

# Contract Development Work / Product Introduction



NICHIDAI supports technology development relating to precision forging, as it has been conducting entrusted development by utilizing a press machine for research and development, which is held within the premise of NICHIDAI.



## Press Machine for Research & Development Projects NFD-1000

### Characteristics

- High accuracy**  
 Improved position and load accuracy by a pump directly connected with servo motor. Its tri-partitional slide accommodate unbalanced load.
- Flexibility**  
 A system responds to wide-ranging pressure, position control and forming speed, supporting development of innovative forging methods.
- Improved efficiency**  
 Prototyping efficiency has been increased with three processes. Data collection at the development stage helps start-up of mass production.

### Specifications

CENTER st (2 processes)				
Main	Pressing capacity	(kN)	10,000	
	Stroke	(mm)	500	
	Speed(mm/s)	Low pressure		1~100
		Medium pressure		1~50
High pressure			1~30	
Inner	Pressing capacity	(kN)	4,000	
	Stroke	(mm)	250	
	Speed	(mm/s)	1~80	
Bed	Pressing capacity	(kN)	4,000	
	Stroke	(mm)	250	
	Speed	(mm/s)	1~80	
SKO	Pressing capacity	(kN)	200	
	Stroke	(mm)	250	
	Speed	(mm/s)	1~100	
BKO	Pressing capacity	(kN)	1,000	
	Stroke	(mm)	250	
	Speed	(mm/s)	1~100	

SIDE st (1,3 processes)			
Main	Pressing capacity	(kN)	2,000
	Stroke	(mm)	500
	Speed	(mm/s)	1~170
SKO	Pressing capacity	(kN)	100
	Stroke	(mm)	100
	Speed	(mm/s)	1~100
BKO	Pressing capacity	(kN)	225
	Stroke	(mm)	200
	Speed	(mm/s)	1~100

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Nichidai's net-shape technology contributes to the development of a variety of precision forging products.

## Cross Joints



### Forming conditions

Material : SCr420H  
Forming speed : 17~20SPM  
Temperature : room temperature  
Press : L2C-1250L

### Key points

- Decrease in machining space by enclosed die forging
- Forging by a pantograph-type two-side hydraulic closed-die mechanism

## Inner Races



### Forming conditions

Material : SCr420H  
Forming speed : 17SPM  
Temperature : room temperature  
Press : L2C-1250L

### Key points

- Decrease in machining space by enclosed die forging
- Forging by a one-side hydraulic enclosed die mechanism

## Hypoid Pinion Gears



### Forming conditions

Material : SCr420H  
Forming speed : 20mm/sec  
Temperature : 800°C  
Press : HED-800 (a3-axis hydraulic press)

### Key points

- Cost reduction by forging machined parts
- Improvement in strength by forging the teeth part

## Bevel Gears



### Forming conditions

Material : SCM420H  
Forming speed : 17~20SPM  
Temperature : room temperature  
Press : L2C-800L

### Key points

- Decrease in machining space by enclosed die forging
- Forging by a one-side hydraulic enclosed die mechanism

## Helical Gears



### Forming conditions

Material : SCr420H  
Forming speed : 20mm/sec  
Temperature : room temperature  
Press : HED-800 (a 3-axis hydraulic press)

### Key points

- Cost reduction by using a solid-core material
- Reduction in forming load by two-stage motion

## Scrolls



### Forming conditions

Material : aluminum alloy  
Forming speed : 17SPM  
Temperature : 420°C  
Press : FMX-1000

### Key points

- Uniform lap height by back pressure forming
- Decrease in machining space by a back pressure mechanism

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