Product Group: TD400 Series AC Drives
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Title: TD400 Constant Torque and Variable Torque Applications

Summary: This application note describes the differences between Constant and Variable torque and how that affects the ratings of TD400 AC drives.

I: Constant Torque

Constant torque applications are those where the load applied to the motor remains the same regardless of motor speed.

Constant torque application examples include:

- Conveyors
- Lathes
- Elevators
- Positive Displacement (Piston) Pumps
- And more.

The chart to the right shows TD400 models with their constant torque FLA and HP ratings.

Part Number	Constant Torque FLA	Constant Torque HP
TD400-20P5-13PH	3.1	0.5
TD400-2001-13PH	4.5	1
TD400-2002-13PH	7.5	2
TD400-2003-13PH	10.5	3
TD400-2005-3PH	10.1	5
TD400-27P5-3PH	15	7.5
TD400-2010-3PH	20.2	10
TD400-2015-3PH	27.7	15
TD400-2020-3PH	37	20
TD400-2025-3PH	42.2	25
TD400-2030-3PH	49.1	30
TD400-2040-3PH	66.5	40
TD400-4001-3PH	1.5	1
TD400-4002-3PH	2.2	2
TD400-4003-3PH	3.1	3
TD400-4005-3PH	5.3	5
TD400-47P5-3PH	7.5	7.5
TD400-4010-3PH	10.1	10
TD400-4015-3PH	13.8	15
TD400-2020-3PH	18.5	20
TD400-4025-3PH	23.1	25
TD400-4030-3PH	26	30
TD400-4040-3PH	34.7	40
TD400-4050-3PH	43.4	50
TD400-4060-3PH	52.6	60
TD400-4075-3PH	68.2	75

II: Variable Torque

Variable torque applications typically see reduced motor load as the motor speed decreases.

The same size drive can be rated for a higher horsepower if used in a variable torque application.

Variable torque application examples include:

- Centrifugal Pumps
- Blowers
- Fans.

The chart to the right shows TD400 models with their variable torque FLA and HP ratings.

Part Number	Variable Torque FLA	Variable Torque HP
TD400-20P5-13PH	3.1	0.5
TD400-2001-13PH	4.5	1
TD400-2002-13PH	7.5	2
TD400-2003-13PH	10.5	3
TD400-2005-3PH	17.5	5
TD400-27P5-3PH	26	7.5
TD400-2010-3PH	35	10
TD400-2015-3PH	48	15
TD400-2020-3PH	64	20
TD400-2025-3PH*	80	25-30
TD400-2030-3PH*	110	40
TD400-2040-3PH*	138	50
TD400-4001-3PH	2.5	1
TD400-4002-3PH	3.8	2
TD400-4003-3PH	5.3	3
TD400-4005-3PH	9.2	5
TD400-47P5-3PH	13	7.5
TD400-4010-3PH	17.5	10
TD400-4015-3PH	24	15
TD400-2020-3PH	32	20
TD400-4025-3PH	40	25
TD400-4030-3PH*	58	30-40
TD400-4040-3PH*	73	50
TD400-4050-3PH*	88	60
TD400-4060-3PH*	103	75
TD400-4075-3PH*	145	100

***TD400-2025-3PH** or larger and **TD400-4030-3PH** or larger models are capable of increased FLA and HP capacity in variable torque applications. These models require parameter 00-27 be set to select HD (Constant Torque) or ND (Variable Torque) modes.

00-27: HD/ND Mode	
Range	0: HD (Constant Torque) **1: ND (Variable Torque)**

Set 00-27 before performing an auto-tune.