

# VERTICAL DIFFUSER PUMPS

## INTRODUCTION

Individual customers deserve individual solutions. Thompsons Kelly & Lewis (TKL) is the Australian specialist for premium quality medium to large diameter Vertical Diffuser Pumps. Manufactured using the latest in pump-making technology, and with a dedicated commitment to the customers needs.

## PUMP TYPE

The TKL Vertical Diffuser Pumps are specifically designed for operation in a wide range of industrial applications. The pumps consist of a pump bowl assembly, either single or multistage, suspended on a flanged welded steel column connected to a welded steel discharge head incorporating a short radius bend with discharge flange, stuffing box, thrust bearing mount and driver support. The distinct advantages of this type of pump over a horizontal pump for the same service are as follows:

- Self priming because the pumping element is submerged.
- Minimum floor space required because of vertical configuration.
- Maybe installed at any convenient location in a reservoir, pit or sump, wherever supporting beams can be provided.
- Suction piping with its attendant friction losses is eliminated.
- Unit is self contained having fixed components machined for positive location avoiding any possibility of misalignment.
- Vertical pump shaft means minimum wear on bearings and rotating parts.

## PUMP RANGE

Sizes/Discharge	250 - 1000 mm
Flow Rate	to 2350 L/s
Total Head	to 180 m
Working Pressure	to 3500 kPa
Temperature	0° to 110° C
Pump Speeds	590, 740, 980, 1480 & 1800 r/min
Power Range	to 2500 kW

## MATERIALS

TKL Vertical Diffuser Pumps are constructed from high quality materials carefully selected for suitability in a broad range of industrial pumping applications. The standard materials are a cast iron suction bellmouth, suction and top case, bronze impeller bowl and impeller with a stainless steel shaft. Other materials commonly used for special services are also available.

## PUMP FEATURES

### BOWL ASSEMBLY

Available with closed and semi-open impellers. The impellers are mounted and keyed on the shaft. Bowl sections have centring fits and are secured by studs and nuts. Diffusers convert kinetic energy to pressure energy. The suction bellmouth guides the liquid into the first stage impeller. A bronze bearing packed with waterproof grease supports shaft.

### COLUMN ASSEMBLY

Fabricated steel flanged columns in pipe sizes from 250 to 1000 mm support the bowl assemblies. The open lineshaft is guided by Ferroform sleeve bearings lubricated by the liquid being pumped and supported in bearing spiders at the top of each column. Centring fits are used at all column joints. The lineshaft length between bearings is selected so that the pump always operates below first critical speed. Sleeve and split ring type muff couplings are used to join the lengths of lineshaft.

### DISCHARGE HEAD

Fabricated steel discharge head to suit the column size selected. Discharge flange is to AS 2129 Table E for hydro test pressure up to 2100 kPa, above this to AS 2129 Table H. Other flange drillings can be supplied if requested. The discharge head incorporates a short radius elbow, stuffing box, thrust bearing mounting plate and motor mounting flange. The stuffing box seal can be packed or mechanical seal fitted.



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**THRUST BEARING**

The thrust bearings are grease lubricated and mounted in a cast iron housing. The bearings have a minimum design life of 25000 hours. The bearing housing design allows for the fitting of grease nipples and temperature detectors if required.

**FLEXIBLE COUPLING**

A TKL Cone Ring type flexible coupling is provided between the top shaft and electric motor shaft. Other types of flexible couplings can be offered if specified.

**DRIVERS**

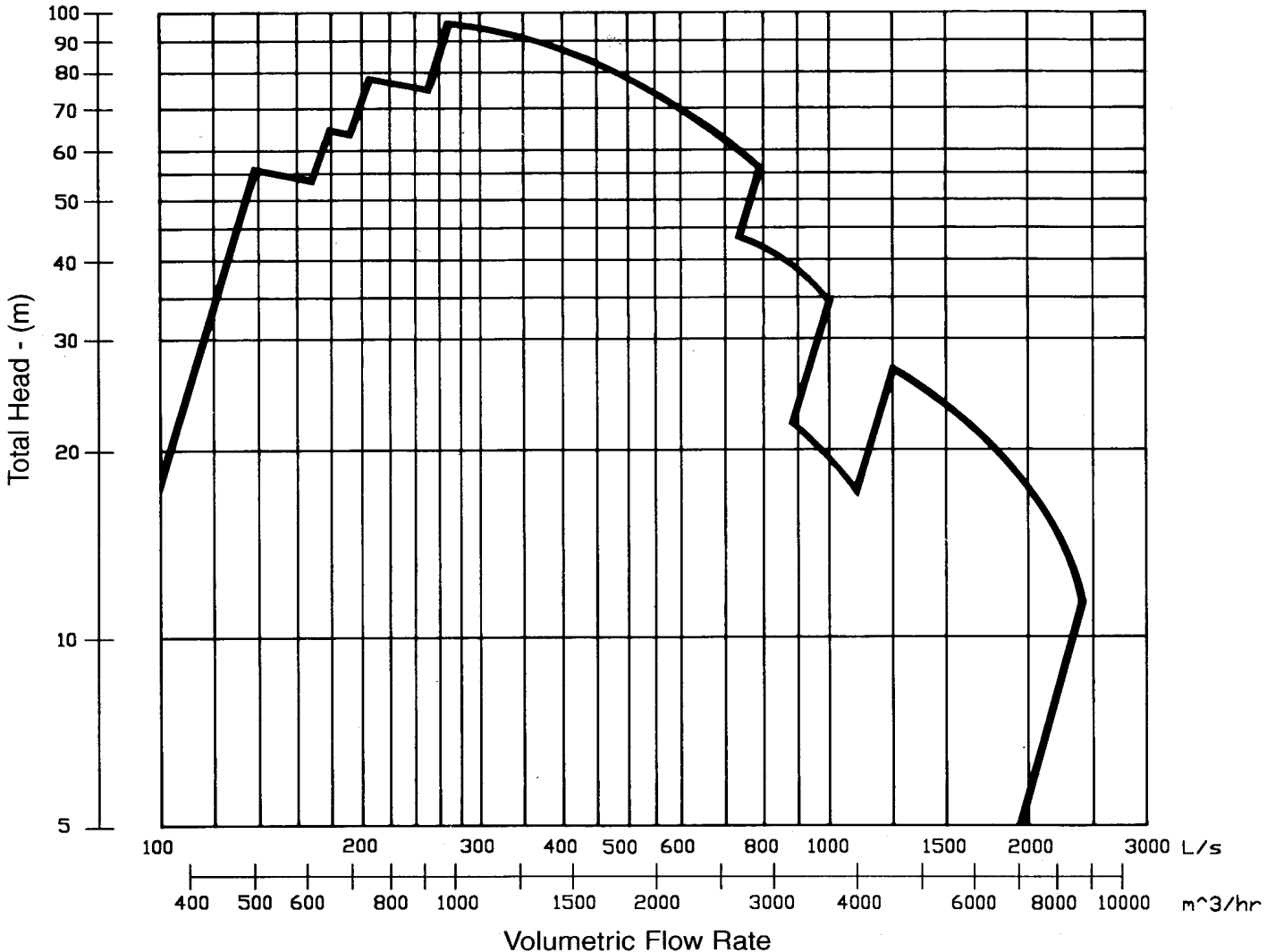
TKL Vertical Diffuser Pumps are normally direct coupled through flexible couplings to electric motor drivers. However they can be driven by diesel engines through right angle gearboxes in which case the pump thrust can be taken by the gearbox.

**APPLICATIONS**

- Water supply
- Booster and Transfer
- Irrigation and Drainage
- Flood control
- Circulating condenser water
- Cooling water
- Stormwater pumping
- Raw water intake
- Water storage pumping
- Dock service
- Steelworks
- High-lift pumping
- Make-up water service

**RANGE CHART**

Single stage performance shown, higher heads can be obtained by multistaging. Refer to TKL Sales Office for maximum number of stages at given speed.



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For further information, sales, service or technical assistance consult your telephone directory for nearest sales office:  
**AUSTRALIA** Sydney Melbourne Brisbane Adelaide Perth  
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