

PRODUCT APPLICATIONS **MACHINE SHOPS**



MACHINE SHOPS

Recommended Product

PHASE PERFECT®

\$1,204.74

PROJECTED ANNUAL SAVINGS



YOUR SHOP SHOULDN'T BE LIMITED BY AVAILABLE POWER

More and more machine shops are being started in rural and other non-industrial areas where three-phase power is not available or is prohibitively expensive. Whether you're setting up in a pole barn, garage, or remote commercial space, the power infrastructure shouldn't limit your machining capabilities or force you to compromise on equipment quality.

THE SOLUTION: PHASE PERFECT®

The Phase Perfect® was specifically designed to address the unique power needs of machine shops. Just feed single-phase into the unit and get utility-quality three-phase back out.

Unlike Other Types of Phase Converters, Phase Perfect® Offers:

- ▶ **Low Standby Power Consumption:** Reducing ongoing operational costs
- ▶ **Utility-Grade, True Three-Phase Output:** Ensuring perfect balance for sensitive electronics
- ▶ **Support For Multiple Simultaneous Loads:** Run your entire shop, not just one machine
- ▶ **No Moving Parts:** Maintenance-free operation



THE CHALLENGE: LIMITATIONS OF CONVENTIONAL CONVERSION METHODS

While rotary and static converters offer alternatives to utility three-phase power, they come with significant drawbacks due to poor voltage balance:

- ▶ **Premature Motor Failure:** Other phase conversion methods cannot maintain good voltage balance, causing motors to run hotter—significantly reducing motor life even when temperatures appear acceptable.
- ▶ **Expensive Drive Damage:** Unbalanced power forces rectifier diodes in VFD, spindle, and servo drives to carry excessive current, leading to premature failures and costly complete drive replacements.
- ▶ **Inconsistent Machining Results:** Spindle and drive motor speeds could become unstable during heavy cuts, which can create chatter, poor surface finish and the loss of motor torque can cause unexpected stalling during machining operations.
- ▶ **Frustrating Downtime:** Drives can trip or fault with "DC bus" or "phase loss" errors due to phase imbalance, interrupting production and workflow.
- ▶ **Compromised Precision:** High-precision operations become increasingly difficult due to thermal distortion from unbalanced heating in spindle assemblies—directly affecting part accuracy.

Modern CNC equipment and even conventional machines with electronic controls require significantly better voltage balance than rotary or static converters can provide. Without it, you're compromising not just your equipment longevity, but your shop's productivity and part quality.



WHY MACHINE SHOPS CHOOSE PHASE PERFECT®

1. True Three-Phase Power

Provides clean, balanced, and stable three-phase power that meets the tight voltage balance tolerances required by CNCs and sensitive electronics—unlike rotary or static converters.

2. Power For Hard-Starting Loads

Ensures dependable operation of high-inertia machines like lathes, mills, and air compressors.

3. Easy Installation

Install inside or outside. No programming required.

4. Reliable & Efficient

No noisy rotary motors or regular maintenance.

5. Scalable for Any System

Supports systems rated at hundreds of Amperes of three-phase making it suitable for large machine shops.

TECHNICAL DETAILS: DESIGNED FOR VERSATILITY

Transformer Friendly

In many cases, machine shop equipment requires 208 V delta configured three-phase power. A Phase Perfect® is easily paired with relatively inexpensive buck/boost transformers to lower voltage to 208 V from 240 V if required or can be used with a Delta to Wye transformer for applications requiring a neutral.

Reliability

With over 20 years of refinement, our solid-state converters are built to last:

No Moving Parts = Less Maintenance, Fewer Failures.

Phase Perfect ensures uninterrupted operation, lower energy costs, and longer equipment life.

Perfect For:

- ▶ Rural or Off-Grid Locations
- ▶ Pole Buildings, Barns, and Shops
- ▶ Equipment Change-Outs Where Three-Phase Isn't Available
- ▶ Multiple Simultaneous Loads



THE VALUE: SAVINGS THAT ADD UP

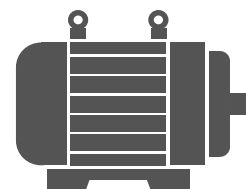
Most importantly, **WE SAVE YOU MONEY.** No costly utility upgrades, just efficient, reliable power for shop.

\$1,204.74/year

Typical HVAC System Installation, Estimated Annual Savings with Phase Perfect® versus Rotary:



Phase Perfect®
Digital Phase Converter



Rotary
Phase Converter

Converter Horsepower Needed	50 HP	100 HP
Max Load Amperage	150 A	150 A
Standby Power Consumption	240 W	7480 W
Idle Power Cost	\$39.94	\$1,244.67

Max Load Amperage:

150 A

Amperage rating of largest or combined load that will be connected to the Phase Perfect®

Electricity Cost (Per kWh):

\$0.16

The cost in cents per kilowatt/hour your utility charges you for electricity usage. You can estimate costs for your region by looking at the [Average Price Chart on eia.gov](#).

Estimated Power On Time:

52

Weeks per Year

5

Days per Week

Number of weeks per year and days per week you anticipate needing 3 Phase power available. For example: a business with typical operating hours might be 50 weeks per year and 5 days per week, while an elevator installation would require 52 weeks per year and 7 days per week.

Estimated Standby Time:

4

Hours per Day

The number of hours per day you anticipate not drawing a significant 3 Phase load. For example: a typical business might not draw a significant load right away in the morning, during breaks, or over the lunch hour, while an elevator might be idle 20 or more hours per day.





PHASE CONVERTING | 230 V & 460 V | VOLTAGE DOUBLING
NEMA 3R OUTDOOR ENCLOSURE | 5 - 175 HP

PHASE PERFECT®

DIGITAL PHASE CONVERTER



World's Only
Digital Phase
Converter



Voltage
Doubling



Phase-to-Phase
Voltage Balance



98.7% Efficient
At Full Load



508A
Panel Shop
(Options Available)

Utility Grade Three-Phase Output

Phase Perfect provides clean, utility-quality three-phase output for starting and stopping motors across the line while running transformers, contactors, circuit boards, lights, or heaters.



Panel Shop Options

- ▶ **MCCB Service Disconnect**
Breaker equipped with external, service-rated, disconnect to support easy field serviceability
- ▶ **On/Off Switch**
Allows toggling of device power without the need to remove it from the power source
- ▶ **50Hz Operation**
Run three-phase equipment anywhere in the world
- ▶ **Strikesorb Surge Protection**
Protect your drive from damaging input voltage spikes with a high-quality, surge protective device



\$2,221.86/year

Estimated Annual Savings with
Phase Perfect® versus Rotary:
Savings based on 20 HP, 24/7 Operation

PT

ANNUAL SAVINGS
CALCULATOR

CALCULATE YOUR PROJECTED ANNUAL SAVINGS AT PHASETECHNOLOGIES.COM



PT

PHASE PERFECT

DIGITAL PHASE CONVERTERS

Features

Voltage Balance Within 2%

Phase Technologies' Digital Phase Converters deliver line-to-line voltages balanced within 2%, improving equipment performance and lifespan. Balanced voltage is crucial for efficiency, power output, reliability, and longevity. Even slight imbalances cause excessive heat and motor wear.

Modbus Connectivity

New for 2026 - Built-in Modbus RTU enables remote monitoring and control. Integrate Phase Perfect into your automation system for real-time performance data and diagnostics.

2X Starting Capacity

With twice the starting capacity of rotary phase converters, a Phase Perfect's horsepower rating equals the motor size it will start—a 10 HP motor needs a 10 HP Phase Perfect. For multiple loads, select a converter rated for the total current of all connected loads. Phase Perfect converters can be flexibly configured—oversized or split into multiple units—to match almost any situation.

Utility Grade Three-Phase Output

Phase Perfect provides clean, utility-quality three-phase output for starting and stopping motors across the line while running transformers, contactors, circuit boards, lights, or heaters.

Simple Installation

With two wires in and three wires out, Phase Perfect converters are virtually "plug-and-play." Three-phase equipment connects to the output just like utility three-phase power.

Regenerative

Handles motor braking energy. Unity power factor maximizes available power while reducing utility bills.

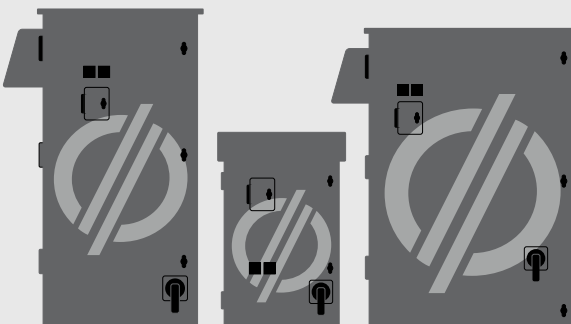
Voltage Doubling Output

Eliminates the need for a transformer while minimizing motor lead wire size on 460 V systems running on a 230 V source, saving you hundreds on wire costs.

Product Specifications

	HP	Rated Current Input (Amps)	Rated Current Output (Amps)	Input Voltage (Volts)	Output Voltage (Volts)	Output (kVA)	Standby Power Consumption (Watts)
230V	7.5	45 A	26 A	230 V	230 V	10.8 kVA	70 W
	10	62 A	36 A	230 V	230 V	14.9 kVA	74 W
	15	90 A	52 A	230 V	230 V	21.6 kVA	77 W
	20	111 A	64 A	230 V	230 V	26.6 kVA	80 W
	30	165 A	95 A	230 V	230 V	39.4 kVA	175 W
	40	225 A	130 A	230 V	230 V	54.0 kVA	190 W
	50	286 A	165 A	230 V	230 V	68.5 kVA	235 A
	60	329 A	190 A	230 V	230 V	78.9 kVA	260 W
	75	416 A	240 A	230 V	230 V	99.7 kVA	300 W
2X Voltage	7.5	45 A	13 A	230 V	460 V	10.8 kVA	200 W
	10	62 A	18 A	230 V	460 V	14.9 kVA	320 W
	15	94 A	27 A	230 V	460 V	22.4 kVA	435 W
460V	7.5	22 A	13 A	460 V	460 V	10.8 kVA	52 W
	10	32 wA	18 A	460 V	460 V	14.9 kVA	68 W
	15	47 A	27 A	460 V	460 V	22.4 kVA	71 W
	20	55 A	32 A	460 V	460 V	26.6 kVA	74 W
	30	80 A	46 A	460 V	460 V	38.2 kVA	87 W
	40	105 A	61 A	460 V	460 V	50.7 kVA	180 W
	50	134 A	77 A	460 V	460 V	64.0 kVA	190 W
	60	157 A	91 A	460 V	460 V	75.6 kVA	220 W
	75	185 A	107 A	460 V	460 V	88.9 kVA	270 W
	100	246 A	142 A	460 V	460 V	118.0 kVA	300 W
	150	343 A	198 A	460 V	460 V	164.4 kVA	300 W
	175	381 A	220 A	460 V	460 V	182.9 kVA	300 W

PRODUCT BUILDER

[PHASETECHNOLOGIES.COM/PRODUCTS](https://phasetechnologies.com/products)


UP-TO-DATE

- ✓ LEAD TIMES
- ✓ PRICING
- ✓ DIMENSIONS





**DIGITAL PHASE
CONVERTERS**

**VARIABLE
FREQUENCY
DRIVES**

**MOTOR
PROTECTION**

**SOFT
STARTER**

**508A
PANEL
SHOP**

OUR MISSION

Relentlessly seek to *provide Uncommon Value, solutions, innovation, and support for the industries that we serve.*



**INDUSTRY
BEST LEAD TIMES**



**MADE IN THE
USA**