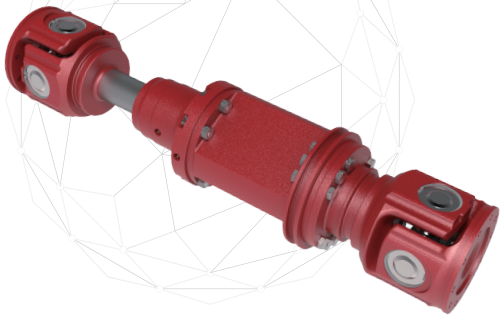
www.katem.co.kr



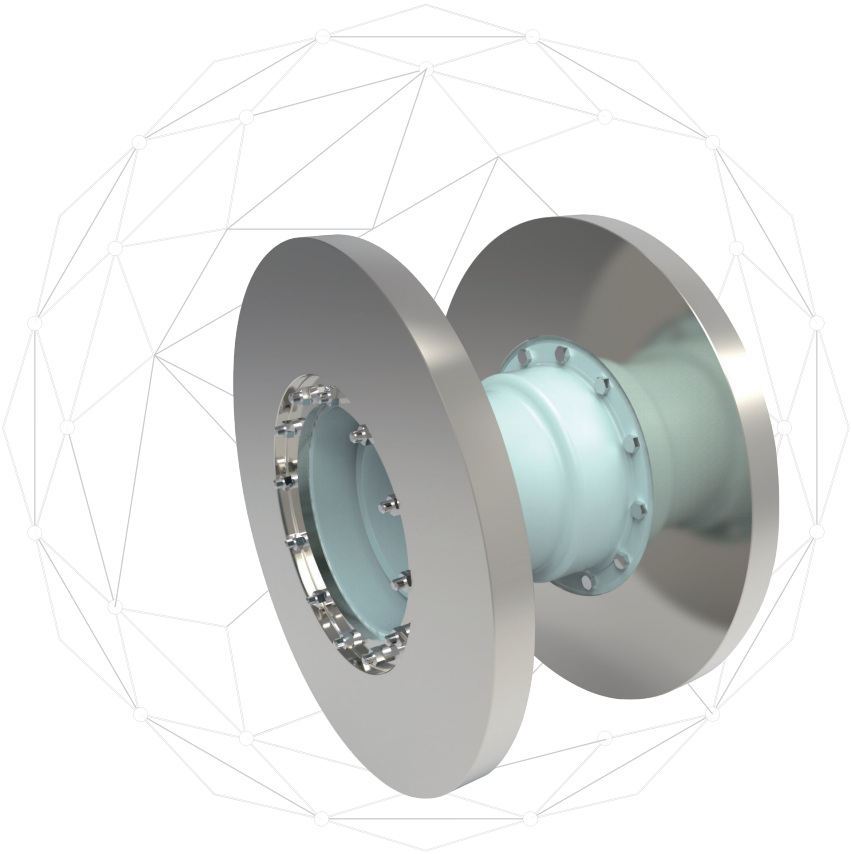


KATEM

Automotive Drive Line Components Specialist







KATEM

We will open the window of new technology world with the spirit of challenge and creation

KATEM is a Parts specialized company estabilished 2014 which is the best in field of automobile parts specialized in railway components and based on reaserch and development(R&D) that aimed to advanced into the global markets with new technologies under the managemant policy of company that leads technology, makes employees happy and serves society.

Based on a perfect quality assurance system, customers satisfaction is our top priority.
We Will do our best to to be reborn as a small hidden champion in field of automobile parts.





High Speed Train

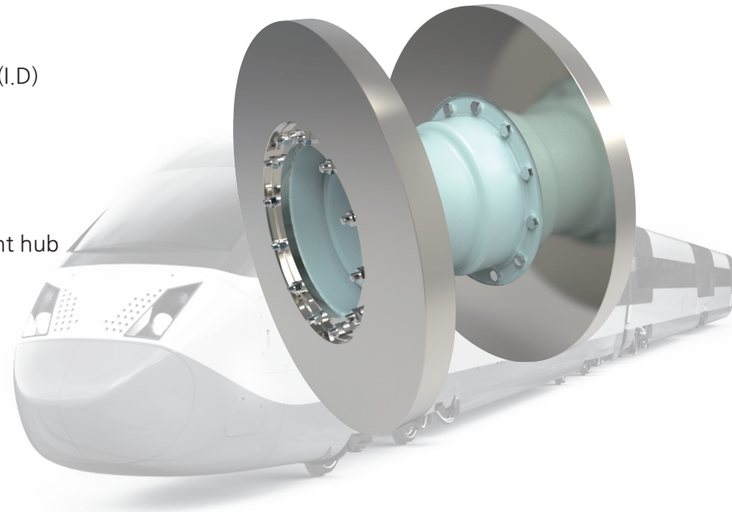
Forged Steel Disk Brake

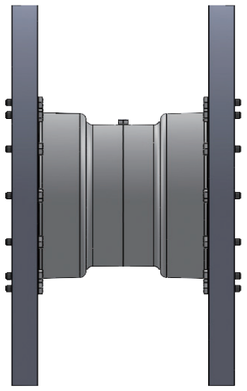
Applications
High Speed Train(KTX)

Product Specifications
- 640mm(O.D) x W375mm(Width) x 200mm(I.D)

Product Features
- Forged Solid Type
- Crack Prevention Process
- Local Material
- Applying radiant heat efficiency improvement hub

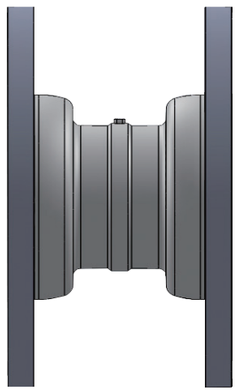
Applicable standard
- NF F 14535-1 : 2019
- NF F 14535-3 : 2016
- NF F 11-414 : 2016
- UIC541-3 8th Edition : 2017





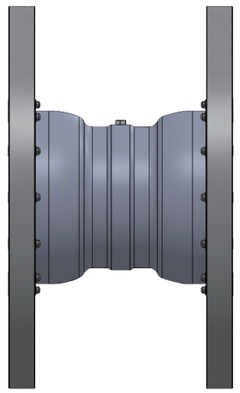
F-type

Initial Development Model



I-type

Improved Model
(Cooling Efficiency Improvement)



K-type

Korean unique model
(Easy to maintenance)

High Speed Train

Cast Steel Disk Brake

Applications
High Speed Train(KTX-Sacheon)

Product Specifications
640mm(O.D) x W150mm(Width) x 200mm(I.D) x 80(T)

Product Features
- Ventilated Type
- One Piece Type
- Axle Mounting Type

Applicable standard
- NF F 14535-1 : 2019
- NF F 14535-3 : 2016
- NF F 11-414 : 2016
- UIC541-3 8th Edition : 2017



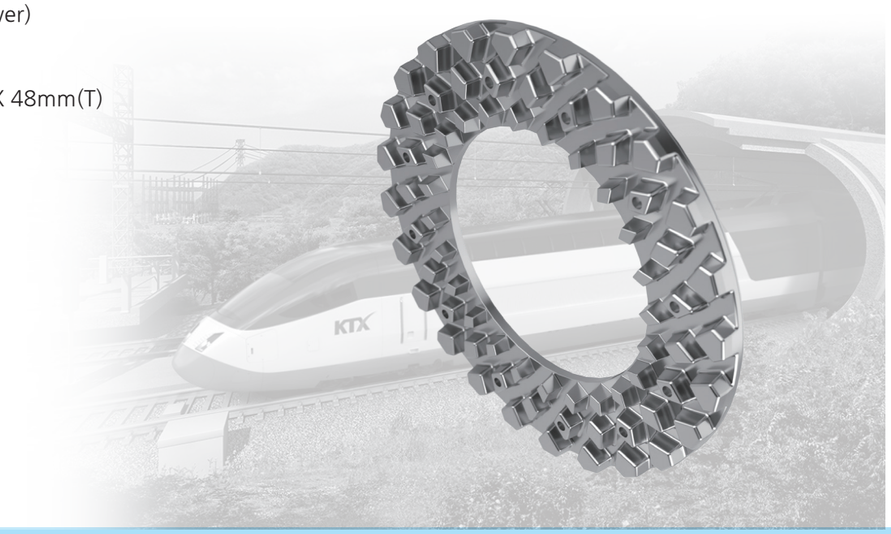
Forged Steel Disk Brake

Applications
High Speed Train(Multiple Power)

Product Specifications
710mm(O.D) X410mm(O.D) X 48mm(T)

Product Features
- Forged Pin Type
- Wheel Mounting Type

Applicable standard
- NF F 14535-1 : 2019
- NF F 14535-3 : 2016
- NF F 11-414 : 2016
- UIC541-3 8th Edition : 2017



Transmission Shaft

Applications
High Speed Train(KTX)

Product Specifications
- 220mm(O.D) x L 1,100mm(Length)
- Torsional Braking Torque : 43.5kNm
- Torsional Fatigue Life : 300,000cycle

Product Features
- Mechanical Type
- Safety-set Inner Mounting Type

Product Funtion
The ability to rotate the axle to move the vehicle forward by transmitting the high speed train motor power to it through the reducer



Universal Joint

Applications
High Speed Train(KTX)

Product Specifications
204mm x Φ44.7

Product Funtion
Embedded in the transmission shaft and a function of power transmission which forms an angle between the driver which transmits the rotational power and the follower



Defense Parts

Special Purpose Land Equipment

Water Jet Drive Shaft A Type

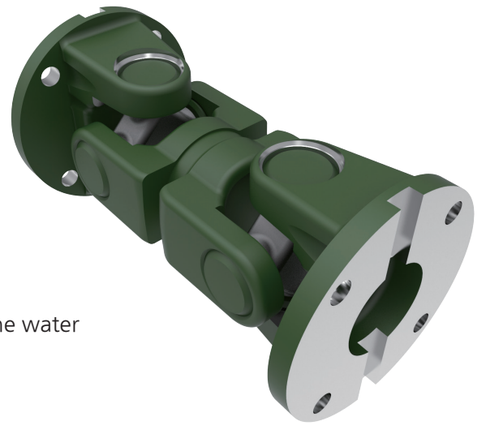
Applications
Special Purpose Vehicles

Product Specifications
- 90mm(O.D) x L168~173mm(Length)
- Torsional Max. Torque : 480Nm
- Torsional Fatigue Life : 60,000cycle

Product Features
Cardan Type

Use
Ability to drive the water jet to move the vehicle forward from the water

End User
Hyundai Rotem Co., Ltd.



Water Jet Drive Shaft B Type

Applications
Special Purpose Vehicles

Product Specifications
- 90mm(O.D) x L386~432mm(Length)
- Torsional Max. Torque : 480Nm
- Torsional Fatigue Life : 60,000cycle

Product Features
Cardan Type

Use
Ability to drive the water jet to move the vehicle forward from the water

End User
Hyundai Rotem Co., Ltd.



Construction Equipment

Wheel Excavators, Wheel Loaders

Double Cardan Drive Shaft

Applications
Wheel Excavators, Wheel Loaders

Product Specifications
- 107mm(O.D) x L1,172mm(Length)
- Torsional Max. Torque : 200kgf.m
- Torsional Fatigue Life : 30,000cycle

Product Features
Double Cardan Type

Use
Power transmission function to transmit vehicle engine power to wheels and steering function to change direction of vehicle

End User
Hyundai heavy industries, Doosan infracore, Volvo korea



Commercial vehicles

Civil / Military Trucks, Buses, Specially Equipped Vehicles

Brake Caliper Assembly

Applications
Military and Civil Buses, Trucks, Special Vehicles

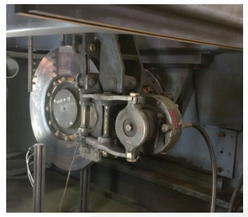
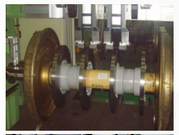
Product Specifications
- Wheel Size : 17.5, 19.5, 22.5 inch
- Disc diameter : 335~432mm
- Max. Braking Torque : 11,600~ 30,000 Nm

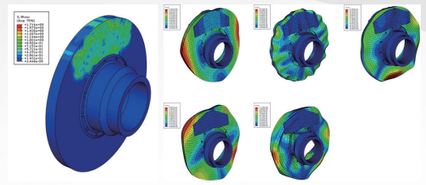
Product Features
Air Pressure Type

Use
Slowing or braking the vehicle due to the friction force caused by the relative motion between the brake pads (Pad) and the disc



Brake Disc / Braking Performance Test

Performance Test

Test Condition	Test Standard	Test Results
UIC CODE 541-3 NF EN 14535-3	There shall be no thermal deformation or cracking of the disk friction surface after the test.	No thermal deformation or cracking of the friction surface when visually confirmed

Endurance Test

Test Name	Test Standard	Test Results
Braking Endurability (500 Times)	There shall be no thermal deformation and cracking of the disk friction surface after the test.	No thermal deformation or cracking of the friction surface when visually confirmed
Wearing Loss(㎛)	Max. 44.5	35

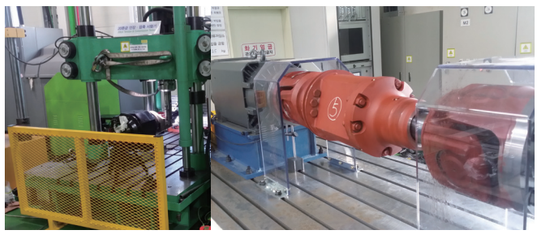
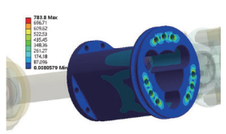
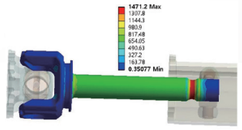
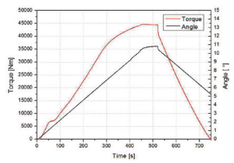
Friction Coefficient Test

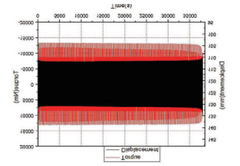
Test Name	Test Standard	Test Results
Continuous Braking (dry/wet)	0.37±0.07	0.332~0.430
2 stage Continuous Braking (250 km/h,300km/h))	0.34±0.07	0.314~0.336

Transmission Shaft / Torsional Strength Test

Torsional Strength Test

Test Name	Test Standard	Test Results	Remark
Torsional Braking Strength Test	43.5kNm	42.5KNm	KOREA INSTITUTION MACHINERY & Material (KIMM)
Torsional Fatigue Life Test	300,000Cycle	309,000Cycle	
Max. Rotational Speed	1,000rpm	1,800RPM	



Possession of equipment and Software

Vertical Machining Center(DNM6700)

- **Transfer Distance(mm)**
  1300/670/625 (X/Y/Z)
- **Transfer Speed(m/min)**
  36/36/30(X/Y/Z)
- **Maximum Spindle Speed**
  8000 r/min
- **Maximum Spindle Powder**
  18.5 kW
- **Maximum Spindle Torque**
  117.8 Nm



Vertical Lathe(LV800L)

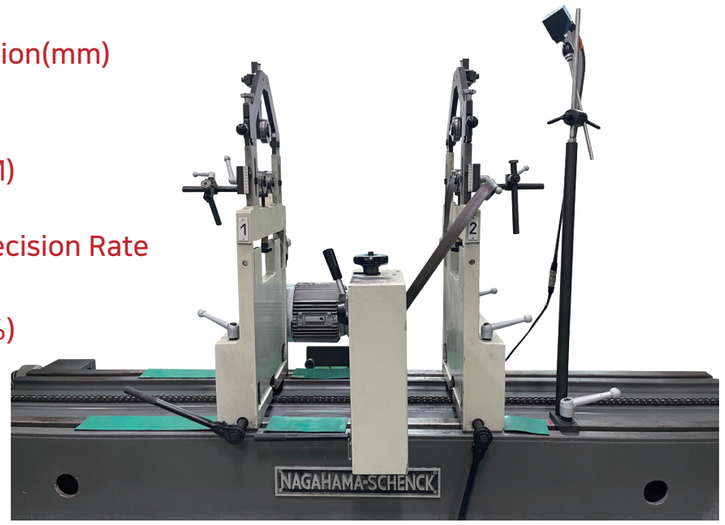
- **Maximum Machining Diameter(mm)**
  800
- **Maximum Machining Length(mm)**
  800
- **Spindle Speed(rpm)**
  2,000
- **Spindle Power(kW)**
  30
- **Spindle Torque(Nm)**
  1619
- **Maximum Transfer Distance(mm)**
  800
- **Rapid Transfer Speed(m/min)**
  20



Possession of equipment and Software

Precision Balancing Machine(H3BU / Nagahama Seisakusho)

- **Sample Weight Range(kg)**
  0.4~300
- **Maximum Sample Specification(mm)**
  - Diameter 1060
  - Length 1905
- **Balancing Speed Range(RPM)**
  60~6000
- **Imbalance Measurement Precision Rate**
  0.15gmm
- **Imbalance Reduction Rate(%)**
  90



Other Equipment

- **a Brinell hardness tester**
  - SB-600(SAMIL)
  - Maximum test height : 175mm
  - Test Weight : 500~3000 kgf
- **Thermal Chamber**
  - LBV-012(JEIO TECH)
  - Max.Temp : 250°C
- **Press Machine**
  - CJT140-FE125B350B-ABD-K-102(Sewon Heavy Industry)
  - Working Pressure : 80~100 kgf/cm2
- **Lathe**
  - TAC-460(TAKISAWA)
  - Chuck Size : 5”
- **Milling Machine V2**
  - CMT-1200(ChungSong Inudstry Machine Company)

Possession of the Software

AUTO CAD 2016 (network ver.) AUTODESK AUTOCAD

CATIA V5 (network ver.) CATIA SOLIDWORKS Mastercam

Patent and Certification

- 6 Korean Patents
- 1 Chinese Patent
- 1 European Patent



R&D

Research and development field

- Power transmission parts for high-speed rails
- Braking parts for high-speed rails
- Power transmission parts for special purpose vehicles
- Power transmission parts for construction equipments
- Power and braking parts for commercial vehicles

Main products

- Water jet power transmission shaft for special purpose vehicles
- Brake disk for high speed rail (KTX)
- Brake disk for high speed rail (KTX-Sacheon)



KATEM

Automotive Drive Line
Components Specialist

Laboratory. Gyeongnam Techno Park Venture No.206, 22, Changwon-daero 18beon-gil, Uichang-gu, Changwon-si, Gyeongsangnam-do, 51395, Republic of Korea
Headquarters/Factory. Gyeongnam Techno Park Production No.102,No.104,No.106, 22, Changwon-daero 18beon-gil, Uichang-gu, Changwon-si, Gyeongsangnam-do, 51395, Republic of Korea

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