

# THE ENDEAVOR SYSTEM

## A New Era of Machining

The Endeavor System is the best door processing center Kval has ever produced, and with nearly 70 years of experience building heavy-duty and innovative door machinery that's saying a lot.

## More Efficient in Every Way

The Endeavor is a major departure from earlier Kval designs. It includes a pair of optimized stations designed to produce lock and hinge details in as little as 45 seconds door to door. More complex doors requiring card lock, viewer, and square hinge prep take about 80 seconds. All motions are CNC controlled for rapid and precise adjustment to the next door detail.

## Harnessing the Power of Computing

For machine logic, motion, door measurement, and the user interface Kval partnered with the Beckhoff group headquartered in Germany. The software is all new and was developed by an innovative programming team at Kval specifically for the Endeavor System using C-sharp and Structured Text. A single industrial computer system controls both stations; program and logic flow is seamless. Existing Kval customers' machining files for earlier machines remain completely compatible.

## Heavy-duty Performance

Mechanically these industrial machines are built to last. The bases of both stations are fabricated from ½" x 10 x 8 tubular steel. After welding, the bases are shipped to a specialist firm in Southern California to precisely mill rail bearing beds and to drill and tap mounting holes with a .001" tolerance. After painting, bearings and 35mm rails are mounted without shimming or fitting. They are just correct from the beginning. Then the build process continues with accurately machined components, precision oversize bearings and heavy duty routers designed to allow fast cutting speeds without flex or vibration. The combined shipping weight of the two stations is over 22,000 pounds – without question the heaviest door machines ever produced by Kval.

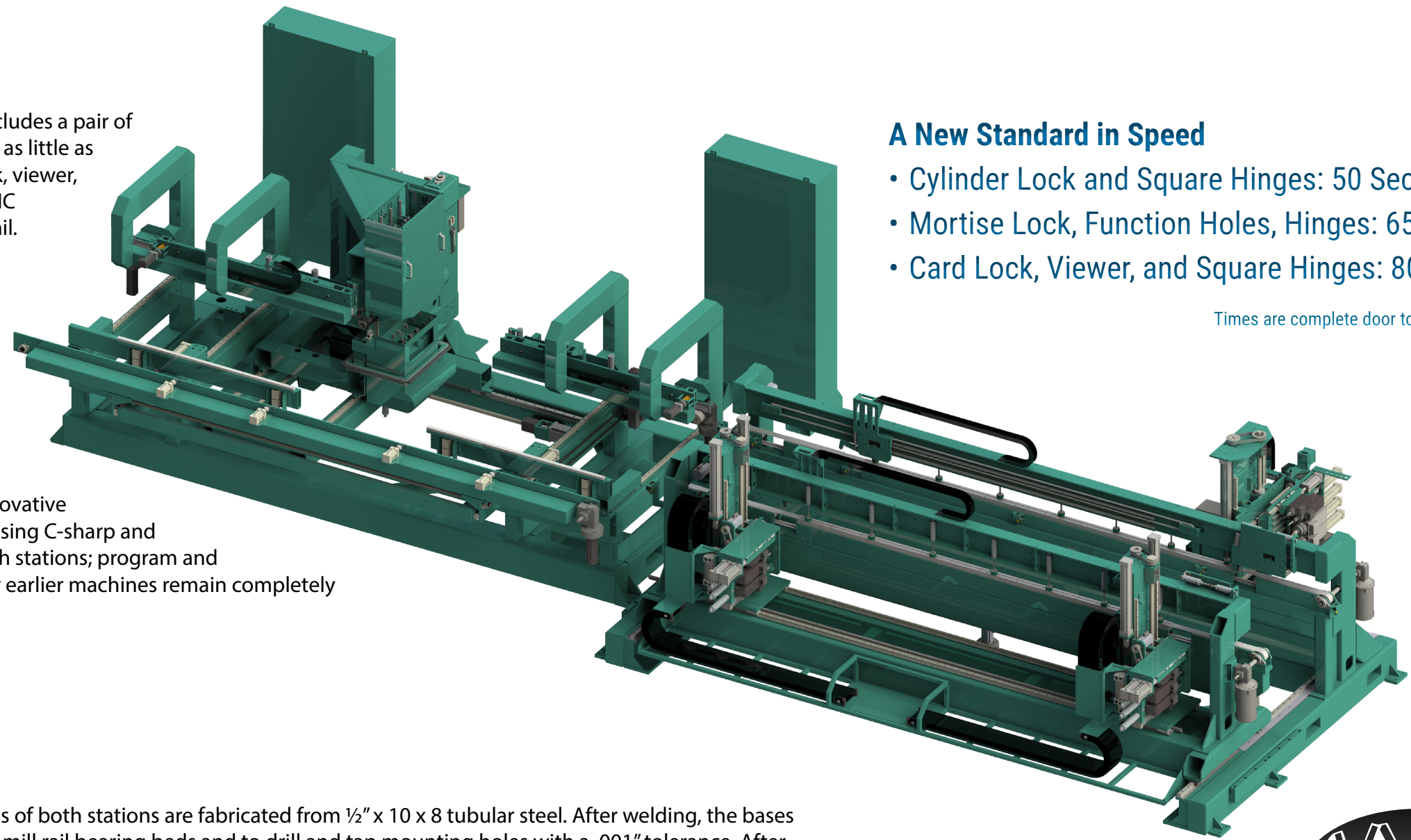
## Flexibility Redefined

The Endeavor is extremely versatile, capable of routing and drilling virtually any common lock and hinge hardware, including specials like soss, paulmelle, and center pivot hinges, and even new lock designs with deep electrical connection pockets. Of course it will also process card locks, viewers, multi-points and pockets for flush bolts along the hinge edge – all with corners precisely squared using computer controlled chisels.

## A New Standard in Speed

- Cylinder Lock and Square Hinges: 50 Seconds
- Mortise Lock, Function Holes, Hinges: 65 Seconds
- Card Lock, Viewer, and Square Hinges: 80 Seconds

Times are complete door to door sequences



Experience the Speed  
[kvalinc.com/Endeavor](http://kvalinc.com/Endeavor)



## Single Console

The Endeavor is controlled with a single Beckhoff industrial computer for seamless operation of both detailing stations. Doors in each station can be unique. Barcode or RFID processing is highly recommended.

## Feed and Clamping System

Brecoflex geared belt feed driven with Beckhoff servo motors and controllers. For precision machining, each door is digitally measured with six probes to confirm exact size and position.

## Lock Stile Detailing

- 12 HP Deep Pocket Router & Cylinder Latch Bore
- 7.5 HP Electrical Connection Pockets to 7.5" Deep
- 7.5 HP CW Rotation Flush Bolts, T strikes etc.
- 7.5 HP CCW Rotation for Door Face Protection
- 3 HP Short Tool for Shallow Plates
- Door Touch-off Probe
- 0-3 degree Pivot on 5" Timken Bearings
- Squaring Chisels (behind base)

Door Feeder

Door Stacker

## Door Face Detailing

- Matched Routers & Drills simultaneously process door from both sides
- Four 3HP Spindle Routers
- Four 2HP 23,000 Spindle Drills
- Routes up to 32" from lock stile edge and most locks and viewers in one position
- Software automatically mirrors standard locks for reverse swing and opposite hand

## Hinge Stile Detailing

- 3 HP CW Rotation Hinges to 2" deep
- 3 HP CCW Router Protects Door Face
- 2HP 23,000 RPM Drill Spindle for Screw Holes
- Door Touch-off Probe
- 0-3 degree Pivot on 5" Timken Bearings
- Squaring Chisels (Top of base)

