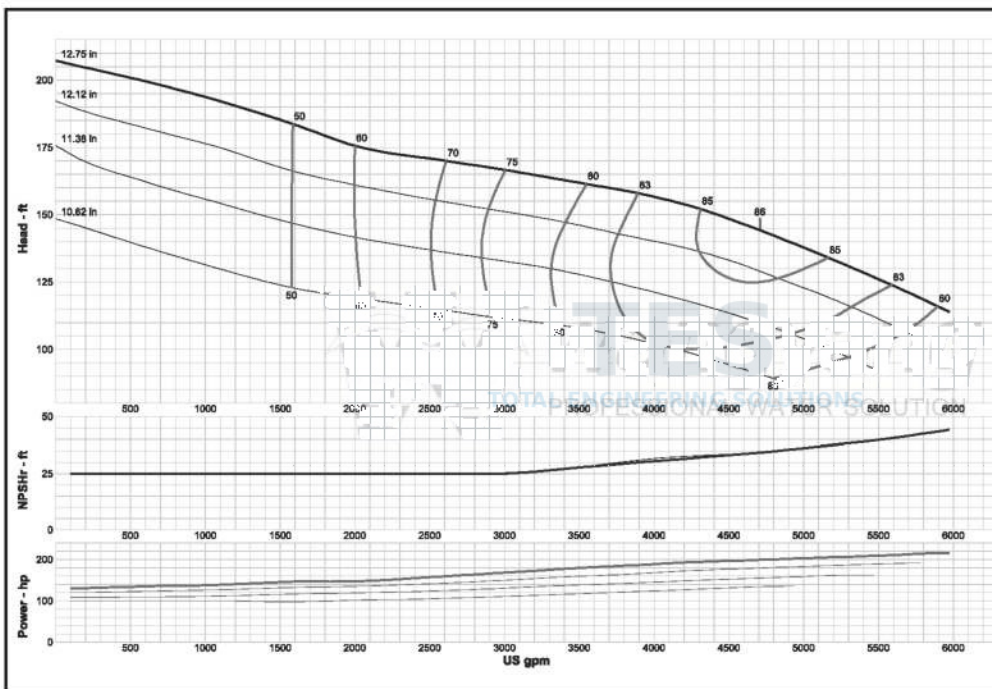
Bowl Lateral 0.75

Max. PSI 348

Disch size --

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:18WYG

**RPM 1770**

EFFICIENCY CORRECTION

|         |      |
|---------|------|
| 1-STAGE | -1.5 |
| 2-STAGE | -1   |
| 3-STAGE | 0    |
| 4-STAGE | 0    |

Impeller **ENCLOSED**

Ns = **2868**

K = **27.5**

Bowl O. D. 17.75 in

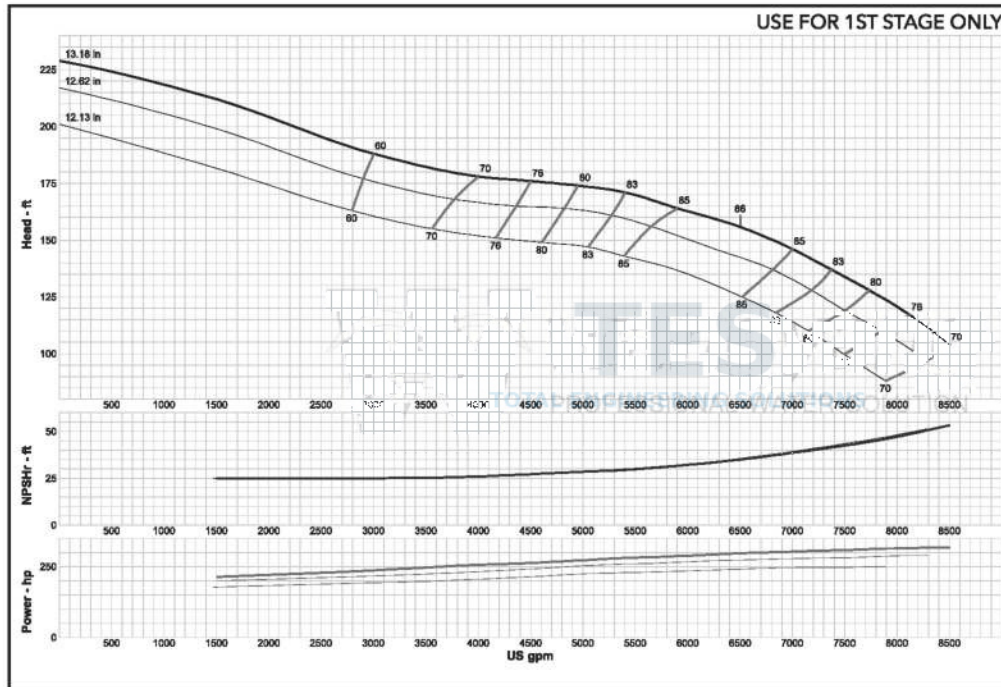
Bowl Lateral 0.75

Max. PSI 310

Disch size --

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:20WYDG

**RPM 1770**

EFFICIENCY CORRECTION

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

Impeller **ENCLOSED**

Ns = **3233**

K = **36**

Bowl O. D. 18.94 in

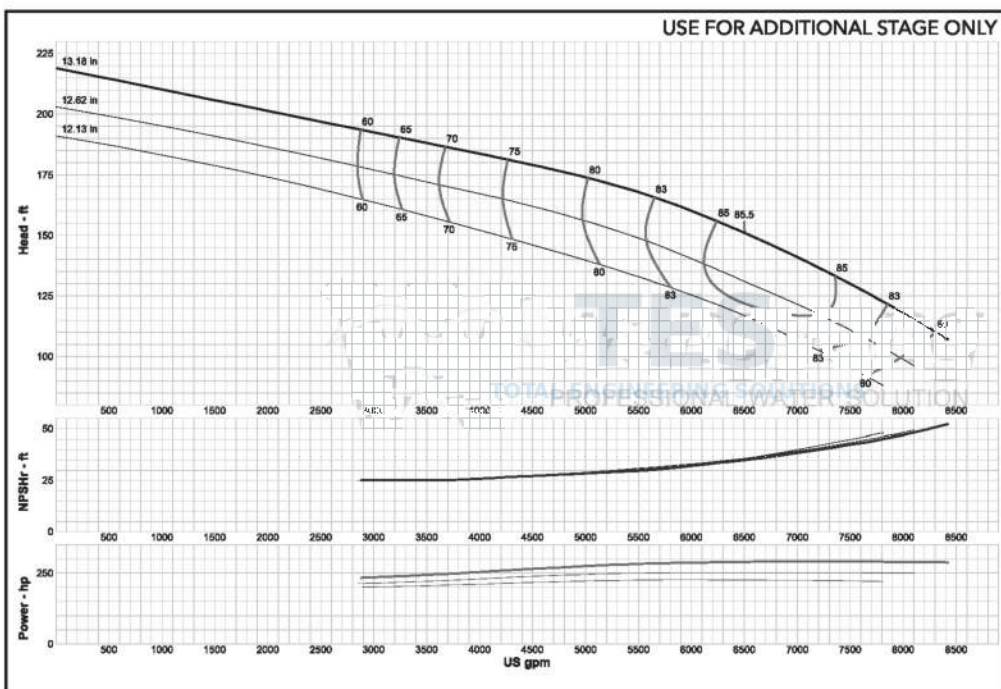
Bowl Lateral 0.88

Max. PSI 310

Disch size --

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:20WYDG

**RPM 1770**

EFFICIENCY CORRECTION

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

Impeller **ENCLOSED**

Ns = **3233**

K = **36**

Bowl O. D. 18.94 in

Bowl Lateral 0.88

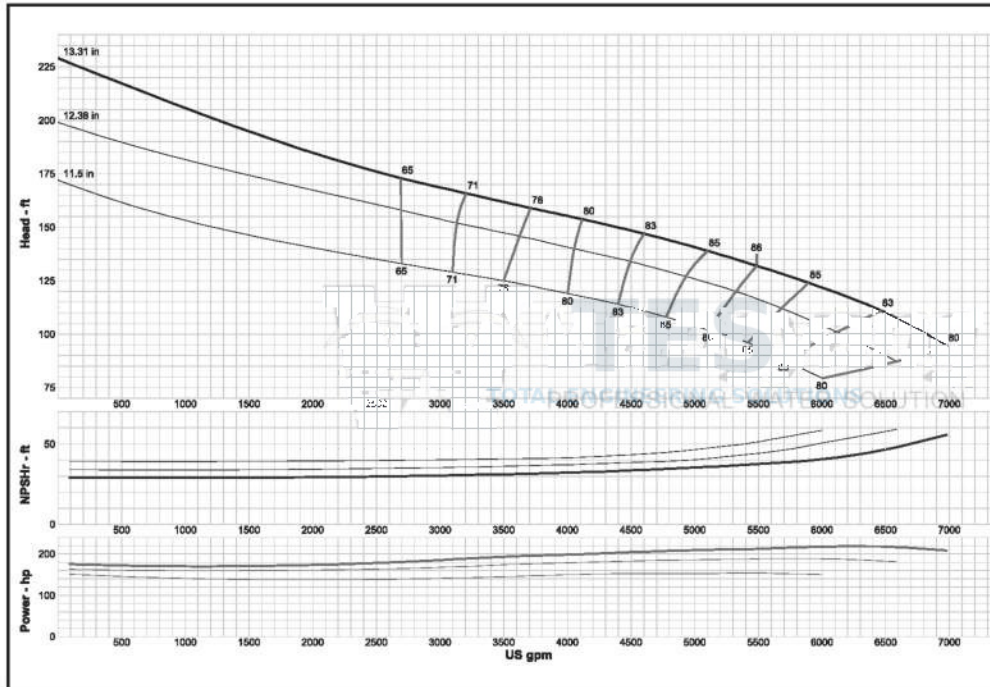
Max. PSI 310

Disch size --

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:20WYDD

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -3 |
| 2-STAGE | -1 |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

**Impeller ENCLOSED**

**Ns = 3371**

**K = 31**

**Bowl O. D. 18.94 in**

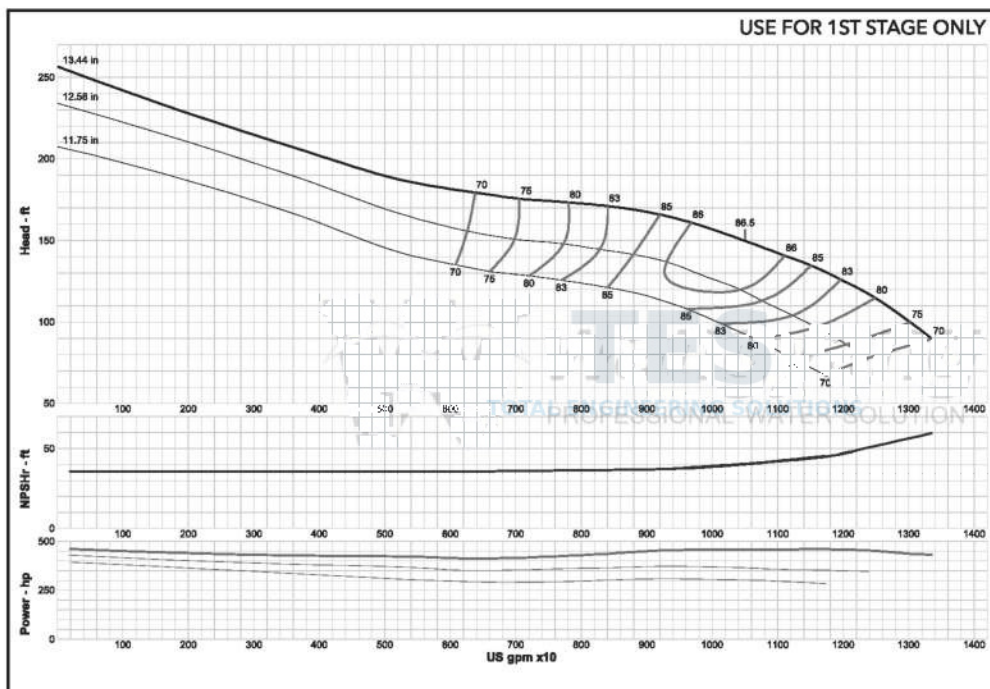
**Bowl Lateral 0.88**

**Max. PSI 310**

**Disch size --**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



## MODEL:20WYXGG

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 4255**

**K = 52**

**Bowl O. D. 20.75 in**

**Bowl Lateral 1.41**

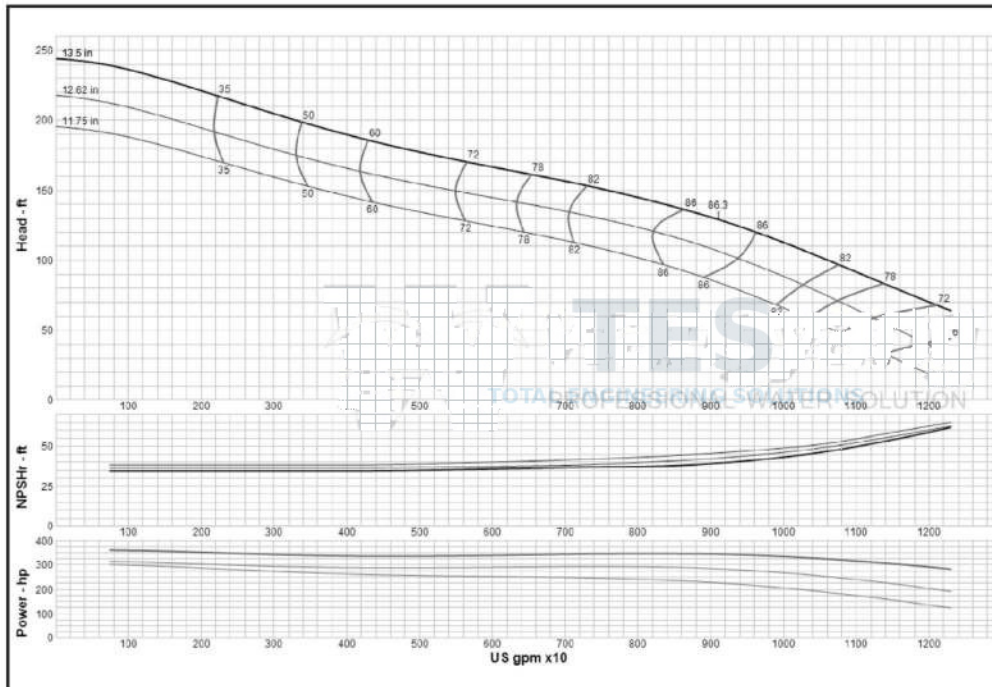
**Max. PSI 300**

**Disch size --**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.





## MODEL:20WYGD

**RPM 1770**

**EFFICIENCY CORRECTION**

|         |    |
|---------|----|
| 1-STAGE | -1 |
| 2-STAGE | 0  |
| 3-STAGE | 0  |
| 4-STAGE | 0  |

**Impeller ENCLOSED**

**Ns = 4807**

**K = 45**

**Bowl O. D. 20.75 in**

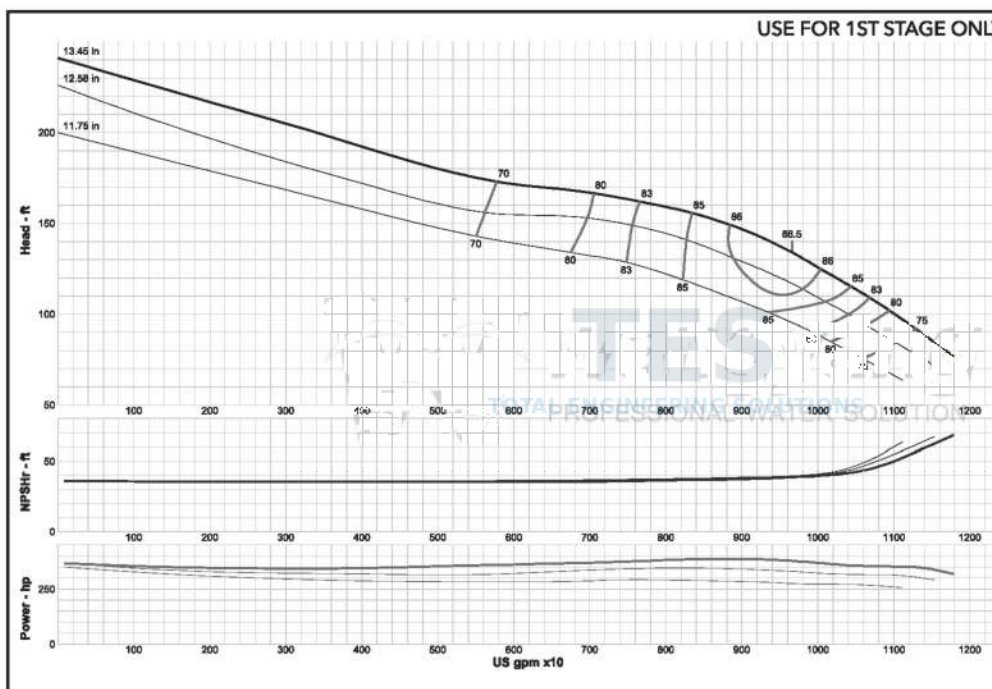
**Bowl Lateral 1.41**

**Max. PSI 270**

**Disch size --**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.



USE FOR 1ST STAGE ONLY

## MODEL:20WYXGD

**RPM 1775**

**EFFICIENCY CORRECTION**

|         |   |
|---------|---|
| 1-STAGE | 0 |
| 2-STAGE | 0 |
| 3-STAGE | 0 |
| 4-STAGE | 0 |

**Impeller ENCLOSED**

**Ns = 4345**

**K = 55.4**

**Bowl O. D. 20.75 in**

**Bowl Lateral 1.41**

**Max. PSI 300**

**Disch size --**

**TOTAL ENGINEERING SOLUTIONS**

BOWL PERFORMANCE CURVE BASED ON PUMPING CLEAR, NON-AERATED WATER. RATED POINT ONLY IS GUARANTEED. CURVES REPRESENT SINGLE STAGE PERFORMANCE BASED ON TEST OF MULTI-STAGE BOWL ASSEMBLY. EFFICIENCY CORRECTION APPLIES TO HEAD, FLOW AND HORSEPOWER FOR LESSER STAGES.

## FROM DUTY POINT TO CERTIFIED CURVE

TES prepares the final 60 Hz pump selection and project-specific performance submittal after confirming the required operating conditions with the customer.

**FLOW****Up to 20,000 GPM****HEAD****Up to 2,000 ft****POWER****Up to 2,600 HP****BOWL SIZE****6 to 28 in****PRESSURE****Up to 1,500 psi****FREQUENCY****60 Hz U.S. selection**

## INFORMATION REQUIRED FOR SELECTION

- Design flow and total dynamic head
- Liquid, temperature and water analysis
- Sump or well geometry and minimum water level
- Driver preference, voltage and speed
- Materials, coating and applicable project standards

### PROJECT-SPECIFIC TECHNICAL SUBMITTAL

Detailed certified 60 Hz performance curves will be submitted after confirmation of the required duty point and final pump configuration.



**Total  
Engineering  
Solutions**

## **ENGINEERED ACCESS TO VERTICAL TURBINE PUMP SOLUTIONS**

U.S. market coordination through TES.

**Manufactured in Saudi Arabia.**

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Technical selections, materials and performance are subject to final quotation and approved submittals.

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