# PUMPS FOR INDUSTRY

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© 2004 Vertiflo Pump Company   Printed in The USA
Series 1400 Models 1420/1424
Quality Design Features Assure Long, Trouble-Free Service

WIDE RANGE OF APPLICATIONS:
- Industrial Process
- Pollution Control
- General Pumping
- Spray Systems
- Deionized Water
- Waste Water
- Clear Liquids
- Corrosive Liquids
- Chemicals
- Acids
- Water

CAPABILITIES
- Capacities to 1800 GPM
- Heads To 275 Feet TDH
- Temperature to 250˚ F
- Back Pull-Out Construction
- Semi-Open Impeller
- External Impeller Adjustment
- Packing or Mechanical Seal

CONSTRUCTION:
- Cast Iron
- 316 Stainless Steel Fitted
- All 316 Stainless Steel
- Alloy 20CD4MC$_u$

Series 1400 horizontal base-mounted end suction pumps are designed for use with any T or U frame motor, or with virtually any type of drive. VERTIFLO’s base-mounted pumps are designed with back pull-out feature. This important feature allows for easy inspection or service/maintenance (if ever needed) without disturbing the piping to the pump: an important cost saving feature.

Packing or various mechanical seal arrangements are available as standard options of this rugged, dependable product.
1. Power Frame
Rugged heavy duty cast iron design incorporating integrally cast support and ribbed mounting feet which assure a solid, dependable pump installation and operation. One frame fits all pump sizes. External impeller adjustment is standard. Grease lubrication of bearings is standard; oil lubrication available.

2. Bearings
Series 1400 contains a high capacity cartridge-mounted double row thrust bearing allowing use on high suction pressure applications. Radial bearing is single row or double row and floats in a precision bored housing.

3. Shaft
416 stainless steel, precision machined with preferred taper at impeller location. Positive attachment is provided with castellated impeller nut and cotter pin, which assures that the impeller will not back off the shaft if the pump is accidentally operated in reverse rotation. 316 stainless steel shaft is optional.

4. Shaft Sealing
Packed arrangement utilizes a 2-piece split gland, slinger, Teflon® split lantern ring and 5-ring packing set. Grease lubrication is standard with product or water flush available. Wide choice of John Crane and Durametallic mechanical seals of various configurations and materials are optional.

5. Impeller
Semi-open design which accommodates passage of solids or fines. All impellers have balance holes near the impeller hub which reduce thrust load and pressure in the packing or seal area. Wiping vanes reduce axial loading and prevent dirt from entering the sealing area. Impeller is keyed to shaft with a positive taper fit to assure perfect attachment.

6. Impeller Adjustment
Every power frame contains an external impeller adjustment utilizing jackscrews which provides for clearance adjustment between the impeller vanes' face and casing. This adjustment feature compensates for internal wear. Expensive casing and impeller wearing rings are eliminated.

7. Casing
High efficiency volute design. 4X3X10 and larger sizes are double volute, containing a splitter, which reduces bearing loading and shaft deflection; thus extending bearing and packing or mechanical seal life. All suction and discharge openings are flanged for installation ease and integrity.

8. Back Pull-Out
All pumps* are designed with back pull-out feature which allows for removal of all pump rotating components without disturbing the piping connections. *except size 2X1 1/2X12
**Standard**
- All iron construction
- 416 stainless steel shaft
- Semi-open impeller
- Back pull-out design
- Packed stuffing box or mechanical seal
- External impeller adjustment
- Heavy duty power frame
- Regreaseable ball bearings
- Flanged suction and discharge on all sizes
- Flexible coupling
- Steel mounting base

**Options**
- 316 stainless steel shaft
- 316 stainless steel impeller
- All 316 stainless steel, alloy 20 or hastelloy construction (all wetted parts)
- Teflon® packing (standard in s.s. and alloy units)
- Single or double mechanical seal (various materials)
- Product or fresh water flush to packing or mechanical seal
- Oil lubricated bearings with sight level indicator
- Coupling guard (recommended)
- ODP, TEFC, XP motors
- Steam turbine drive
- Diesel or gasoline engine drive

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**Design Details**

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Model 1434 horizontal base-mounted end suction pumps are designed for use with any T or U frame motor, or with virtually any type of drive. VERTIFLO’s base-mounted pumps are designed with back pull-out feature. This important feature allows for easy inspection or service/maintenance (if ever needed) without disturbing the piping to the pump: an important cost saving feature. Packing or various mechanical seal arrangements are available as standard options of this rugged, dependable product.
John Crane Type 31 Series Labri-Seal Bearing Protectors

A. Outer ring O-rings when space permits
B. Stationary outer ring
C. Inward projecting PTFE “fingers”
D. Moving/free-floating inner ring
E. Shaft-side inner ring O-rings
F. Outward projecting stainless steel “fingers”

- Exclusive “finger-locking” design traps and blocks oil leakage.
- Stationary outer ring projects special PTFE composition “fingers” inward. They mesh perfectly with outward projecting steel “fingers” of moving/free floating inner ring. The flexible labyrinth blocks bearing oil. Leakage is virtually zero. Drag is virtually zero.
- Contamination threats from outside are blocked, too.

VERTIFLO Feature Selector

Standard
- All iron construction
- 416 stainless steel shaft
- Semi-open impeller
- 316 stainless steel shaft sleeve
- Back pull-out design
- Packed stuffing box or mechanical seal
- External impeller adjustment
- Heavy duty power frame
- Regreasable ball bearings
- Flanged suction and discharge on all sizes
- Dual volute casing 6x4x12 and larger

Options
- Labri-seal bearing protectors
- 316 stainless steel shaft
- 316 stainless steel impeller
- All 316 stainless steel or alloy 20 construction (all wetted parts)
- Teflon® packing (standard in s.s. and alloy units)
- Single or double mechanical seal (various materials)
- Product or fresh water flush to packing or mechanical seal
- Oil lubricated bearings with sight level indicator
- Coupling guard (recommended)
- ODP, TEFC, XP motors
- Flexible coupling
- Steel mounting base
- Cartridge mechanical seal

E.I DuPont registered®

Design Details

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1. Power Frame
Rugged heavy duty cast iron design incorporating integrally cast support and ribbed mounting feet which assure a solid, dependable pump installation and operation. One frame fits all pump sizes. External impeller adjustment is standard. Grease lubrication of bearings is standard; oil lubrication available.

2. Bearings
Model 1434 contain a high capacity cartridge-mounted double row thrust bearing allowing use on high suction pressure applications. Radial bearing is double row and floats in a precision bored housing.

3. Shaft and Shaft Sleeve
A 416 stainless steel shaft is standard with a 316 stainless steel shaft sleeve. A 316 stainless steel shaft is optional.

4. Shaft Sealing
Packed arrangement utilizes a 2-piece split gland, slinger, Teflon® split lantern ring and 5-ring packing set. Grease lubrication is standard with product or water flush available. Wide choice of John Crane and Durametallic mechanical seals of various configurations and materials. Oversized seal housing is ready to adapt for cartridge-type mechanical seal.

5. Impeller
Semi-open design which accommodates passage of solids or fines. All impellers have balance holes near the impeller hub which reduce thrust load and pressure in the packing or seal area. All impellers have a balancing ring. Impeller is keyed to shaft.

6. Impeller Adjustment
Power frame contains an external impeller adjustment which provides for clearance adjustment between the impeller vanes’ face and casing. This adjustment feature compensates for internal wear. Expensive casing and impeller wearing rings are eliminated.

7. Casing
High efficiency volute design. Sizes, 6 x 4 x 12 and larger, are double volute, containing a splitter, which reduces bearing loading and shaft deflection; thus extending bearing and packing or mechanical seal life. All suction and discharge openings are flanged for installation ease and integrity.

8. Back Pull-Out
All pumps are designed with back pull-out feature which allows for removal of all pump rotating components without disturbing the piping connections.
PUMP COMPANY Performance Curves

Curve 64124

Model 1434
Size 6 X 4 X 12
RPM 1750
Max Sphere 1 1/2

Curve 64126

Model 1434
Size 6 X 4 X 12
RPM 1150
Max Sphere 1 1/2

Performance at Casing Discharge Flange
Curves Show Performance with Liquid Having Specific Gravity 1.0 Viscosity • 30 SSU

CUSTOMER ____________________________________________________ CUSTOMER NO. __________
PROJECT ______________________________________________________________________________
ENGINEER ______________________________________________________________________________
CONTRACTOR ___________________________________________________________________________

CONDITIONS: _____ GPM _____ TDH _____ HP _____ EFF% _____ IMP. DIA _______
Performance at Casing Discharge Flange
Curves Show Performance with Liquid Having Specific Gravity 1.0 Viscosity • 30 SSU
CUSTOMER ____________________________________________________ CUSTOMER NO. __________
PROJECT ______________________________________________________________________________
ENGINEER ______________________________________________________________________________
CONTRACTOR ___________________________________________________________________________
CONDITIONS:______GPM_________TDH_________HP__________EFF%__________IMP. DIA _________

Series 1400 Centrifugal End Suction Pumps - 9
Performance at Casing Discharge Flange
Curves Show Performance with Liquid Having Specific Gravity 1.0 Viscosity • 30 SSU
CUSTOMER ____________________________________________________ CUSTOMER NO. __________
PROJECT ______________________________________________________________________________
ENGINEER ______________________________________________________________________________
CONTRACTOR ___________________________________________________________________________
CONDITIONS:______GPM_________TDH_________HP__________EFF%__________IMP. DIA __________
Performance at Casing Discharge Flange
Curves Show Performance with Liquid Having Specific Gravity 1.0 Viscosity • 30 SSU

CUSTOMER ____________________________________________________ CUSTOMER NO. __________
PROJECT ______________________________________________________________________________
ENGINEER ______________________________________________________________________________
CONTRACTOR ___________________________________________________________________________
CONDITIONS:______GPM_________TDH_________HP__________EFF%__________IMP. DIA __________
PUMP COMPANY Performance Curves

Curve 101012

- Model: 1434
- Size: 10 X 10 X 12
- RPM: 1150
- Max Sphere: 1 5/8

Performance at Casing Discharge Flange
Curves Show Performance with Liquid Having Specific Gravity 1.0 Viscosity • 30 SSU

CUSTOMER ____________________________________________________ CUSTOMER NO. __________
PROJECT ______________________________________________________________________________
ENGINEER ______________________________________________________________________________
CONTRACTOR ___________________________________________________________________________
CONDITIONS: _______GPM_________TDH_________HP__________EFF%__________IMP. DIA _________
1400 Series - Base-Mounted
Models 1420/1424

Not for construction unless certified, some dimensions may vary ± 1/2". Pump Construction:

CUSTOMER__________________________________________CUSTOMER NO._____________________
PROJECT____________________________________________SERIAL NO.________________________
ENGINEER___________________________________________LOCATION_________________________
CONTRACTOR_____________________________________________________________________________

PUMP Model Size Curve No. GPM Head SP. GR.@Temp.
DATA ______   _________ ___________ _____ _____ _________________

MOTOR Mfgr. HP RPM Volt-Phase-Cycle Frame ENC. Furnished by Mounted by
DATA ___________ _____ ______ __________________ _____ _____ ____________ ________ ______

Shop Order_____________________Certified by_____________________Date_____________________

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Date: September 1, 1985
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1400 Series - Pump Only
Models 1420/1424

Not for construction unless certified, some dimensions may vary ± 1/2". Pump Construction:

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<th>Frame</th>
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Series 1400 Centrifugal End Suction Pumps - 15
### Series 1400 Centrifugal End Suction Pumps - 16

#### PUMP COMPANY

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Performance at Casing Discharge Flange
Curves Show Performance with Liquid Having Specific Gravity 1.0 Viscosity • 30 SSU

CUSTOMER ____________________________________________________ CUSTOMER NO. __________
PROJECT ______________________________________________________________________________
ENGINEER ______________________________________________________________________________
CONTRACTOR ___________________________________________________________________________
CONDITIONS: GPM ___________ TDH ___________ HP ___________ EFF% ___________ IMP. DIA ___________

Series 1400 Centrifugal End Suction Pumps - 16
Model 1434 - Pump Only

Not for construction unless certified, some dimensions may vary ± 1/2". Pump Construction:

CUSTOMER__________________________________________CUSTOMER NO._____________________
PROJECT____________________________________________SERIAL NO.________________________
ENGINEER___________________________________________LOCATION_________________________
CONTRACTOR______________________________________________________________________________

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<tr>
<th>PUMP</th>
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Series 1400 Centrifugal End Suction Pumps - 17
Model 1400LF
Quality Design Features Assure Long, Trouble-Free Service

WIDE RANGE OF APPLICATIONS:
- Boiler Feed
- Condensate
- Chemical Process
- Washdown
- Spray Washers

CAPABILITIES
- Capacities to 50 GPM
- Heads To 345 Feet TDH
- Temperature to 250˚ F
- Back Pull-Out Construction
- Radial Vane Impeller
- External Impeller Adjustment
- Packing or Mechanical Seal

CONSTRUCTION:
- Ductile Iron
- Bronze Fitted
- 316 Stainless Steel Fitted
- All 316 Stainless Steel

Series 1400 horizontal base-mounted end suction pumps are designed for use with any T or U frame motor, or with virtually any type of drive. VERTIFLO's base-mounted pumps are designed with back pull-out feature. This important feature allows for easy inspection or service/maintenance (if ever needed) without disturbing the piping to the pump: an important cost saving feature. Packing or various mechanical seal arrangements are available as standard options of this rugged, dependable product.

Also available as vertical wet pit pump
1400LF Dimensions

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1400LF Performance Curve

![Performance Curve Graph](image-url)