



# FACE DRIVERS

## Introduction to Face Driving

Ever increasing demands on the manufacturer to improve productivity and quality have led to the need for faster machining techniques. Face drivers, along with today's new high performance equipment, let you maximize your production capabilities for minimal expense.

With a Riten USA Face Driver, the entire workpiece is exposed for machining. Therefore, you are able to machine the entire length of the workpiece in one operation. The elimination of a setup in the production process results in increased accuracy and efficiency. Furthermore, the single axis reference point established by the center point of the face driver allows for a higher concentricity.

The Riten USA Face Driver Line consists of seven hydraulic designs and ten mechanical designs. There is a face driver available for your specific application.

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## How to Order

**#1** When choosing a face driver you first need to know the diameter of the finished workpiece. Compare that diameter to the driving diameter range that is stated at the top of each page.

**#2** The mounting of the face driver is determined by your machine spindle. Depending on the type of face driver, three different mounts are available: shank, flange, or chuck mount.

**#3** There are two factors to consider when choosing driving pins: pin direction and driving diameter. Both are stated in the second and third columns of this table.

**#4** When choosing a center point make sure the center hole diameter of your workpiece falls within the required range in this table.

**RITEN TYPE 62**

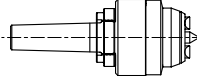
Design: Hydraulic  
Driving Diameter Range: 0.94 - 1.73 Inch

**Riten**  
**FACE DRIVERS**

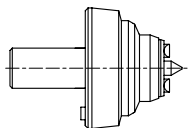
A - MOUNTING				
ORDER CODE	MOUNTING STYLE	MAX. PART WEIGHT	UPC NUMBER	
O4	#4 Morse Taper	84 lbs.	662503-00273	
O5	#5 Morse Taper	84 lbs.	662503-00274	
O6	#6 Morse Taper	84 lbs.	662503-00275	
O1	Chuck Mount	160 lbs.	662503-00276	
C2	Chuck H.D.	220 lbs.	662503-00277	
C3	Chuck H.D.	560 lbs.	662503-00278	
C4	Chuck H.D.	1000 lbs.	662503-00279	
F1	Flange Mount	84 lbs.	662503-00280	
F2	Flange H.D.	350 lbs.	662503-00281	
F3	Flange H.D.	660 lbs.	662503-00282	

B - DRIVE PINS - 5 Pins Required				
ORDER CODE	DRIVING DIA.		PIN STYLE	UPC NUMBER
	Right	Left		
PE201	0.94	1.73	OFFSET	662503-00010
PE202	1.73	0.94	OFFSET	662503-00011
PE203	1.22	1.73	HALF OFFSET	662503-00012
PE204	1.73	1.22	HALF OFFSET	662503-00011
PE205	1.42	1.42	CENTRAL	662503-00013
PE206	1.73	1.73	FULL WIDTH	662503-00002

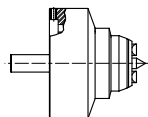
**MORSE TAPER SHANK**



**CHUCK MOUNT**



**FLANGE MOUNT - SPINDLE ADAPTER REQUIRED**



C - CENTER POINTS		
ORDER CODE	CENTER HOLE DIAMETER RANGE	UPC NUMBER
CE201	0.275 - 0.393	662503-00040
CE202	0.393 - 0.511	662503-00041
CE203	0.511 - 0.629	662503-00042
CE204	0.629 - 0.748	662503-00043
CE205	0.748 - 0.866	662503-00044
CE206	0.866 - 0.984	662503-00045
CE207	1.102 - 1.102	662503-00046
CE208	1.102 - 1.220	662503-00047
CE209	1.220 - 1.338	662503-00048

SPINDLE ADAPTERS TYPE 62		
ORDER CODE	SPINDLE SIZE	UPC NUMBER
705046	A2-5"	662503-00264
705047	A2-6"	662503-00265
705048	A2-8"	662503-00266
705049	A2-11"	662503-00267

**TO ORDER**

To determine the order number of the product you want, enter the Order Code found in blue columns A, B & C in the corresponding slots to the right. Consult the separate price list for each unit's price and add for total.

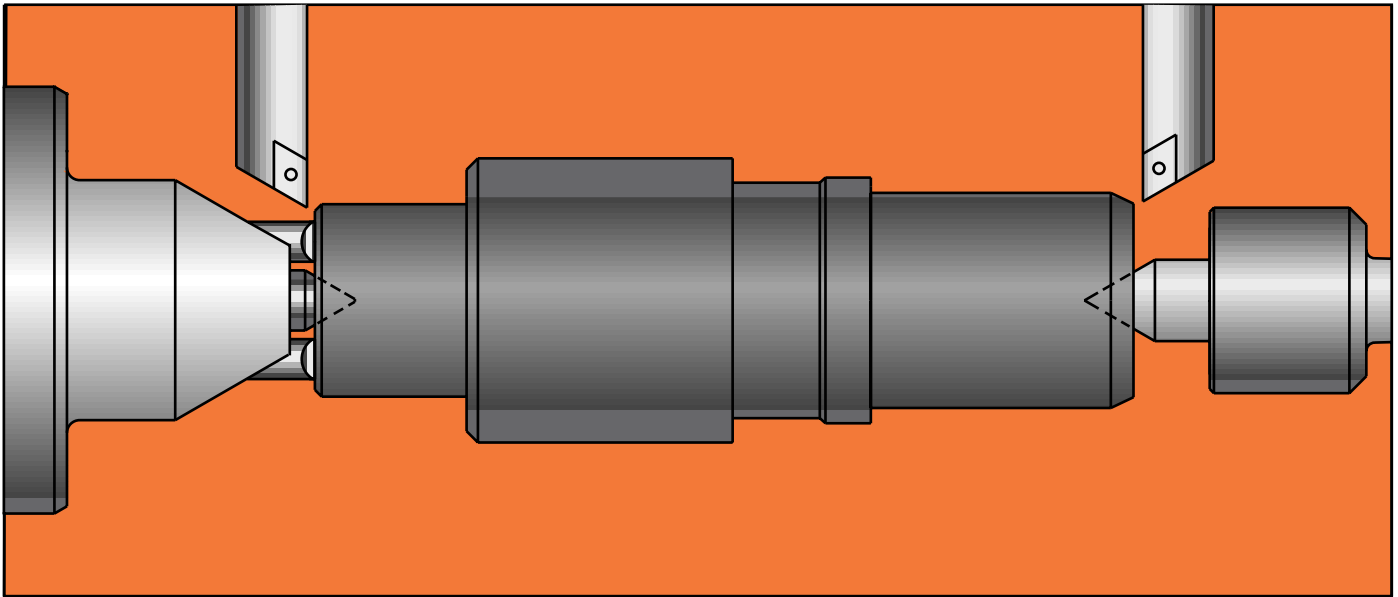
<b>TYPE</b>	<b>A - MOUNT CODE</b>	<b>B - PINS CODE</b>	<b>C - CENTER POINT CODE</b>
62	---	---	---

**PRICING FORMULA**

<b>A - MOUNT PRICE</b>	<b>B - PINS PRICE</b>	<b>C - POINT PRICE</b>	<b>TOTAL LIST PRICE</b>
+	+	=	=

(Unit price times 5)

For further assistance please call 1-800-338-0027, or complete the Information Request Sheet located on page 34 and fax to 1-800-338-0717



# Improve Your Quality and Production with a Riten Face Driver

## Complete Turning in One Operation

Riten Face Drivers, used in conjunction with Riten Live or Dead Centers, allow the complete turning or grinding of the entire outside diameter of a workpiece in single operation. Even facing and chamfering of the ends of the part can be accomplished with the careful selection of the correct face driver and offset drive pins.

Unlike a chuck or grinding dog, a face driver grips and turns the part by locating only on the face of the workpiece. With a chuck or grinding dog, the part must be removed after the first operation, reversed and rechucked before any more operations can be performed. Traditional machining requires multiple operations and setups that increase costs, cycle times and reduce part quality.

## Aggressive Machining

Properly applied, a Riten Face Driver allows you to take very heavy cuts, as much as 1/4" per side. The chisel-edged drive pins bite deep into the end face of the part under pressure from the tailstock. The initial cut, which should be toward the face driver, will help further seat the pins. Even under the high torque encountered with aggressive machining, the drive pins will rotate the workpiece without slippage.

## Greater Accuracy and Improved Part Quality

The face driver's center point centers the part, establishing the axis of rotation while the drive pins penetrate the face of the workpiece. Clamped between the center in the tailstock and the face driver in the headstock the workpiece is ready for machining in a single operation. Continuous machining from end to end in one clamping improves concentricity of the part.

## Repeatability

The accuracy and repeatability of the end face position is assured with face drivers. Under uniform tailstock pressures, the drive pins consistently locate and penetrate the workpiece within  $\pm 0.002$ " from one piece to the next.

## Faster Load Times

Load and unload times with a face driver are consistently faster

than using drive dogs or chucking. Since the face driver self centers the workpiece, parts can be loaded in the machine and clamped in seconds. Chucking takes considerably longer while the operator ensures that the part is centered and square in the chuck jaws. Higher throughput, decreased downtime and increased productivity can be accomplished with face drivers.

## Automatic Part Loading

Due to their self centering and accurate positioning, face drivers make it possible to automatically load and unload the workpiece. In some cases, this can be accomplished without stopping the spindle rotation, further increasing productivity.

## Eliminate Facing of the Workpiece

Face drivers reduce or eliminate the need to face irregular or out-of-square faces as long as the center hole is properly drilled. In some cases, even a forged center hole is sufficient if care is used in selecting the correct center point. The compensating medium (hydraulic or mechanical) in the face driver assures equal penetration of the drive pins despite variations in the surface or in the squareness of the face. Even parts with spherical ends or irregular shapes can be clamped securely with face drivers. These special applications require custom designed pins and center points matched specifically to the application.

## Wide Clamping Range

The Riten Face Driver product line consists of 7 hydraulic and 10 mechanical designs. This wide range of models offers a large degree of versatility for large parts, such as large rolls, motor shafts and crankshafts; for small parts, such as valve stems, ball studs and automatic transmission shafts; for rough castings and forgings, such as automotive gears. Face drivers are used in many between center operations, such as hobbing, milling, shaping, grinding, gear cutting, spline milling, facing and turning.

Standard face drivers are available with driving diameters from 0.28" to 5.74"; suitable for clamping and driving parts from 0.40" to 11.48" in diameter. Special drivers, drive pins and center points can be designed for your specific application.

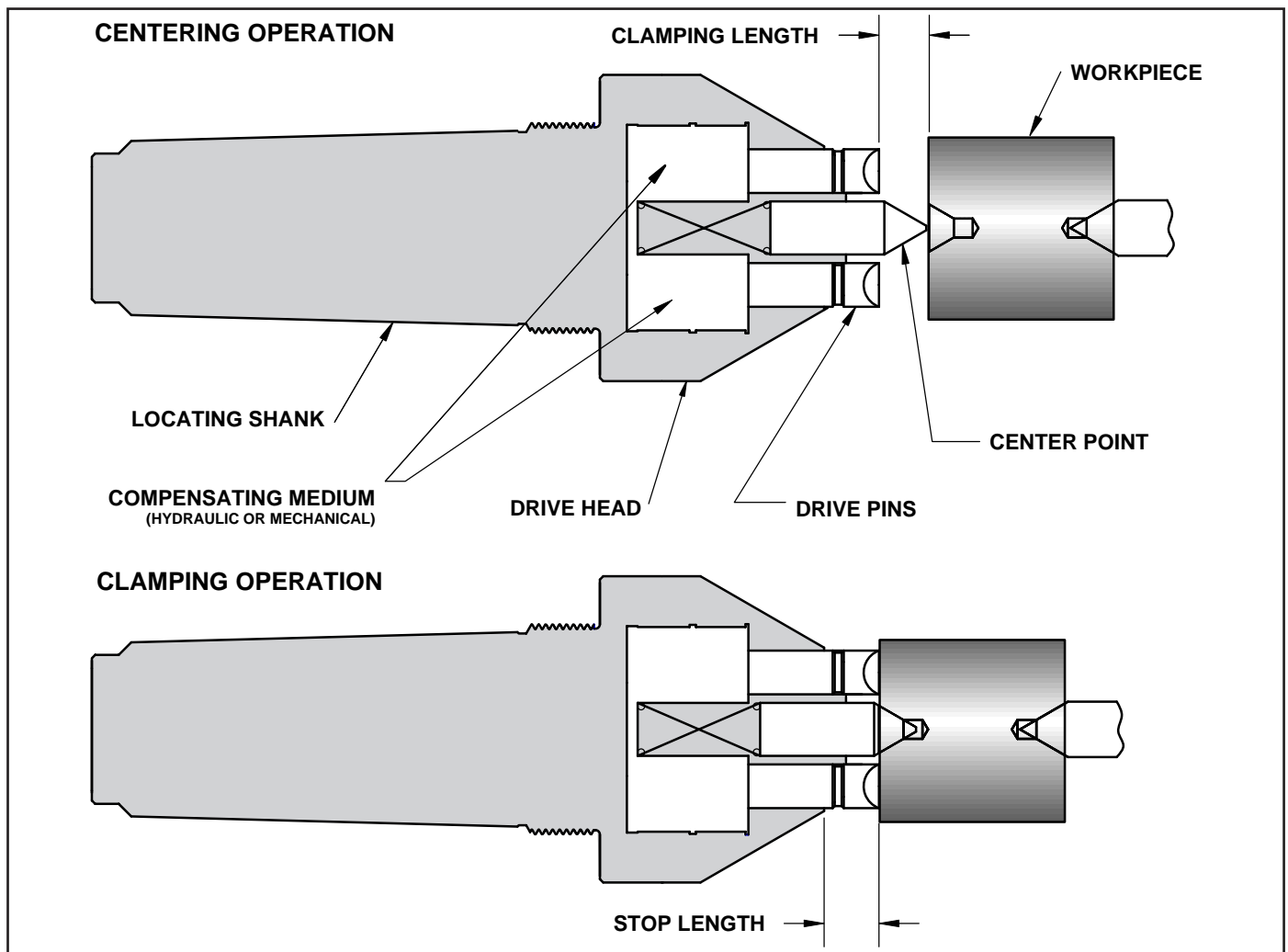
# How a Face Driver Works

A face driver has two main components, the drive head and the mounting. The mounting locates the driver in the machine with either a morse taper shank mount directly into the machine taper; or a chuck mount chucked between special chuck jaws; or a flange mount bolted to a spindle adapter on the machine spindle. The illustration shows a morse taper shank. The drive head (also known as a carrier body) contains the compensating medium (hydraulic or mechanical); which allows the pins to adjust to variations in the locating face and the spring-loaded center point.

Face driving is a simple two step clamping operation, centering followed by clamping. Under tailstock pressure, the workpiece engages the center point which locates the part and provides a consistent axis of rotation. As the tailstock continues to

drive the workpiece against the center point, the axial pressure forces the spring-loaded center point back into the carrier body until the drive pins engage the face of the workpiece. Each pin individually compensates for any irregularities in the face until all of the pins are fully engaged. Under the increasing axial load, the drive pins penetrate the workpiece completing the clamping operation, while the center point maintains the axis of rotation.

The compensating medium (either hydraulic or mechanical) in the face driver assures equal penetration of the drive pins despite variations in the surface or in the squareness of the face. Therefore, surface imperfections or out of square saw cuts do not present a problem when face driving.



## Pin Penetration

**The first (cutting) operation must be toward the face driver.** The pictures at right show the indentations made by the drive pins during the initial clamping stage (Fig. 1), and the final clamping stage (Fig. 2). Note the uniformity of each indentation. This uniformity indicates that every drive pin has penetrated the face to the same depth, assuring equalized drive by each pin during machining operations. Pin penetration in the initial clamping stage ranges from 0.003 to 0.005, and ranges from 0.010 to 0.020 in the final clamping phase.

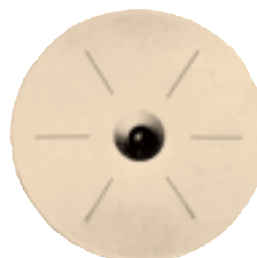


Fig. 1

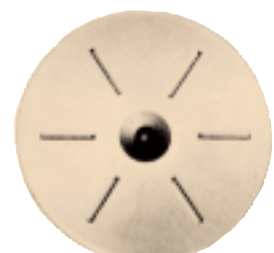


Fig. 2