WET PIT COLUMN PUMPS
FOR LOW TO MEDIUM HEADS

With more than 120 years of pump design and manufacturing experience, ITT A-C Pump is able to provide the most efficient and reliable pumps in the world.

APPLICATIONS:

- Circulating water
- Service water
- Make-up water
- Water supply
- Process cooling
- Flood Control
- Wastewater

VERTICAL WET-PIT MIXED FLOW COLUMN PUMPS
SEMI-OPEN IMPELLER DESIGN
TYPES: WCAX, YDD, WCA, WCB

A-C Pump

ITT Industries
Engineered for life

ITT A-C PUMP WET PIT COLUMN PUMPS ARE DESIGNED FOR LONG LIFE AND RELIABILITY

STANDARD ITT A-C PUMP DESIGN FEATURES:

IMPELLER — is of the single suction, mixed flow, semi-open type. Vanes are formed by accurately set cores thus assuring even thicknesses and vane spacing for the impeller casting. The accurately cast impellers assure geometrical similarity to the pump model impeller thus assuring accurate prototype performance. WCB impellers are also available in an enclosed design to eliminate vane tip deflection for higher head applications.
Numerous sets of impellers with varying performance characteristics for use in the 4 semi-open impeller pump models allows ITT A-C Pump to tailor fit the pump to meet the specific requirements of your application.

IMPELLER CONE — is a separately cast component thus permitting economical renewal of impeller design clearances. The impeller cone is constructed of al-bronze or stainless steel alloys which prolong the wear life and reduce downtime.

DIFFUSER — is a carefully cast component designed with smooth, curved vanes which straighten the flow off the impeller to regain the velocity head. The rugged cast construction minimizes pump vibration.

SUCTION BELL — is a separately cast component designed to provide a smooth flow approach to the impeller eye with minimized turbulence. The suction bell does not require guide vanes or bearing supports which tend to obstruct the flow approach to the impeller and reduce efficiency. For larger pumps, fabricated suction bells are also available.

COLUMN AND DISCHARGE ELBOW — can be either cast or fabricated. The discharge elbow can be arranged for either above or below floor discharge as required for the specific application. The column pipe is made in sections to provide for intermediate guide bearings as required.

DRIVER PEDESTAL — is fabricated to accommodate either motor or right angle gear drives. Substantial openings are provided for easy access to the adjustable coupling and stuffing box.

SHAFT — transmits maximum required power at well below the pump's first critical speed. Stringent runout and straightness requirements help assure smooth pump operation and prolonged service life.

SHAFT SLEEVES — are provided at all bearing locations and at the stuffing box to protect the shaft. The hardened alloy sleeves extend service life and are designed for easy replacement.

Vertical Wet Pit Column Pumps offer valuable floor savings since the driver is mounted directly above the pump.

BEARINGS — upper and lower steady bearings are rigidly mounted from the top of the pump and diffuser. When required, as determined by a critical speed and mechanical design analysis, intermediate bearings are provided and are supported from the diffuser or bearing spiders fitted to the column pipe. Bearings are available in fluted rubber or elastomeric bearing designs. Bearings are designed for water lubrication which can be supplied from a separate clean water source or piped off of the pump discharge.

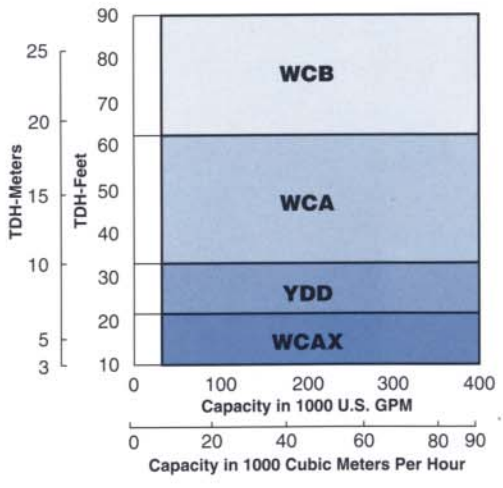
INTERMEDIATE COUPLING — (when required) is of solid sleeve construction which provides a rigid transmission of power and torque through the shafts. The coupling is positively driven via coupling keys and transmits thrust loads via the split thrust ring design.

RIGID ADJUSTABLE DRIVE COUPLING — transmits the torque, hydraulic thrust, and pump rotating weight to the driver via coupling keys and the split thrust ring design. It also provides the clearance adjustment between the impeller and impeller cone.

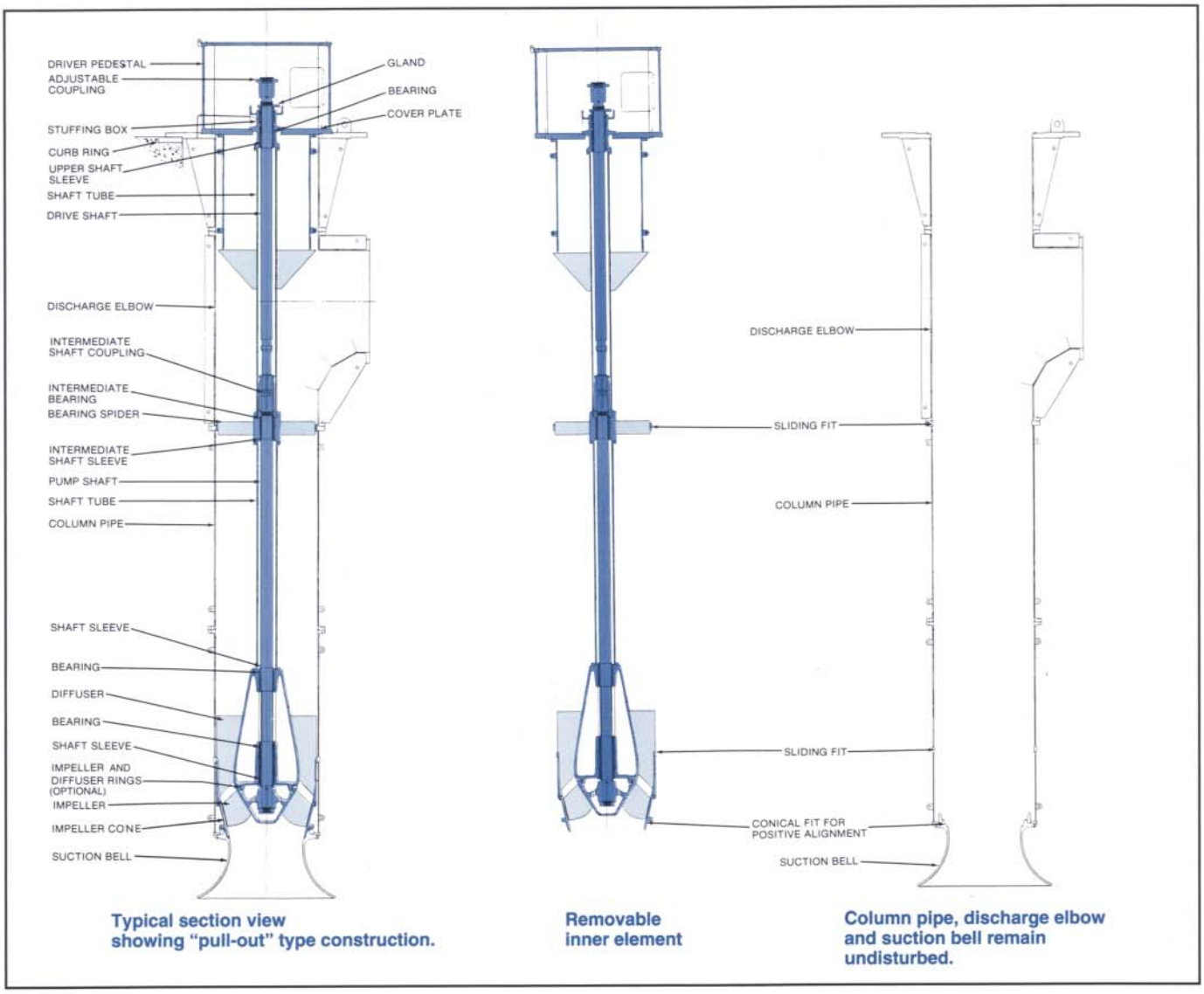
SHAFT TUBE — protects the shaft from the pump fluid and provides a passage for the bearing lubrication. One end of the shaft tube is provided with an o-ring sliding fit to allow for thermal expansion and for ease of disassembly and reinstallation.

STUFFING BOX — is packed with graphite impregnated teflon material which reduces resistance, and prolongs shaft sleeve life. An easily accessible split gland simplifies packing adjustment and replacement.

RANGE CHART



"PULL-OUT" WEARING PARTS — AN IMPORTANT COST-REDUCING OPTION



Typical section view showing "pull-out" type construction.

Removable inner element

Column pipe, discharge elbow and suction bell remain undisturbed.

Available as an option on all ITT A-C Pump wet-pit column pumps, the "pull-out" design substantially reduces maintenance and downtime costs by allowing removal of the inner element without disturbing the suction bell, column, discharge elbow, or discharge piping. Column size for a given capacity is not affected by the "pull-out" design and there is no sacrifice in pumping performance. The sliding and conical fits assure proper alignment upon reassembly. The inner element is completely removable from the top of the pump thus eliminating the need to drain or enter the sump during maintenance. When time comes to restore system efficiency, simply replace the wear parts and your pump is ready to log years more service.

ITT A-C Pump strongly recommends the "pull-out" option on all installations since downtime for planned inspection and service outages can be significantly reduced.

A rotating element being installed in the lower pump assembly. Pull-out type construction allows easy removal of all internal parts without disturbing the suction bell, column pipe, discharge elbow, or discharge piping.

YOUR ORDER IS BACKED BY THE ITT A-C PUMP ENGINEERING AND EXPERIENCE ADVANTAGE

CRITICAL SPEED ANALYSIS — a detailed computerized critical speed analysis is run for every order to assure that the first critical speed is well above the maximum operating speed of the pump.

MECHANICAL DESIGN ANALYSIS — a detailed computerized mechanical design analysis is run for every order to determine the proper shaft size, bearing spans, wall thicknesses, flange bolting size and quantities, and other critical design features.

START-UP ANALYSIS — upon request, a computerized start-up analysis can be run to determine the optimal starting sequence between the pump, driver, and discharge valve. The analysis will also determine the ability of the drive to start the pump under any number of possible circumstances that might be encountered during start-up.

EXPERIENCED CUSTOM DESIGNS — with 120 plus years of pump experience, ITT A-C Pump (formerly Allis Chalmers Pump, Inc.) has encountered almost every kind of engineering challenge imaginable. ITT A-C Pump has custom designed every order to match the specific pump configuration, mechanical design, hydraulic requirements, and materials of construction dictated by the application and contract documents. Every pump is designed to meet your requirements.

PUMP QUALITY — all critical pump components and assemblies are thoroughly inspected and documented to assure reliable pump operation. Any special contract test or inspection requirements can be integrated into ITT A-C Pump's standard Total Quality Assurance Program.

Vertical Wet-Pit Column Pump being prepared for shipment.

MODEL TEST DATA — every wet pit column pump model has been extensively tested in a closed loop system to determine the exact performance characteristics over the entire range of impeller tilts/diameters. Testing in a closed loop system enables a vacuum to be pulled on the pump suction so that accurate NPSHR values can be obtained. 3-quadrant curve (Karman-Knapp) data has also been developed during the model testing for use in the start-up analysis. Strict casting, fabrication, machining and inspection procedures during the manufacturing process assure geometrical similarity between the pump model and the full size pump. This improves delivery schedules and reduces costs by eliminating the need for full scale factory testing.

A semi-open impeller being checked with a vane template to assure geometrical similarity to the manufacturing drawing.