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White Paper

Step Down Transformers

When the shop power is 415, 440, 460 or 480 volts, a Step-Down Transformer is needed to supply 208-volt power for the following TRAK models:

- RX Series Lathes
- RX Series Mills
- SX Series Lathes
- SX Series Mills that have the Programmable Spindle Control (PSC) Option
- V Series Lathes
- V Series Mills
- DPM E2 Mill

Note: *Machines that do not have the spindle speed controlled by the ProtoTRAK can be wired for 208 or 440 volts by changing the motor wiring and fusing.*

The transformer should step the voltage down to 208 volts. Values above and below this range may cause problems with the CNC. Problems can take the form of CNC faults or shut downs, blown fuses or even burned components if the power fluctuation is large.

The following tables provide:

- Full Load Amps (FLA) of the spindle motor
- FLA of the machine – What the machine will draw with all the motors working at maximum capacity.
- KVA value for each machine at 208 volts

Machines with the Flange/Transformer Option (FTO) have an extra transformer that steps the 208V power from the spindle down to 110V before it enters the pendant. This affects the overall machine FLA and KVA.

Current TRAK Models

TRAK Model	FLA of Spindle Motor at 208V	FLA of Machine (all motors) at 208V	Minimum KVA Rating
DPMRX2	8.5	27	10
DPMRX3 & RX5	14	35	13
DPMRX7	21.4	42	15.5
1630RX	20	49	18
1630HSRX	20	49	18
1845RX	30	54	20
2470RX	40.5	75	27

Legacy TRAK Models

TRAK Model	FLA of Spindle Motor at 208V	FLA of Machine (all motors) at 208V	Minimum KVA Rating
DPMV5	17.5	36.5	13.5
1540V	33	47	17
DPME2	11	11	4
DPMV7	33	52	19
2460V	45	59	21.5
1540SX	33	33	12
1540SX w/ FTO	33	37.5	13.5
1840SX	33	35	13
1840SX w/ FTO	33	39.5	14.5
FHM5	17.5	17.5	6.5
FHM5 w/ FTO	17.5	25	9
DPMSX2, K2SX, K3SX with PSC	11	11	4.0
DPMSX3, DPMSX5, K4SX with PSC	17.5	17.5	6.5
1630SX	25	25	9.0
1630SX w/ FTO	25	29.5	11
1630HS-SX	25	25	9
1630HS-SX w/FTO	25	29.5	11
1845SX	33	33	12
1845SX w/ FTO	33	39	14.5
2460SX	45	45	16.5
2460SX w/ FTO	45	49.5	18
2470SX	40.4	53	19.5
2470SX w/FTO	40.5	45	16.5
FHM7	37.5	37.5	14
FHM7 w/ FTO	37.5	45	16.5

The formula used to calculate KVA is:

$$\text{KVA} = \frac{(\text{Volts})(\text{FLA machine})(\sqrt{3})}{1000}$$

In order for the Step-Down Transformer supplier to determine the proper sizing, he or she will need:

- Primary Voltage – The voltage available in the shop.
- Secondary Voltage – The voltage required by the TRAK machine: 208V.
- KVA – From the above tables as a reference.

Please contact your local supplier for final sizing requirements.

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Make sure to email or reference **Discount Code – TRAK2018** when you contact Fargo Electric Inc. for discounted pricing offered to TRAK customers.