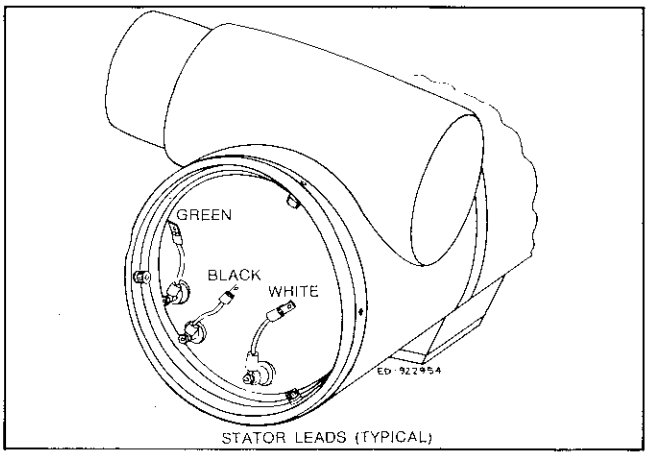
**Machlett**
A **Raytheon** Company

# PRODUCT DATA

## DYNAMAX STATOR
Regular Machlett Type



STATOR LEADS (TYPICAL)

### APPLICATION
This stator is an integral part of the Dynamax housing and works with the anode-rotor as a two-phase, induction motor to provide anode rotation and dynamic braking. See tables for details.

### INTERFACE FACTORS
The following must be considered to ensure compatibility between stator and motor control:

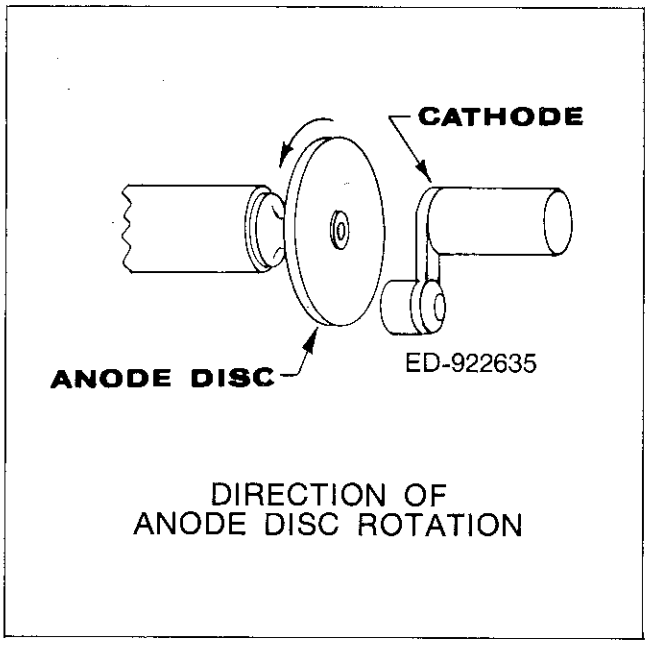
- correct starting voltage;
- minimum starting time;
- maximum starting current in each stator lead;
- correct running voltage to maintain anode speed prior to and during x-ray exposure;
- normal running current;
- value of phase-shift capacitor for each frequency;
- duty-intermittent/continuous;
- dynamic braking requirements;
- normal stator cold dc resistance;
- heat input to housing contributed by stator operation.

### CONSTRUCTION
On end bulkhead connector styles, three stator leads are brought out to terminal studs on the anode bulkhead of the housing. To avoid damage to the terminal studs (which could cause oil leaks), two-inch color coded jumpers are factory installed with quick-connect terminals for connecting the stator cord.

### ORDERING INFORMATION
Refer to **Machlett** price list.

### SPECIFICATION
Refer to housing data for thermal characteristics. See tables for details.

| | |
|---|---|
| **Start/Stop Cycling:** | In some technique modes (such as fluoroscopy and spot film) a rotational holding period at running voltage causes less bearing wear and stator heating than frequent start/stop cycling and rapid speed variations. |
| **Dynamic Braking:** | After high speed rotation (above 9000 rpm) dynamic braking must slow anode-rotor to less than 4000 rpm within 10 seconds but not sooner than 2 seconds. |
| **Duty Cycle** | |
| Starting: | 2 starts per minute maximum |
| Running: | continuous @ 60 Hz<br>intermittent @ 180 Hz |
| **Anode rotation:** | |
| 60 Hz: | regular speed-3000 rpm, minimum |
| 180 Hz: | high speed-9000 rpm, minimum |



DIRECTION OF
ANODE DISC ROTATION

## REGULAR STATOR TIME TO SPEED (SECONDS)

| Input Power | Anode Disc | | |
|---|---|---|---|
| | 3" diameter 140,000 heat units | 3" diameter 300,000 heat units | 4" diameter 400,000 heat units |
| 115 VAC @ 60 Hz | 2.2 | 4.5 | 6 |
| 230 VAC @ 60 Hz | 0.7 | 1.4 | 1.9 |
| 230 VAC @ 180 Hz | 2.2 | 4.5 | 6 |
| 440 VAC @ 180 Hz | 0.7 | 1.4 | 1.9 |

## REGULAR STATOR STARTING CHARACTERISTICS[1]

| Input Power | Power Input | | Current (Amperes) | | |
|---|---|---|---|---|---|
| | Watts | heat units/second | White | Black | Green |
| 115 VAC @ 60 Hz | 400 | 540 | 3.8 | 2.8 | 1.6 |
| 230 VAC @ 60 Hz | 1550 | 2090 | 8.0 | 6.0 | 3.5 |
| 230 VAC @ 180 Hz | 670 | 900 | 3.6 | 1.6 | 2.0 |
| 440 VAC @ 180 Hz | 2700 | 3640 | 6.5 | 4.0 | 4.6 |

[1]voltage and current values given are for sinusoidal waveforms.

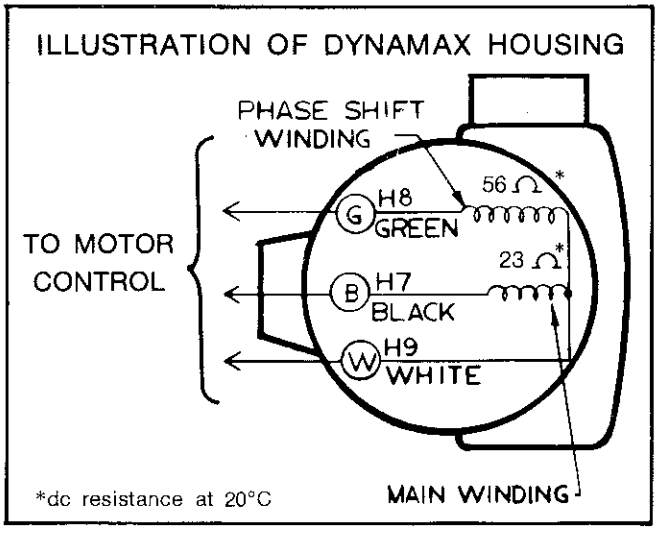
## REGULAR STATOR PHASE SHIFT CAPACITOR VALUES

| Input Frequency | Capacitor Value* |
|---|---|
| 60 Hz | 30 MF. |
| 180 Hz | 6 MF. |

*Selected for optimum performance

## REGULAR STATOR RUNNING CHARACTERISTICS[1]

| Input Power | Power Input | | Current (Amperes) | | |
|---|---|---|---|---|---|
| | Watts | heat units/second | White | Black | Green |
| 50 VAC @ 60 Hz | 70 | 90 | 1.8 | 1.3 | 1.0 |
| 100 VAC @ 180 Hz | 160 | 220 | 1.8 | 1.0 | 1.4 |



# DYNAMAX 40 1.0, 2.0 22/46 X-RAY INSERT
## Filament Emission Characteristics

## NOTES ABOUT THESE CHARTS

Values obtained from these charts are typical.

When using these charts, refer to tube rating charts for maximum:
- kilovoltage;
- milliamperes; and
- exposure times.

The end points of the kVp curves terminate at the maximum emission-limited filament current or kVp x A rating of the target focal spot at a 0.1 second exposure time.

Characteristics of individual tubes may vary from the typical values shown on the emission curves, especially at high mA and low kV.

Life expectancy of the tube will be favorably extended when the maximum filament current employed is below the maximum allowable current, particularly at the "knee" of the emission curve where only small increases in emission are obtained with relatively large changes in filament current. Moreover, adverse effects of focal spot blooming and electrical instability will be reduced.

For determining the compatibility of the insert to the filament power supply (in the x-ray generator) and an aid in calibration, a filment volt/ampere line (dashed) is provided on each emission chart.

## INSERT CALIBRATION

For trial exposures, use radiographic exposure times of 0.1 second or less in the mid range loading as shown in the single exposure rating charts.

Filament emission curves can be used to adjust filament current to produce the approximate desired x-ray tube current without making an x-ray exposure.

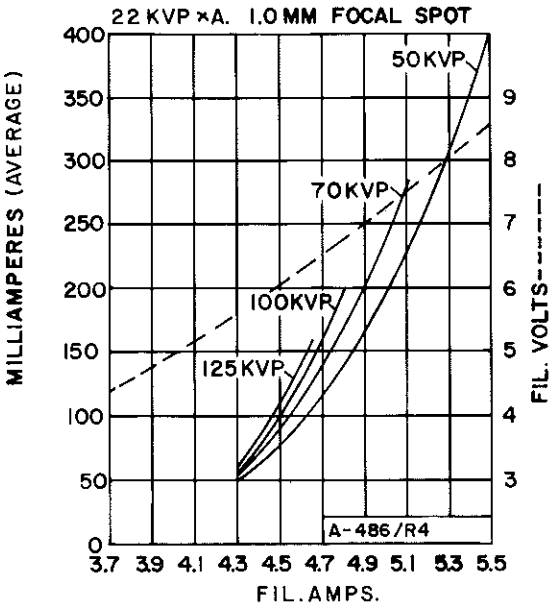
The risk of overloading the tube will be reduced if suitable calibration instrumentation is used during tube installation procedures.

The filament current versus emission values will change as the tube ages; therefore, x-ray generator calibration should be periodically monitored.

Reduce filament evaporation by keeping *"Boost"* time to a minimum, avoiding long standby periods on high mA stations.

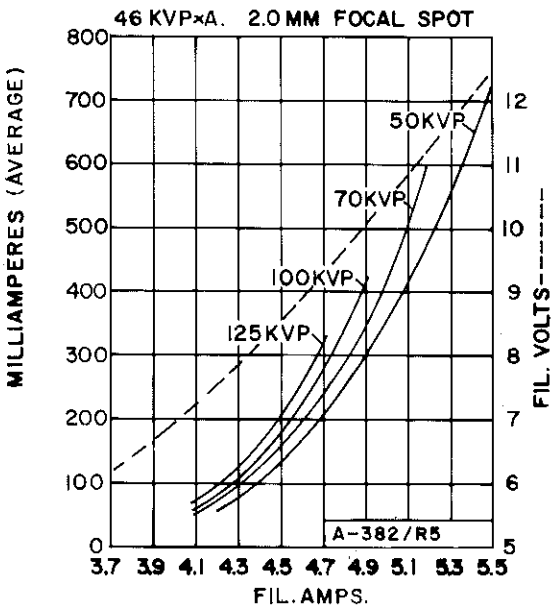
—OVER—

SINGLE-PHASE, FULL-WAVE



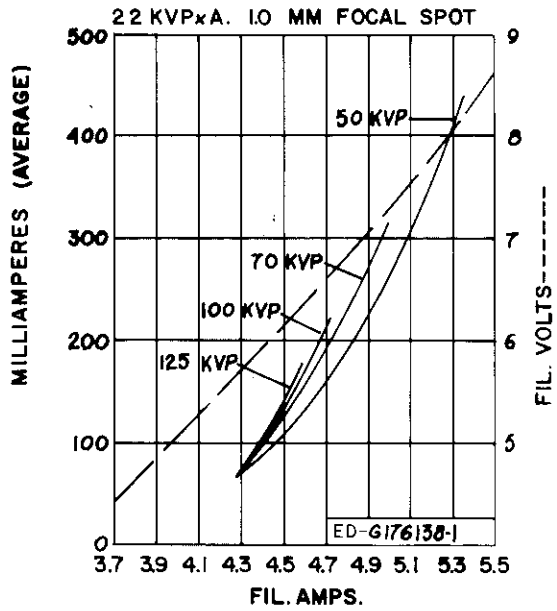

MAX. CONTINUOUS CURRENT 3.30 AMPS.
MAX. ALLOWABLE CURRENT 5.50 AMPS.

SINGLE-PHASE, FULL-WAVE



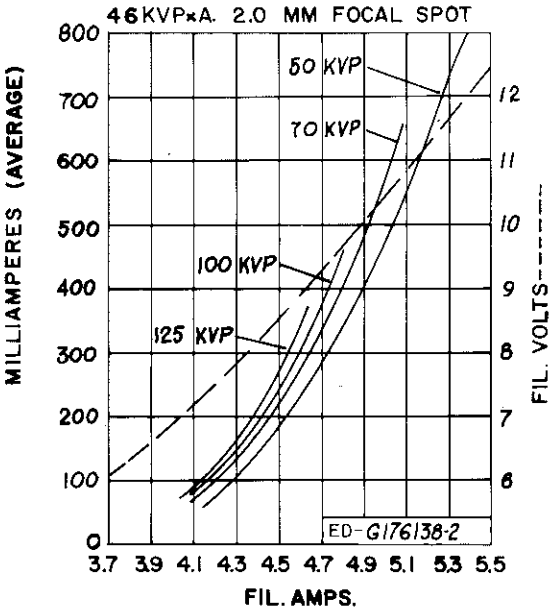

MAX. CONTINUOUS CURRENT 3.30 AMPS.
MAX. ALLOWABLE CURRENT 5.50 AMPS.

THREE-PHASE, FULL-WAVE




MAX. CONTINUOUS CURRENT 3.30 AMPS.
MAX. ALLOWABLE CURRENT 5.50 AMPS.

THREE-PHASE, FULL-WAVE




MAX. CONTINUOUS CURRENT 3.30 AMPS.
MAX. ALLOWABLE CURRENT 5.50 AMPS.