



# CNC Roll Grinder

CNC Roll Grinder has a perfect combination of the up-to-date design, advanced high technology and fully skilled DSK Machinery's engineering. This machine consists of bed, headstock, tailstock, wheel head, measuring device, hydrodynamic steady rest, accessories and CNC control system.

[www.dskmc.com](http://www.dskmc.com)







## CNC Roll Grinder

# Applications

This machine has been designed for various kinds of rolls in the industries like below.

디에스케이기계(주)가 생산하는 roll grinder로 다양한 분야의 roll을 최고의 품질로 연삭할 수 있습니다.

## Steel Mill Industry

### 제철분야

- Roll for heavy plate
- Roll for hot rolled strip
- Roll for cold rolled strip



## Aluminum & Other Industry

### 알루미늄 분야

- Aluminum plate and sheet
- Stainless steel plate
- Non-ferrous metal plate



## Paper Industry

### 제지분야

- Roll for paper sheet
- Roll for toilet paper



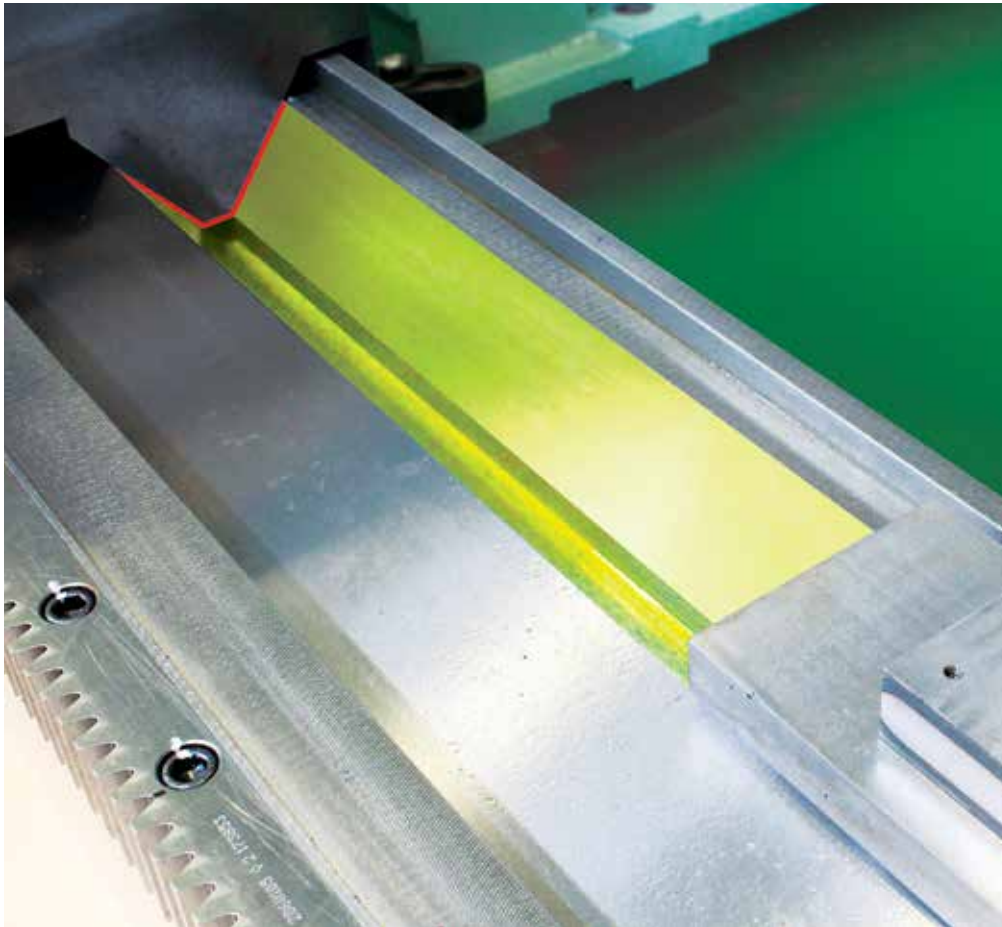
## CNC Roll Grinder

## Features

## V-Groove

- Best system for grinding accuracy
- Continuously keeping center line
- Minimization of the thermal deformation
- Application of 76° degree at V-groove for no swimming effect in heavy weight

- Roll 연삭 정확도를 위한 최고의 시스템
- 지속적인 센터라인 유지
- 열 변형에 최소화
- V-groove 에 76° 각도 적용으로 고중량 조건에서도 울림 현상 없음



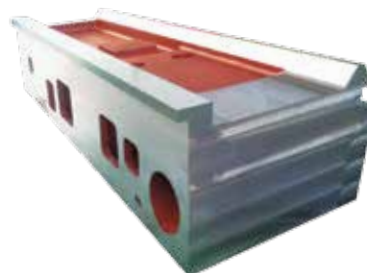
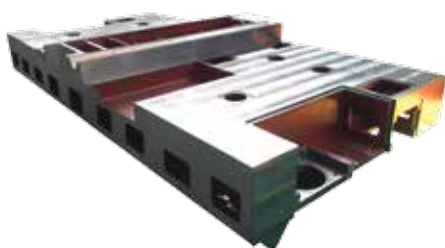
## Cast Iron Structure

The main parts such as carriage, bed, tailstock and headstock are made of cast iron.

- Rigid structure
- High dimensional accuracy of the products

주요 파트인 carriage, bed, tailstock, headstock은 주물로 제작되었습니다.

- 높은 강성
- 제품의 고정밀도 유지







## “GPC2” System

Kleinknecht in Germany had supplied roll grinder control systems and electrical parts to well known steel companies all over the world through Waldrich Siegen. The “GPC2” system of Kleinknecht which has been reliable and qualified by customers for a long time is applied to our roll grinder to guarantee our machine’s stability.

- Instinctive and flexible programming
- Application of principal languages
- Application of Siemens standard parts

전 Waldrich Siegen 사에 roll grinder control system 및 전장품을 담당하여 국내 외 유수 철강업체에 납품한 실적을 가지고 있는 독일 Kleinknecht 사의 신뢰성 있고 검증된 “GPC2” 를 적용하였습니다.

- 직관적이고 유연한 프로그래밍
- 주요 국어 지원 (한글 가능)
- 대부분 Siemens 표준 부품 사용



## Measuring Device

- Application of Heidenhain measuring system
- Measuring device and carriage are integrated as one body for compact structure
- Minimization of temperature influence and deformation despite long-term use, maintenance of high accuracy.

- Heidenhain measuring system 적용
- Measuring device와 carriage 가 일체형으로 구성되어 compact한 구조
- 장기간 사용에도 온도의 영향이나 변형이 적어 고정도 유지가능

## Scraping

- Application of scraping work to the major slide ways
- Minimizing abrasion through the system that oil permeates scraping parts
- Realization of high precision grinding
- 주요 slide way에 scraping 적용
- Scraping 부위에 기름이 스며들어 마모 최소화
- 고정밀 연삭가공 실현



## CNC Roll Grinder

## Features



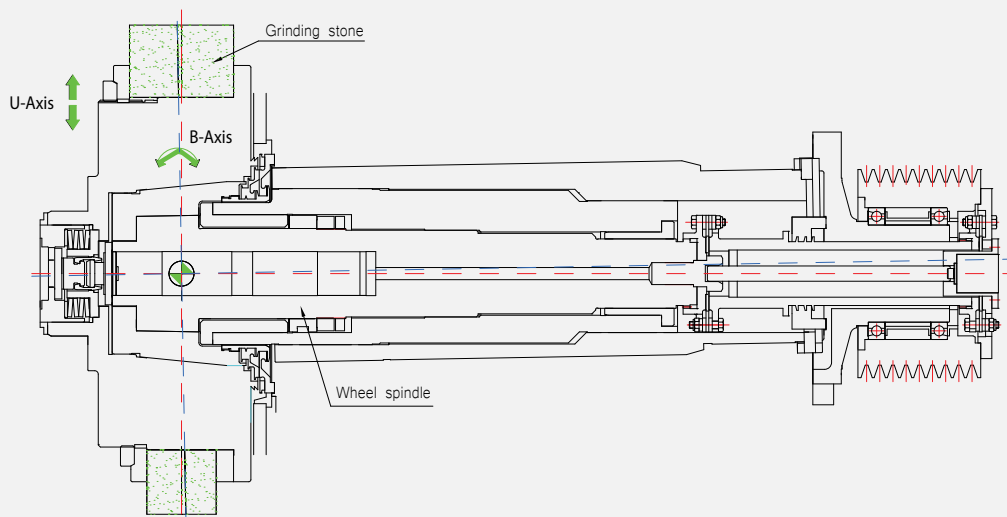
## Grinding Wheel

Our grinding wheel has a special design for efficient grinding of the roll, and it has special moving axis B and U. That axis brings high grinding ability and cost reduction.

- Special design of B & U-axis
- Precise approach control from wheel to roll surface
- Application of disc coupling for prevention of vibration

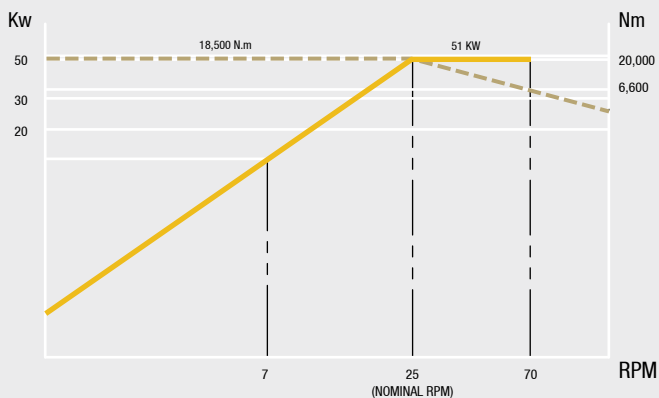
디에스케이기계(주)가 개발한 grinding wheel 은 roll 의 연삭을 손쉽게 하도록 설계 되었으며, 특수한 이동축인 B축과 U축을 가지고 있습니다. 이 축은 높은 연삭 성능과 원가 절감을 가져옵니다.

- 디에스케이기계(주)의 특수한 B & U축 설계
- Wheel에서 roll 표면까지의 정밀한 접근 제어
- 진동방지를 위한 disc coupling 적용

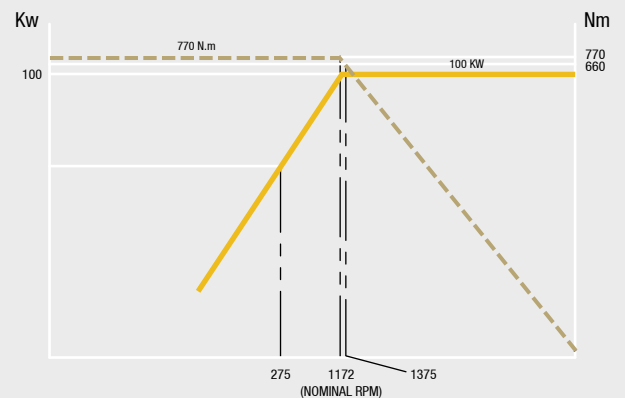


## Torque Diagram

+ Faceplate of Work Roll Grinder



+ Wheel Head of Work Roll Grinder





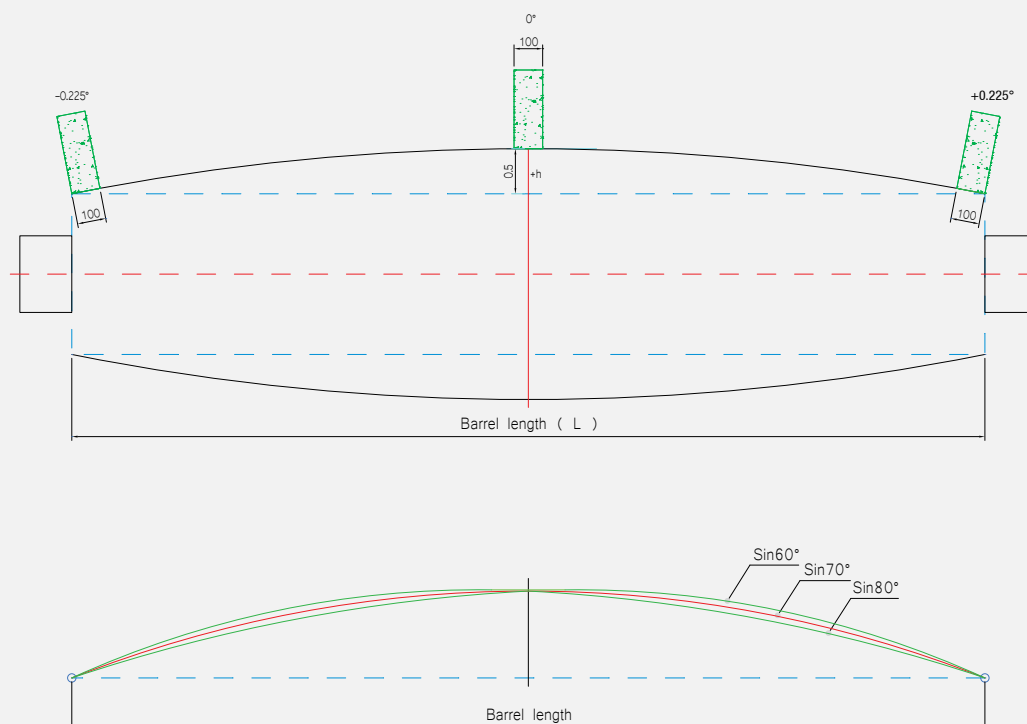
## B & U-axis

- Working at the center line of the grinding wheel
- High rigid structure
- Application of the hydrostatic guiding system
- 40% time reduction in comparison with other makers in case of CVC roll grinding
- 20% reduction of the wheel wear

- Grinding wheel 중심선상에서 작동
- 고강성구조
- Hydrostatic guiding system 적용
- CVC roll 연삭의 경우 타 메이커 대비 가공시간 40% 절감
- 스톨마모 20% 절감



## Curve Shape





## CNC Roll Grinder

# Features

## Driving Dog

- Optimized design for quick roll setting
- By applying step shape, various types of rolls can be set quickly without changing aluminum housing.
- 빠른 roll setting을 위한 최적의 설계
- 고객사 roll 구조에 맞는 계단형상 채움으로 aluminum housing 변경 없이 각각 다른 형상의 roll을 신속히 setting 가능



## Steady / Chock Rest

We supply various steady rests and chock rests in hot & cold rolling mill abiding by customer's needs on the basis of the accumulated steady rest manufacture know-how.

- Chock rest for quick grinding in hot rolling mill
- Steady rest for high precise grinding in cold rolling mill

### + For Cold Rolling Mill



다수의 steady rest 제작을 통해 얻은 노하우를 바탕으로 고객사에 적합한 열연, 냉연용 steady rest와 chock rest를 공급해 드립니다

- 신속한 중절삭에 적합한 열연용 chock rest
- 고정밀 연삭에 적합한 냉연용 steady rest

### + For Hot Rolling Mill

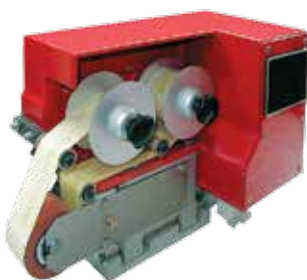




## Accessories

We supply lots of customized accessories for various customers to perform efficient machine operation and machining.

고객사에 적합한 다양한 accessory들을 효율적인 장비운용과 가공을 위하여 공급하고 있습니다.



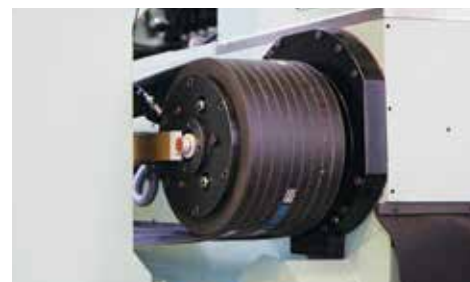
+ Superfinishing attachment



+ Roughness measuring device



+ Jib crane



+ Auto balancer



## Automatic Wheel Changer

- Special design for easy replacement of grinding wheel
- Safe and quick replacement of grinding wheel with hydraulic system
- Grinding wheel 교환을 용이하게 하기 위한 special design
- 유압시스템을 적용하여 안전하고 신속한 grinding wheel 교체

## ECT / UT

- Equipment for detecting roll crack
- Optimized design without interference part abiding by customer's various roll types
- Roll crack 탐상장비
- 고객사의 다양한 roll 조건에 따른 간섭부를 제거한 최적의 설계제공



## Specification

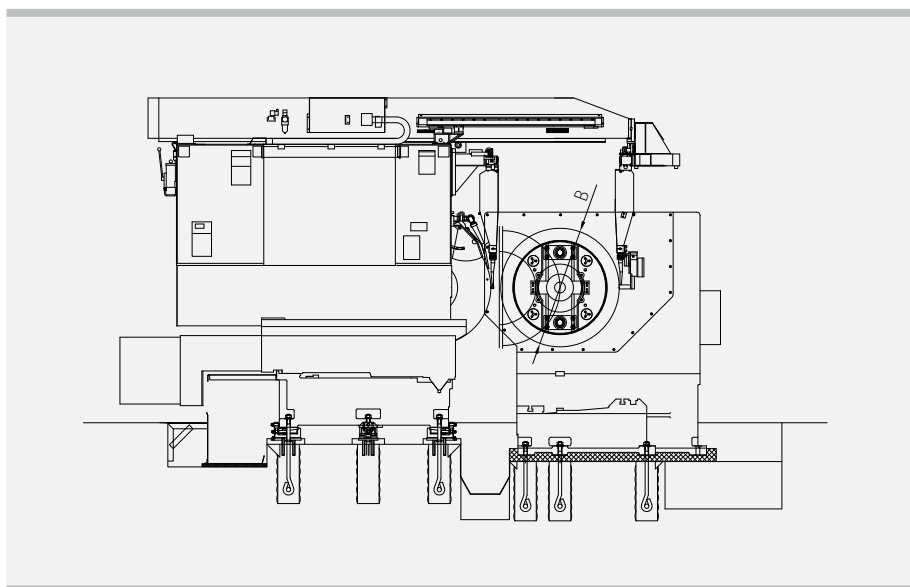
Specification		DRG-W
Working range	Distance between centers (A)	6,000 mm (236 in.)
	Center height	1,100 mm (43 in.)
	Range of roll diameter (B)	Ø 446 ~ 1,100 mm (18 ~ 43 in.)
	Workpiece weight in hydrodynamic steady rest	35 tons (77,000 lbs)
Headstock	Headstock motor power	51 kW (69 Hp)
	Speed range of faceplate	7 ~ 70 rpm
	Torque at faceplate	16,000 Nm (11,800 lbft)
Tailstock	Quill stroke	1,000 mm (39 in.)
Grinding wheel	Grinding wheel motor	100 kW (136 Hp)
	Grinding spindle speed	275 ~ 1,375 rpm
	Bore	508 mm (20 in.)
Feed rate	Z-axis	6 ~ 6,000 mm/min (0.2 ~ 236 in./min)
	X-axis	1 ~ 1,000 mm/min (0.04 ~ 39 in./min)
	U-axis	50 mm/min (2 in./min)
Measuring	Diameter range	400 ~ 1,100 mm (16 ~ 43 in.)
Control system		Siemens / GPC2
Measuring system		Heidenhain

## Basic Accessories

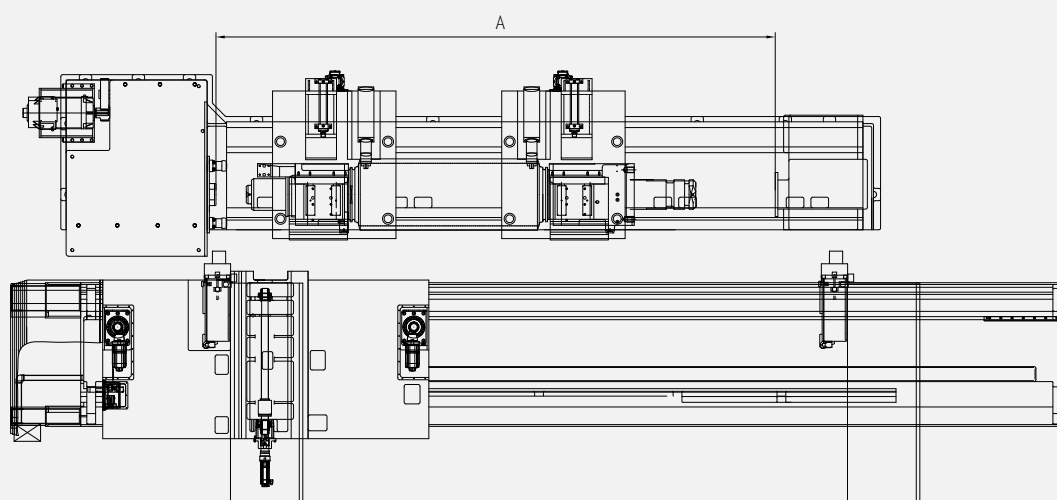
- Standard steady rest
- Roll driver
- Roll measuring unit
- X & Z-axis telescopic cover
- Work light
- Patrol ramp (red, green, yellow)
- Leveling block & anchor bolt

## Optional Accessories

- Crack detector [ECT/UT]
- Slewing crane
- U1-axis function
- Chock tilting device
- Coolant unit and filtering system
- Roughness measuring device
- B-axis function
- Drying & oiling unit



DRG-B	DRG-T
6,000 mm (236 in.)	13,500 mm (531 in.)
1,100 mm (43 in.)	1,900 mm (75 in.)
Ø 446 ~ 1,600 mm (18 ~ 63 in.)	Ø 900 ~ 2,500 mm (35 ~ 98 in.)
60 tons (132,000 lbs)	300 tons (660,000 lbs)
51 kW (69 Hp)	200 kW (268 Hp)
7 ~ 70 rpm	5 ~ 50 rpm
16,000 Nm (11,800 lbft)	103,000 Nm (75,960 lbft)
1,000 mm (39 in.)	1000 mm (39 in.)
100 kW (136 Hp)	170 kW (227 Hp)
275 ~ 1,375 rpm	400 ~ 1,600 rpm
508 mm (20 in.)	508 mm (20 in.)
6 ~ 6,000 mm/min (0.2 ~ 236 in./min)	6 ~ 6,000 mm/min (0.2 ~ 236 in./min)
1 ~ 1,000 mm/min (0.04 ~ 39 in./min)	1 ~ 1,000 mm/min (0.04 ~ 39 in./min)
50 mm/min (2 in./min)	50 mm/min (2 in./min)
400 ~ 1,600 mm (16 ~ 63 in.)	900 ~ 2,500 mm (35 ~ 98 in.)
Siemens / GPC2	
Heidenhain	





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