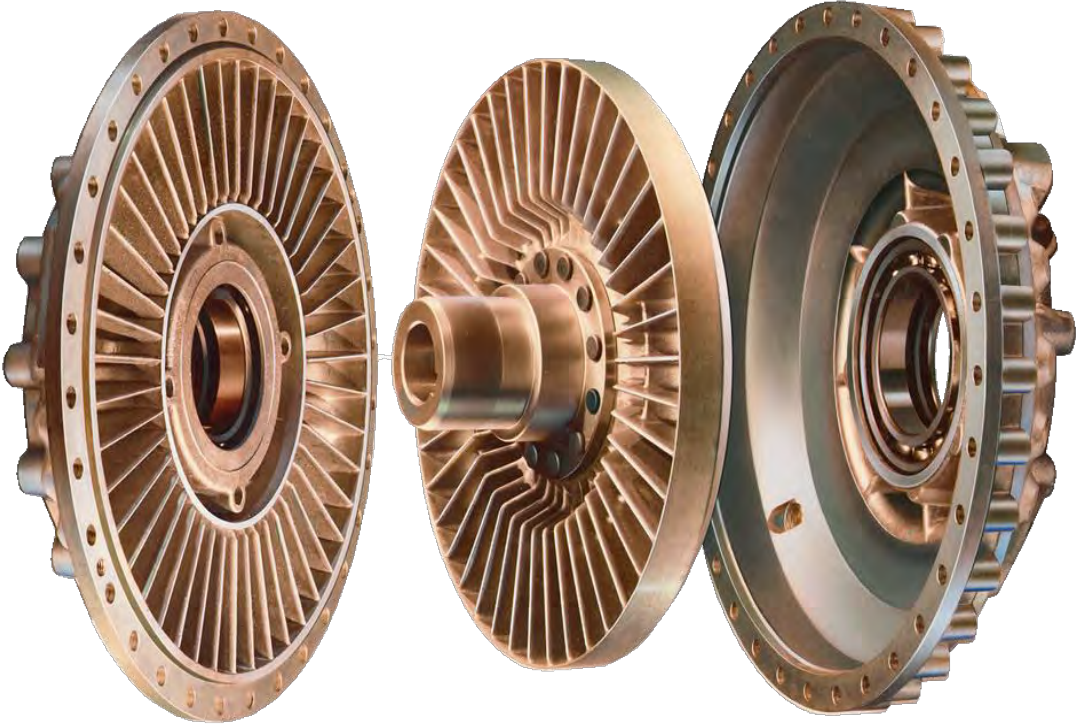


Constant Fill Fluid Couplings

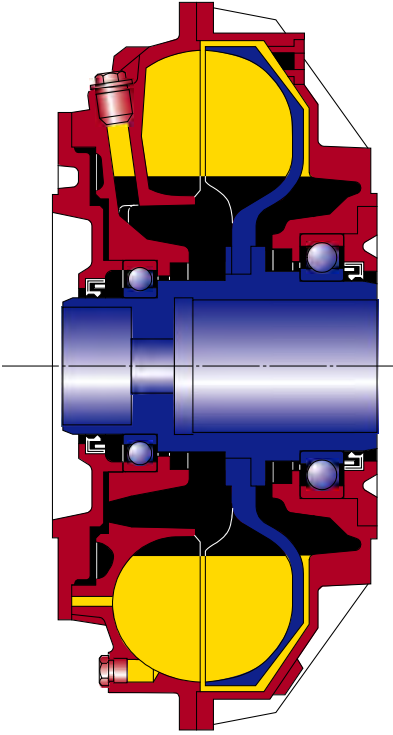
Main components



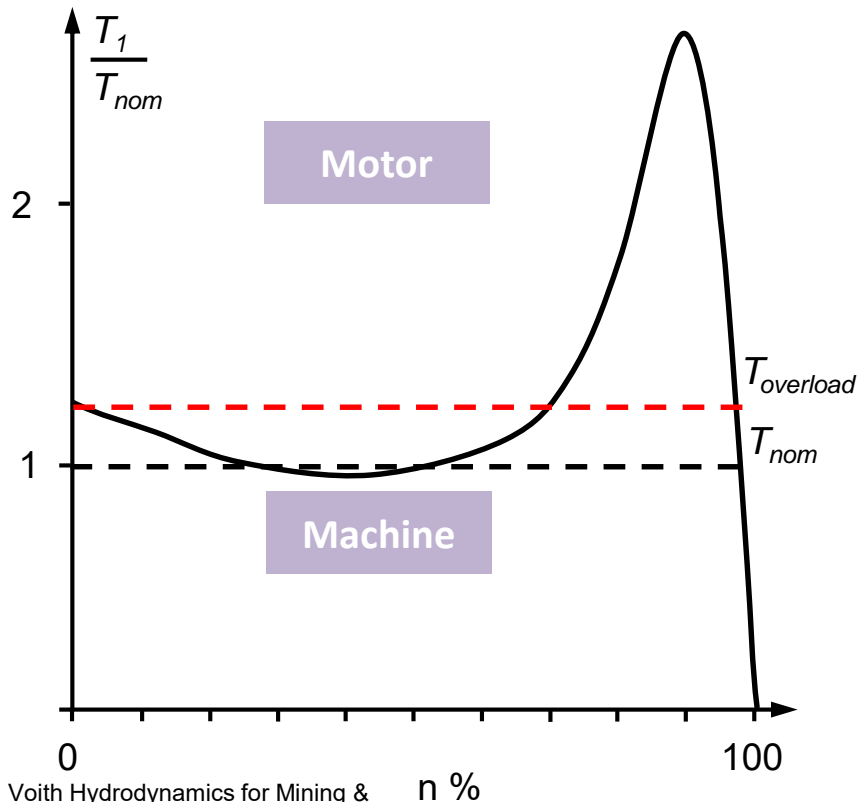
Pump wheel

Turbine wheel

Outer shell

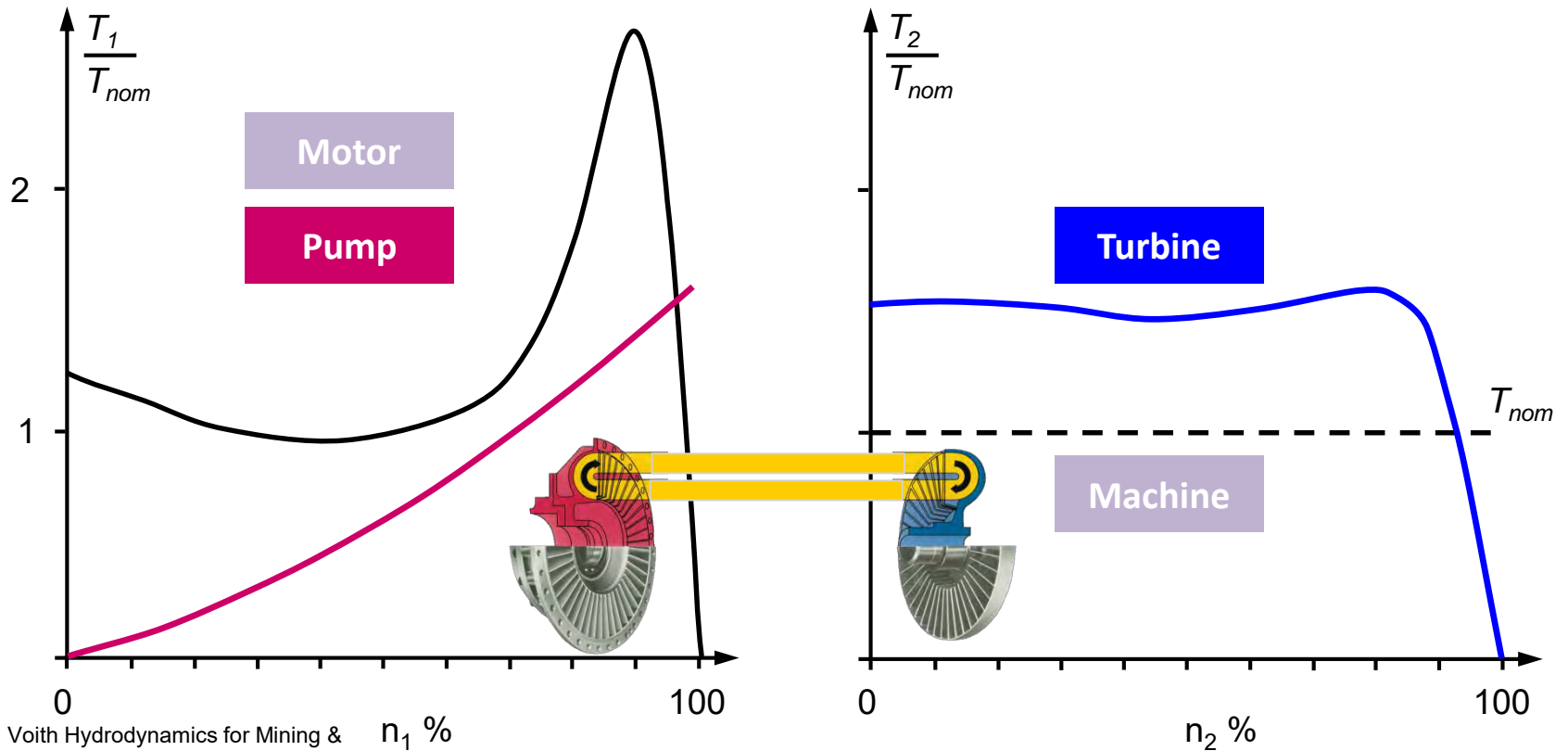


Why hydrodynamic power transmission?



- The torque characteristic of asynchronous motors doesn't allow the startup of constant load machines.
- In case of high mass moment of inertia of the machine the start-up takes long time and leads to unacceptable heating of the motor.
- The motor pull out torque is transmitted to drive and machine.

Hydrodynamic help's motor and machine!



Functions of Fluid Couplings

•Start-up of motor

- Load free start-up, start-up parabola
- Avoid transmission of pull out torque to gear / machine
- Reduce current inrush in power grid

•Start-up of machine

- Start-up torque limitation
- Inertia / fly-wheel mass start-up

•Nominal operation of machine

- Vibrations / damping
- Load sharing in multi motor drives

Functions of Fluid Couplings

•Overload condition

- Overload protection, limitation of stall torque
- Shock damping
- Separation of motor inertia from drive and machine
- Protection of motor from stalling (no electrical overload)

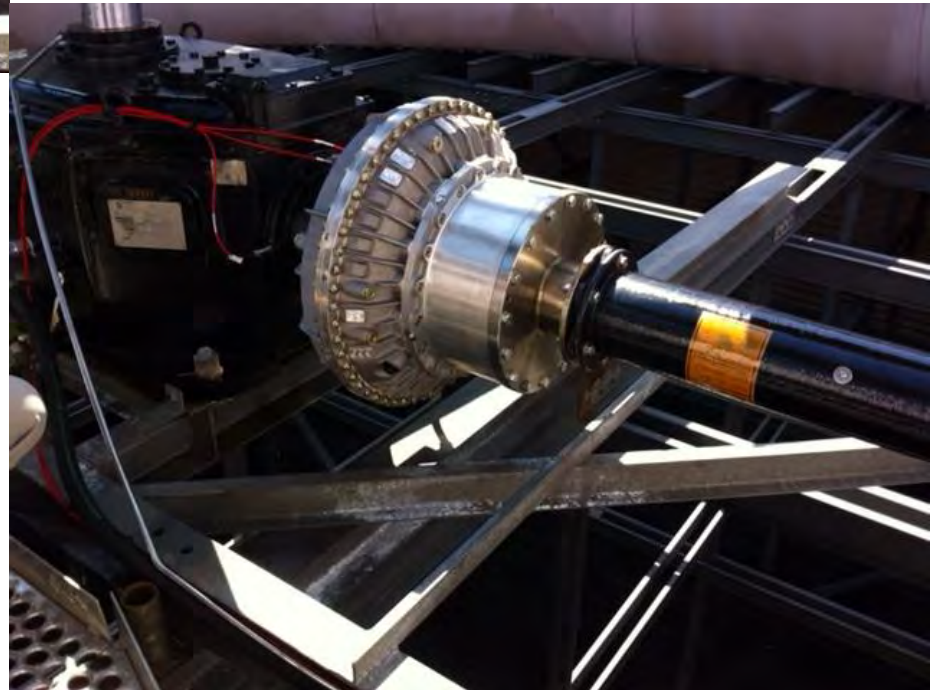
•Stopping machine

- Controlled speed reduction
- Braking machine
- In case of Reversing cooling tower fans – Motor spike does not reach the gearbox, the coupling brakes the reverse motion and accelerates it forward.

Greenfield Energy 300 HP @ 1780 rpm



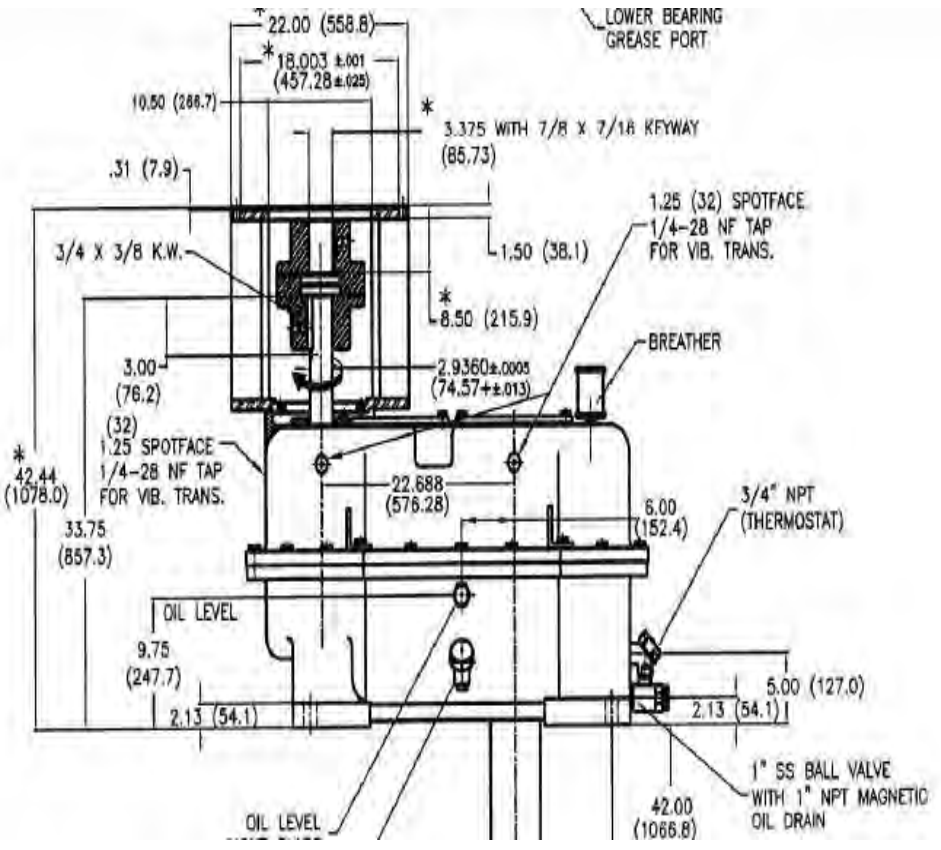
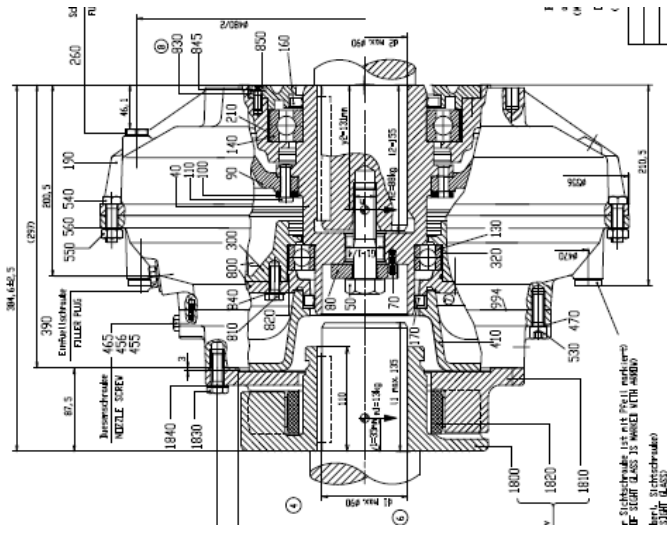
562 TVV added to the system
The gearboxes were having
regular failures from restarts
The addition of the fluid coupling
to slowly engage the reversing fan
and move it in the correct
direction worked



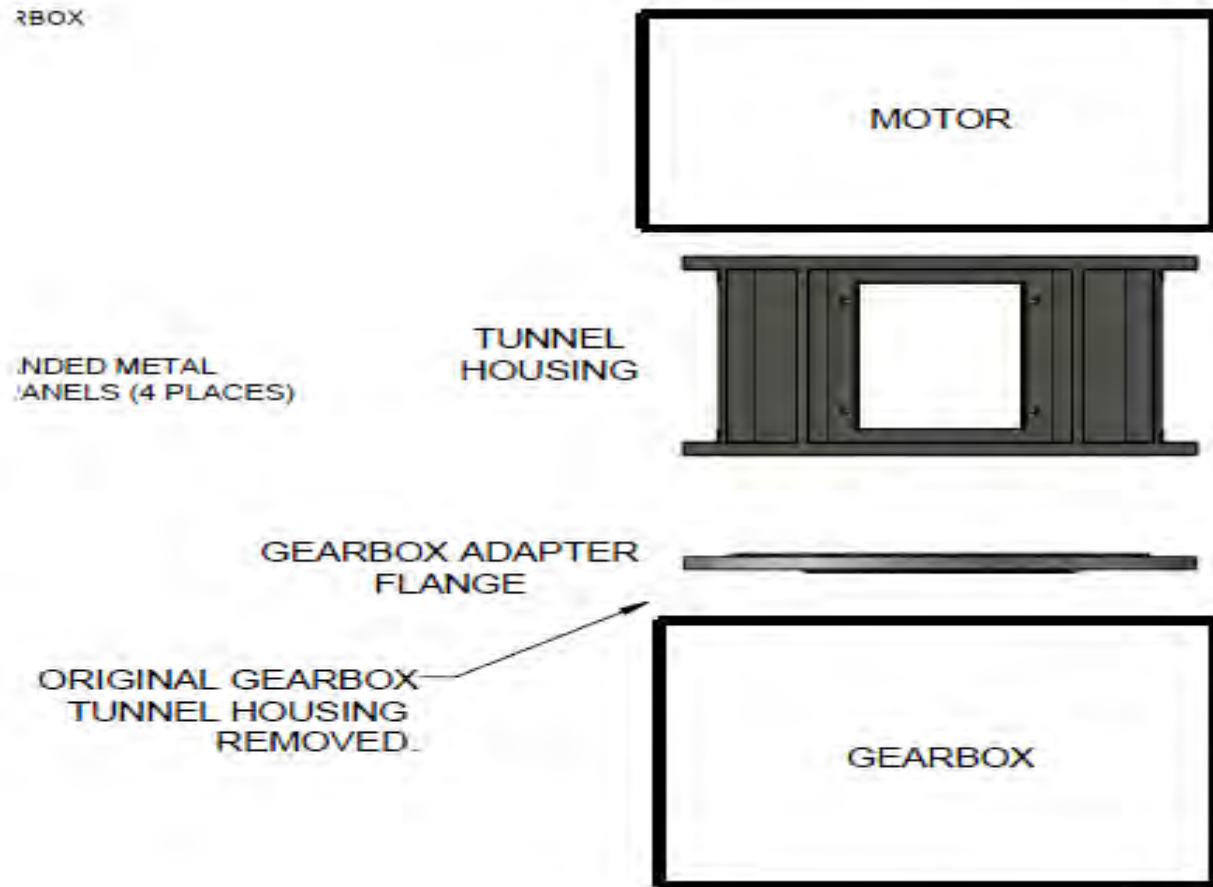


Voith Hydrodynamics for
Mining & Metals | VTCR amds -
BotP | October, 2015

Fluid Coupling with Bell Housing to Replace existing flex coupling

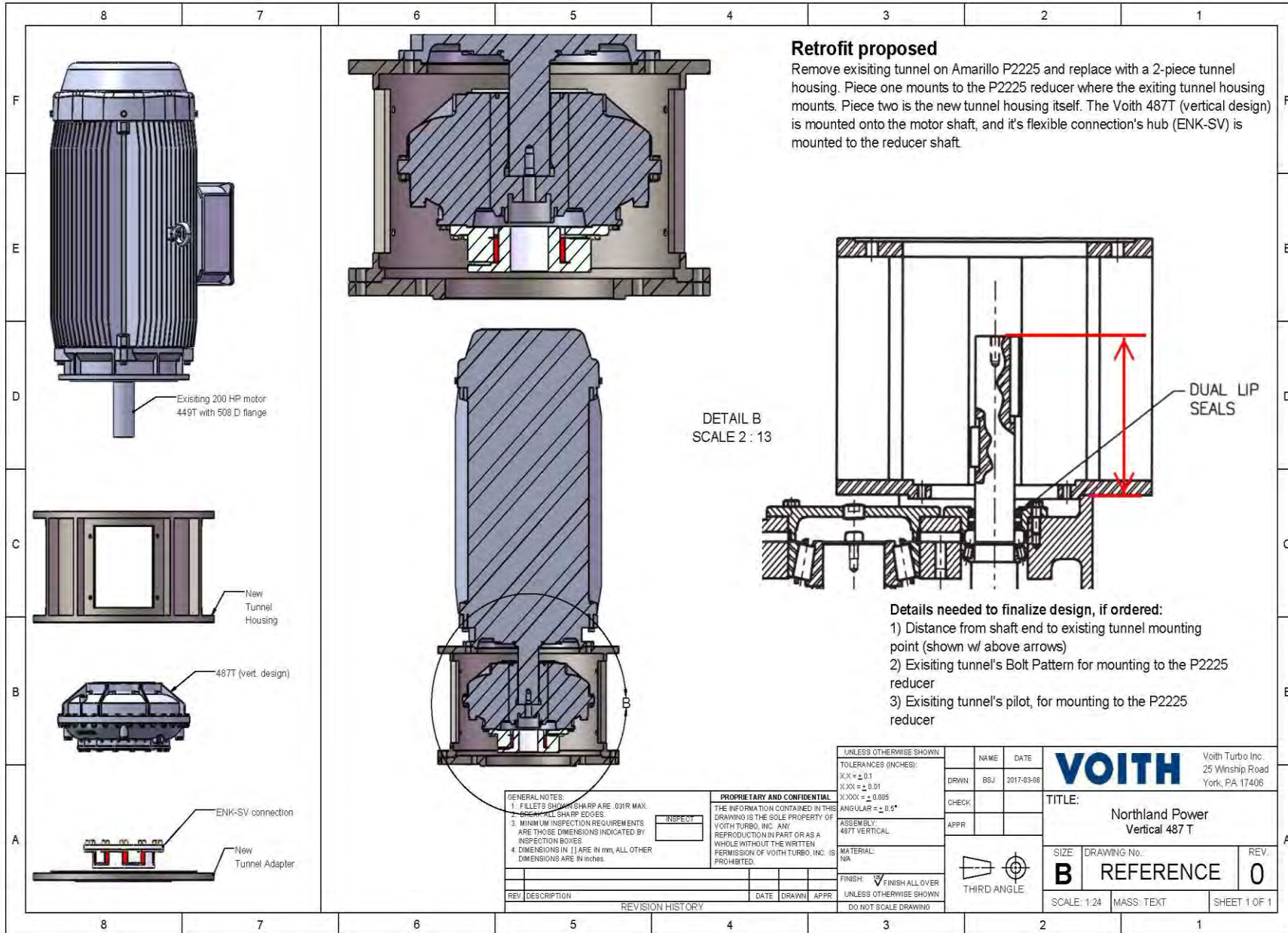


Components of Retrofit



Retrofit proposed

Remove existing tunnel on Amarillo P2225 and replace with a 2-piece tunnel housing. Piece one mounts to the P2225 reducer where the exiting tunnel housing mounts. Piece two is the new tunnel housing itself. The Voith 487T (vertical design) is mounted onto the motor shaft, and it's flexible connection's hub (ENK-SV) is mounted to the reducer shaft.



DETAIL B
SCALE 2 : 13

- Details needed to finalize design, if ordered:
- 1) Distance from shaft end to existing tunnel mounting point (shown w/ above arrows)
 - 2) Existing tunnel's Bolt Pattern for mounting to the P2225 reducer
 - 3) Existing tunnel's pilot, for mounting to the P2225 reducer

GENERAL NOTES:
 1. FILLETS SHOWN SHARP ARE .031R MAX.
 2. ALL SHARP EDGES
 3. MINIMUM INSPECTION REQUIREMENTS ARE THOSE DIMENSIONS INDICATED BY INSPECTION BOXES
 4. DIMENSIONS IN () ARE IN mm, ALL OTHER DIMENSIONS ARE IN inches

INSPECT

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UNLESS OTHERWISE SHOWN
 TOLERANCES (INCHES):
 XX = ± 0.1
 XXX = ± 0.01
 XXXX = ± 0.005
 ANGULAR = ± 0.5°
 MATERIAL:
 N/A
 FINISH: FINISH ALL OVER
 UNLESS OTHERWISE SHOWN
 DO NOT SCALE DRAWING

DRWN	BSJ	2017-03-06
CHECK		
APPR		

		Voith Turbo Inc. 25 Winship Road York, PA 17406	
		TITLE: Northland Power Vertical 487 T	
SIZE	DRAWING No.	REV.	
B	REFERENCE	0	
SCALE: 1:24	MASS: TEXT	SHEET 1 OF 1	

REV.	DESCRIPTION	DATE	DRAWN	APPR
REVISION HISTORY				

