



# Modular Crankshaft Uses Crank Pin and Roller Bearings (20140173)

## Split Crankshaft for Multiple Configurations

Traditional crankshafts are machined from a single casting. They cannot be modified after production and are not easily adapted to new configurations when the application changes. While other split crankshaft designs exist, they require pressfit pins or hard to access hardware. A modular crankshaft design has been created that allows for the use of roller bearings and crank pin for increased efficiency. The modular design allows for easy assembly and disassembly inside an enclosure. Components can be reused for changing designs and applications. It can also be manufactured using lower costs methods. Unlike other modular crankshaft designs, parts are assembled perpendicularly to the crankshaft, allowing easy access for replacing bearings or other general maintenance.

## Internal Combustion Engine and Other Applications

The modular crankshaft design has potential applications in internal combustion engines, linkage pumps and motors, and compressors. It reduces the cost of crankshaft assembly, and is more efficient and easier to maintain. When a new application arises, the crankshaft can be easily modified to fit in a variety of configurations.

### BENEFITS AND FEATURES OF MODULAR CRANKSHAFT:

- Split shaft design and assembly methods
- Allows for use of roller bearings and crank pins instead of press-fit pins
- Easy to assemble
- Easy to maintain
- Can be manufactured using low cost methods
- Adaptable to multiple configurations for different applications

**Phase of Development** Functional Prototype and mockup prototype

### Researchers

James D. Van de Ven, PhD

*Professor, Department of Mechanical Engineering, College of Science and Engineering*

[External Link](http://www.me.umn.edu) (www.me.umn.edu)

### Licensing Terms

### Technology ID

20140173

### Category

Engineering & Physical

Sciences/Transportation

Life Sciences/Industrial Biotech

### Learn more



## MN-IP Try and Buy

Center for Compact and Efficient Fluid Power (CCEFP) Try and Buy – Available to [CCEFP member companies](#)

### Try

- Trial period is up to 12 months
- Trial fee is \$0; In place of Try fee, a business plan for the Try period is required
- No US patent fees during Try period<sup>1</sup>

### Buy

- In place of a conversion fee, a post-Try period business plan is required<sup>2</sup>
- First \$1M cumulative sales are royalty-free
- Sublicense freely
- Royalty rate: 2% of Net Sales
- Patent(s) expenses paid by licensee
- Qualified startups: 5% of equity of startup is allocated to University at formation<sup>3</sup>
- Transfer fee for transferring license to a third party - \$25,000

Please contact us for detailed term sheet for a Try & Buy agreement as well as guidelines for Try<sup>1</sup> and post-Try period<sup>2</sup> business plans as well as qualified startups<sup>3</sup>