

Specification for one way clutch for FD fan

Annexure to Indent no. R5656883 (R4H8)

CPCL –Manali- 1x 150 TPH Boiler

Forced draft fan NDV17BAB1 is a dual driven fan. One side of FD fan is connected to an electric motor of capacity 425KW at 1480 rpm through an one way clutch of self supporting type. Other side of the fan is connected to a steam turbine and gear box of capacity 425KW at 1480 rpm through another one way clutch. The fan, one way clutches, motor, gear box and steam turbine are connected through flexible spacer couplings.

Refer "General arrangement of Forced draft fan NDV17 BAB1" Drawing No 1-00-098-29021 for arrangement of fan, electric motor, turbine with gear box and one way clutches. When the fan is driven by an electric motor, the turbine and its gear box rotor shall not rotate. Similarly, when the fan is driven by steam turbine with gear box, the electric motor shall not rotate.

Electric motor or steam turbine shall start the fan to rotate from zero speed to full speed through the one way clutch. The speed shall be varying during running.

Alternatively, when the fan runs at full speed, if the running prime mover trips, then stand by prime mover shall take over the fan.

Electric motor	:	425 KW at1480 rpm
Turbine gear box	:	425 KW at1480 rpm
Speed of fan	:	1480 rpm (maximum)
Direction of rotation of fan:-		
Looking from Electric motor	:	Clockwise
Looking from Turbine	:	Counter Clockwise

For this requirement, suitable one way clutches shall be offered

Details to be furnished along with offer:

- I. Catalogue - 3 sets (one soft copy also required).
- II. Clutch size offered with dimensional drawing (one hardcopy and soft copy in AutoCAD format required).
- III. Shaft end details to connect coupling.
- IV. Oil to be used (air equivalent groan oil).
- V. Foundation load to be considered for the one way clutch.
- VI. Type of connecting couplings recommended.

Compiled

Reviewed

Approved

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ENGINEER

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STARTING TORQUES FOR RADIAL FAN

TYPE : NDV 17

FLEXIBLE/HYDRAULIC/STARTING-CLUTCH

APPLICATION : FORCED DRAFT FAN QUANTITY: ONE NO./BOILER

PROJECT : CPCL, MANALI REFINERY-1X150 TPH UTILITY BOILER

CUSTOMER No. : R4H8

POWER ABSORBED AT THE MOTOR COUPLING AT RATED OUTPUT ['P' MAX] : 379 KW

RECOMMENDED MOTOR/TURBINE RATING : 425 KW

FAN SPEED : 1480 RPM

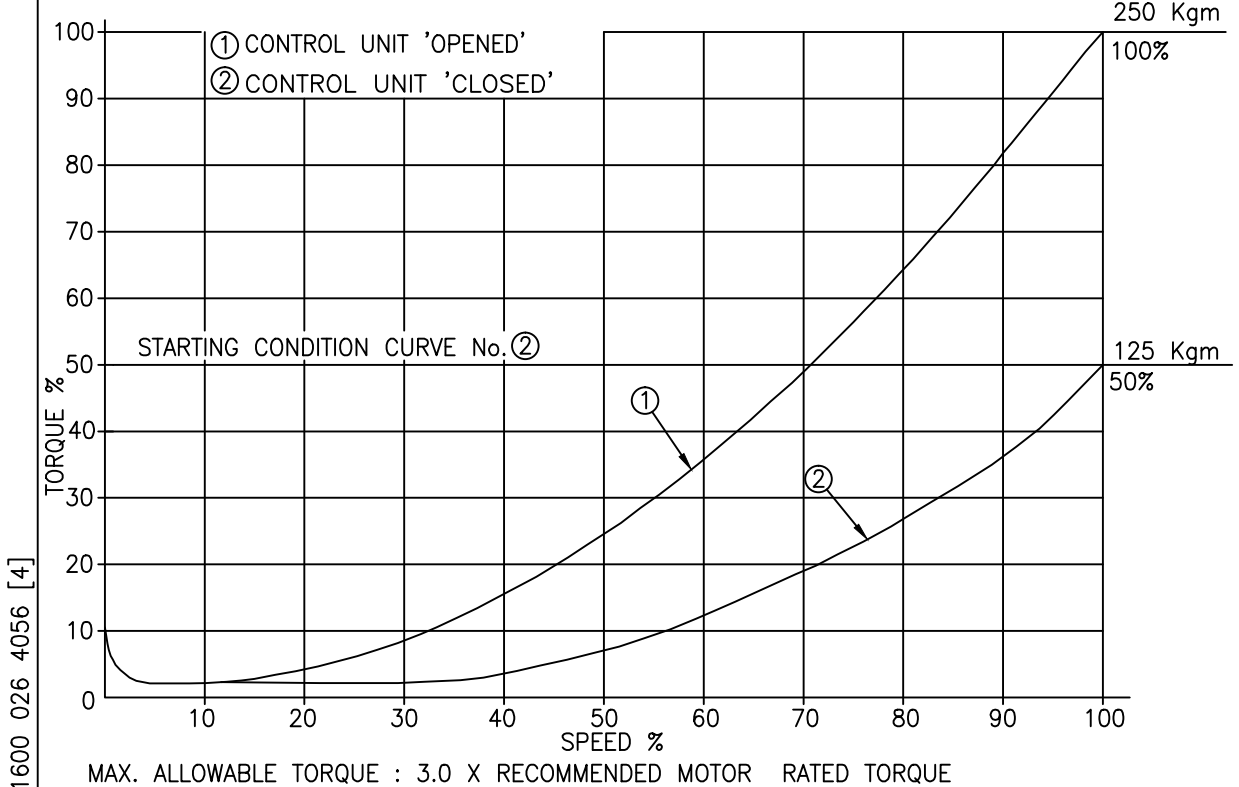
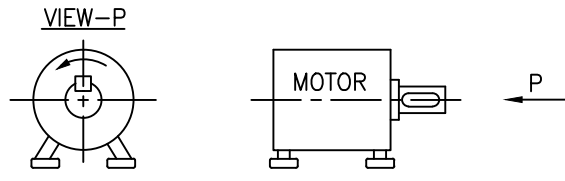
MOTOR SPEED : 1480 RPM

TORQUE AT 'P' MAX. REFERRED TO THE MOTOR/TURBINE SPEED : 250 Kgm

DENSITY OF THE MEDIUM HANDLED : 1.078 Kg/cubic meter

GD² REFERRED TO FAN SHAFT : 2000 Kg sq meter

WITH AN INLET TEMPERATURE OF 18°C HAVING A DENSITY OF 1.214 Kg/cubic meter
 THE TORQUE HAS TO BE MULTIPLIED BY A FACTOR OF 1.13
 FAN IS DIRECTLY COUPLED WITH MOTOR BY PIN TYPE FLEXIBLE COUPLING
 (Fan is with Dual drive—Motor on one end + Steam Turbine on other end with auto change over clutch)



1600 026 4056 [4]

DRAWN: A.KIRAN	CHECKED:UMASHANKAR	APPROVED:V.P.SHYAM	DRG No.
DATE: 06.02.15	DATE: 06.02.15	DATE: 06.02.15	4-00-102-32112
			REV 00



STARTING TORQUES FOR RADIAL FAN

TYPE : NDV 17

APPLICATION : FORCED DRAFT FAN QUANTITY: ONE NO./ BOILER

PROJECT : CPCL,MANALI REFINERY-1X150 TPH UTILITY BOILER

CUSTOMER No. : R4H8

POWER ABSORBED AT THE TURBINE COUPLING AT RATED OUTPUT ['P' MAX] : 382 KW

RECOMMENDED TURBINE RATING : 425 KW

FAN SPEED : 1460 RPM

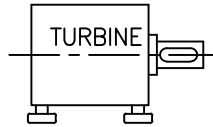
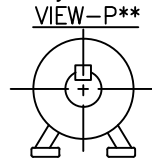
TURBINE SPEED : 1460 RPM

TORQUE AT 'P' MAX. REFERRED TO THE TURBINE SPEED : 255 Kgm

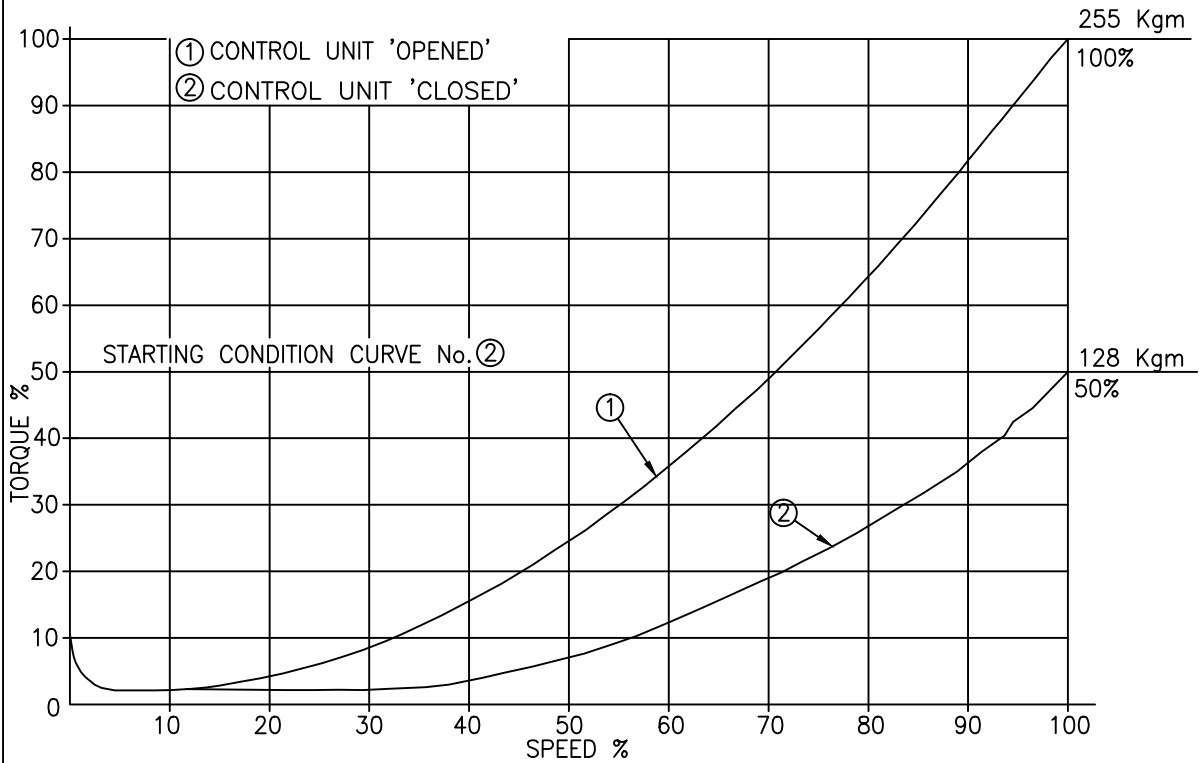
DENSITY OF THE MEDIUM HANDLED : 1.078 Kg/cubic meter

GD² REFERRED TO FAN SHAFT : 2000 Kg sq meter.

WITH AN INLET TEMPERATURE OF 18°C HAVING A DENSITY OF 1.214 Kg/cubic meter
 THE TORQUE HAS TO BE MULTIPLIED BY A FACTOR OF 1.13
 FAN IS DIRECTLY COUPLED WITH TURBINE THRO' ONE WAY CLUTCH BY FLEXIBLE
 DISC TYPE CONNECTING COUPLING
 (Fan is with Dual drive-Motor on one end + Steam Turbine (Variable speed) on other
 end with one way clutch)



**TURBINE VENDOR TO GET CONFIRMATION
 ON DIRECTION OF ROTATION OF THE TURBINE



1600 026 4056 [4]

MAX. ALLOWABLE TORQUE : 3.0 X RECOMMENDED MOTOR RATED TORQUE

DRAWN: A.KIRAN	CHECKED:UMASHANKAR	APPROVED:V.P.SHYAM	DRG No. 4-00-102-32123	REV 00
DATE: 11.03.15	DATE: 11.03.15	DATE: 11.03.15		

FLEXIBLE/HYDRAULIC/STARTING CLUTCH