



A 3-section Form-Flex Composite vertical driveshaft (gray, in center) was used to replace both the 4-section shafts originally installed (blue, in foreground, on right) and the 4-section U-joints (black, in background, on left).

## Products

## Form-Flex® Composite Floating Shafts

## Application

## Water Pumping Station

## Highlights

- 3-section composite driveshaft couplings connected to form a 4-story drivetrain
- Composite tubes weigh up to 80% less than steel
- 200HP pumps rated at 710 RPM
- 4 of 9 Vertical Shaft Systems replaced to date



Engineers at a large raw water pumping station in Malaysia asked TB Wood's to consult with them on vibration problems with their existing vertical drivetrains on the nine pumps in their station. The facility was originally built using competitor 4-section shafts which yielded recurring vibration problems. 4-section U-Joint shafts were installed later in hopes of solving the problem when four of the pumps were upgraded. There was extreme vibration on these four units, worse than anything they had before. Things were so bad that no more than 4 or 5 of 9 pumps could be run at a time and some with U-Joints could never be run. The reduced pumping capacity created local drinking water shortages.

After careful analysis of the application, TB Wood's recommended a custom-designed, 3-section, Form-Flex Composite driveshaft to replace the (four) 4-section U-Joint shafts. The upper and lower sections of the TB Wood's shafts used 7" diameter tubing. The center section used 14" tubing to span past the center-floor bearing location where the problem vibration had been most severe.

An initial single TB Wood's shaft replacement performed to expectation with little vibration and was accepted by the client, who acknowledged that TB Wood's design and engineering proficiency contributed significantly to achieve the substantial improvement in the station's pumping capacity. Thus far TB Wood's has received orders for three additional drivetrain replacements.

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