

# CCIF

## Computer Controlled Incremental Forming

### Lighter, Stronger and Faster

Forming lighter and stronger metal cylindrical parts and wheels more efficiently than ever before saving you factory floor space and input material. For wheel manufacturers, CCIF is an innovative new technology designed to reduce a vehicle's unsprung weight.



Production flow from billet to finished SUV wheel



International Forming  
Technology, Inc.



Computer Controlled Incremental Forming (CCIF) is the process of forging a solid billet of wrought aluminum or steel between the tilted upper and lower rotating forging dies under a finite amount of pressure.

The upper die is tilted at a fixed angle towards the lower die, therefore the contact area between the rotating upper die and the work piece located on the rotating lower die amounts to only 5 - 20% of the area of a conventional hydraulic press.

In other words, a 350 ton CCIF press exerts the same amount of force as a 4,000 ton hydraulic press, meaning that the press force required is up to 95% lower than that of a conventional hydraulic press.



CCIF forging tooling and workpiece

## WHY ADOPT THE CCIF TECHNOLOGY?

**LARGER PART SIZE:** Up to 36 inch diameter blanks (for 34 inch wheel blanks) with 350 ton press

**SMALLER EQUIPMENT SIZE:** Smaller footprint and dimensions than conventional hydraulic press

**LOWER EQUIPMENT WEIGHT:** Significantly lower gross weight than conventional press

**LOWER COST FOR FOUNDATION:** Minimal foundation requirements

**LOWER TOOLING COST:** Less material required for tooling, thus lowering cost (up to 80% savings)

**SHORTER TOOLING CHANGE:** Smaller/lighter tooling, fewer operations involved

**LOWER MAINTENANCE COST:** Significantly lower service requirements

**SMALLER HYDRAULIC UNIT:** Reduced hydraulic unit and fluid requirements

**LOWER ENERGY COST:** Reduced power requirements due to lower press force requirement



# Key Advantages of CCIF

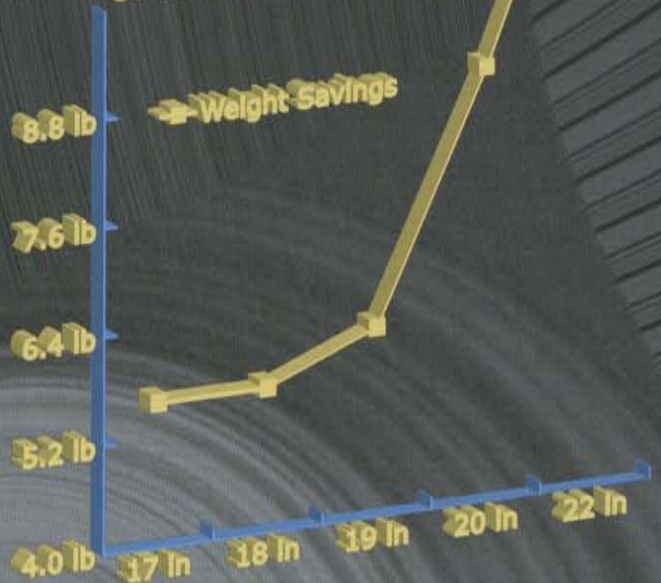
## For Wheel Producers

Computer Controlled Incremental Forming/Rotary Forged and CCFF (flow-formed) wheels are approximately 25 to 30% lighter than cast wheels.

These weight savings are further amplified with the increase in wheel diameter.

A lighter and stronger wheel results in improved handling and performance, reduced wear on suspension components and ultimately increased fuel efficiency... a must for today's demanding automotive industry.

The achievable weight savings when switching to CCIF-CCFF from conventional casting for common wheel sizes.



## Thinking Ahead...

Manufacturers consistently strive to reduce unsprung weight to a minimum. CCIF (rotary forged) wheels offer tremendous weight savings when compared to traditional cast wheels.



## For Cylindrical Part Producers

CCIF can be used to produce virtually any cylindrical part, rings, sprockets and flanges. CCIF will save the producer money when compared to conventional forming methods such as hammers and presses. Up to 35% less material will be required for forming the part.





# The Equipment

## RFP (CCIF/Rotary Forging Press)

### Machine Dimensions

Machine Width: inches (mm) 91 (2300)  
Machine Width Below Floor: inches (mm) 217 (5500)  
Depth: inches (mm) 73 (1860)  
Height: inches (mm) 241 (6120)  
Height Over Floor: inches (mm) 187 (4760)  
Machine Weight: short tons (metric tons) 66 (60)  
Power Rating: kVA 730



Cross-section of a CCIF (rotary forged) wheel blank

Preform - Diameter  
Initial Height  
Input Weight

inches (mm)  
inches (mm)  
lbs (kg)

max. 36 (914)  
max. 15.75 (400)  
max. 154 (70)



**International Forming  
Technology, Inc.**

22917 Pacific Coast Highway  
Malibu Plaza, Suite #200  
Malibu, CA 90265 USA  
Tel : +1 (310) 456 7100  
Fax: +1 (310) 456 7158  
info@intft.com  
www.intft.com