SEOAM MACHINERY INDUSTRY

GEAR
CURVIC COUPLING

SEOAM
서암기계공업주식회사
SEOAM MACHINERY INDUSTRY CO.,LTD.

SEOAM

SEOAM MACHINERY INDUSTRY

BULL GEAR & PINION GEAR

MARINE ENGINE GEAR

MAIN PRODUCT INTRODUCE

We will make a great effort to satisfy customers with self-confidence of the best.
By manufactured high quality Gears, Power Chuck & Hydraulic Cylinder, Curvic Couplings, and Gear Reducers, The SEOAM continually make effort for customers that they will look for SEOAM to be believed our reliable capability from customers again and sincerely promise with customers to support products or services.
Seoam Machinery boasts the highest quality and precision product.

以最大的自信，尽最大的努力.
瑞岩机械生产超精密齿轮，动力卡盘，油压油缸，端面齿盘，减速器等，瑞岩机械通过不断的努力和卓越的技术制造一流品质的产品，出口国际市场，为成为世界水平的公司而不懈努力.
瑞岩机械引以为荣的是拥有"最高品质"和"最高精度"的产品.

最高という自負心で最善を尽くします.
超精密ギア，パワーチャック，油圧シリンダー，カービックカップリング，減速機等を生産しているSEOAMは絶え間ない努力と優秀な技術力を元にお客様が信じて使えられる製品とサービスを提供することをお約束します.
SEOAMは“最高品質”と“高精密度製品”を誇っております.

최고라는 자부심으로 최선을 다합니다.
초정밀기어, 파워척과 유압실린더, 커빅커플링, 감속기등을 생산하고 있는 서암기계는 끊임없는 노력과 우수한 기술력을 바탕으로 고객이 믿고 찾을 수 있는 제품과 서비스를 제공하여 드릴것을 약속하겠습니다.
서암기계는 “최고의 품질”과 “고정밀도 제품”을 자랑합니다.

CURVIC COUPLING
(3PCC)

CURVIC COUPLING
(360T)

SEOAM

HISTORY OF SEOAM

1978.02.
Establishment of Hwacheon Gear Works Co.,Ltd.
货泉齿轮株式会社成立
貨泉ギア工業株式会社設立
화천기어공업주식회사 설립

1980.04.
Merged with Hwacheon Chuck Co., Ltd.
与货泉卡盘株式会社合并
貨泉チャック工業(株)吸収合併
화천Chuck 공업(주)흡수합병

1986.07.
Made a contract of technical cooperation with Howa machinery,Ltd.
与日本HOWA机械签定技术合作合同
日本 HOWA(株)と技術導入契約
일본HOWA공업(주) 와기술도입계약

1992 02.
Exported Power Chuck to Howa machinery Ltd.
动力卡盘出口至日本HOWA机械
パワーチャックを日本 HOWAへ輸出
Power Chuck 일본 HOWA 수출

1995.01.
Moved to new factory in Hanam Industrial Complex.
搬迁至河南工业复合区的新工厂
ハナン工業団地に工場新築移転
하남공단으로 공장 신축 이전

1996.12.
Achieved C.E Mark.
获得欧洲C.E认证
ヨーロッパ安全規格 C.E マーク取得
Europe 안전규격 C.E Mark 획득

1997.12.
Appointed as an excellent company for the cooperation of labor & employer.
获得最具协作精神的杰出企业称号(劳动部长官)
労使協力優良企業選定(労働大臣)
노사협력 우량기업 선정(노동부장관)

1998.09.
Achieved ISO 9001 certificate.
获得ISO 9001国际质量认证
ISO 9001認証取得
ISO 9001 인증 획득

1998.11.
R&D center established.
R&D中心成立
企業付設研究所設立
기업부설 연구소 설립

1999.01.
Exported Power Chuck to germany.
动力卡盘出口至德国
Power Chuckをドイツへ輸出
Power Chuck 독일수출

2000.10.
Changed company name into "SEOAM"
公司更名为瑞岩机械工业株式会社
貨泉ギアから SEOAM に社名を変更
화천기어에서 서암기계공업(주)로 상호명 변경

2001.04.
Exported Power Chuck & Cylinder to USA.
动力卡盘和回转油缸出口至美国
Power Chuck & Cylinderを米国へ輸出
Power chuck & Cylinder 미국수출

2001.05.
Appointed as an excellent medium & smallsized company by Prime Minister.
荣获总理亲自授予的杰出中小型企业奖
模範中小企業人賞受賞(国務総理大臣)
모범 중소기업인상 수상(국무총리)

2001.11.
Awarded a prize by president in commemoration of TRADE day.
在商贸节上荣获总统颁发奖项
貿易の日大統領賞受賞
무역의날 대통령상 수상

2003.05.
Exported Powerchuck & Cylinder to China.
动力卡盘和回转油缸出口至中国
Power Chuck & Cylinderを中国へ輸出
Powerchuck & Cylinder 중국수출

2004.01.
Exported Powerchuck & Cylinder to South Africa.
动力卡盘和回转油缸出口至南非共和国
Power Chuck & Cylinderを南アフリカ共和国へ輸出
Powerchuck & Cylinder 남아프리카공화국 수출

2004.11.
Awarded trophy for exports over US $3Millions and
awarded recognition from Korea president
荣获总统为出口总值超过300万美元的企业颁发的奖项
代表理事大統領賞受賞及び300万ドル輸出達成賞
대표이사 대통령상 수상 및 300만불 수출탑 수상

2004.12.
Awarded Materials and Components Technology prize by Minister of Commerce, Industry and Energy.
荣获工商业部、能源部部长颁发的材料及元件科技奖
産業資源大臣賞(部品素材技術)受賞
산업자원부 장관상(부품소재 기술상)수상

2005.11.
Awarded trophy for exports over US $5Millions and
by Minister of Commerce, Industry and Energy
荣获"贸易之日500万美元出口杯"奖，产业资源部长官奖
貿易の日500万ドル輸出達成賞及び産業資源大臣賞受賞
무역의 날 500만불 수출탑 수상 및 산자부장관상 수상

2006.01.
Developed high speed Compensating Chuck & Hydraulic Cylinder(8,000 rpm)
开发离心力补偿型高速夹头和高速气缸(8,000rpm)
遠心力補償型高速チャック&高速シリンダー開発(8,000rpm)
원심력 보상형 고속척 & 고속실린더 개발(8,000rpm)

2006.03.
Awarded a model taxpayer prize by Minister of Finance and Economy
荣获模范纳税奖项(财政经济部长官)
模範納税者賞受賞(財政経済大臣)
모범납세자상 수상(재정경제부장관)

2006.12.
5patents registered for Compensating Chuck etc.(Korean Intellectual Property Office)
取得车床离心力补偿型动力卡盘等5项专利(专利厅)
旋盤の遠心力補償型パワーチャック他5件の特許取得(特許庁)
선반의 원심력보상형 파워척 外 5건 특허획득(특허청)

2007.04.
Approval components & material company certificate by Minister of Commerce, Industry and Energy
被指定为部品材料专门企业(产业资源部长官)
部品素材專門企業指定(産業資源大臣)
부품소재 전문기업 지정(산자부장관)

2008.11.
Achived Single PPM certificate for Power Chuck and Hydraulic Cylinder
取得单个PPM品质认证(油压卡盘 & 油压油缸)
シングルPPM品質認証取得(パワーチャック&油圧シリンダー)
싱글PPM 품질인증 획득(유압척 & 유압실린더)

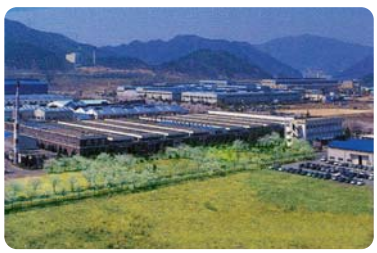
2011.12.
Stock listed at KOSDAQ
KOSDAQ上市
KOSDAQ上場
KOSDAQ 상장

CONTENTS

AFFILIATE 関連会社 관 계 사

화천기공주식회사
HWACHEON MACHINE TOOL CO.,LTD. 貨泉機工株式会社

화천기계주식회사
HWACHEON MACHINERY CO.,LTD. 貨泉機械株式会社



티피에스코리아주식회사
TPS KOREA CO.,LTD. TPS KOREA株式会社

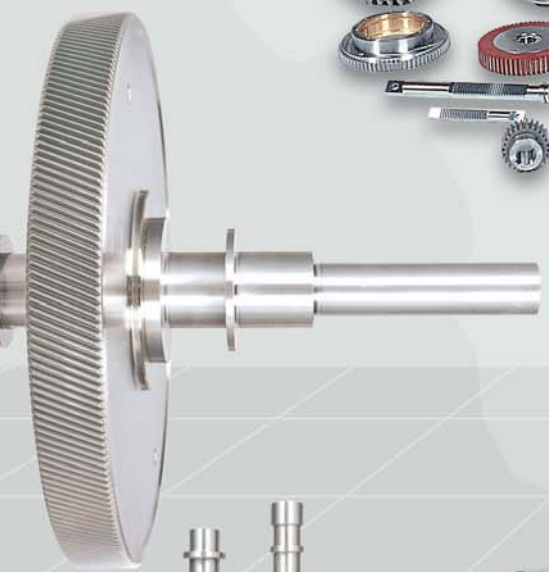
GEAR / 齿轮 / 歯車

1.High Quality • Secure quality managing system are implemented from materials to heat treatments and grinding processes. **2.High Reliability** • Gears manufactured by cutting-edge machines guarantee High quality and durability. **3.Low noise and vibration** • Gears applied crowning and profile-modification can be used in high speed rotation. **4.Specialized in Gear Reducers** • SMI manufactures large-sized gear reducers for ships and industrial purposes.

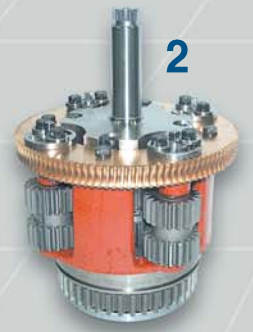
1• 高品质：稳固的质量监控系统贯穿于材料的选取,热处理及磨削加工等的全过程. **2**• 高可靠性:由切削机加工的齿轮具有高质量和长久的耐用性. **3**• 噪音低, 振动小：经过精密磨削加工和齿廓修形的齿轮可安装在高速运行的设备上. 且运行的噪音低, 振动小. **4**• 专业的齿轮减速设备：生产造船用和工业用的大型齿轮减速设备.

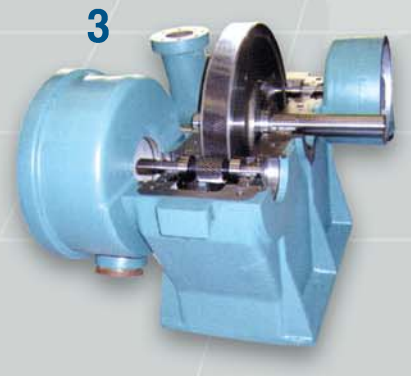
1• 高品質 **2**• 高信賴性 **3**• 低騷音, 低振動 **4**• 減速機生産專門

1• 고품질 **2**• 고신뢰성 **3**• 저소음, 저진동 **4**• 감속기 전문생산



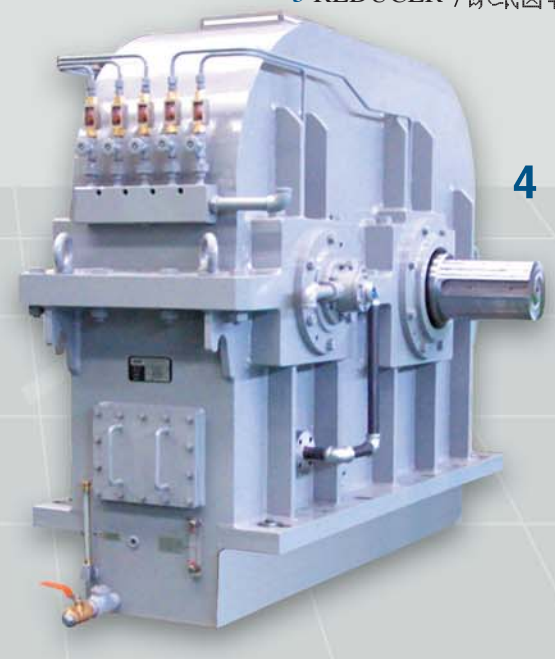
◀ TURBO COMPRESSOR BULL GEAR SET
涡轮空气压缩机斜齿轮装置
ターボ圧縮機用のブルギアセット
터보 압축기용 불기어 세트





▼ Gear set for towing locomotives in the Panama Canal(Exported to Mitsubishi Heavy Industries, Ltd in Japan)
现运行于巴拿马运河上的铁路车辆(由日本三菱重工交货)
パナマ運河引船用鉄道車両ギア類(日本三菱重工業納品)
파나마 운하 선박예인용 철도차량 GEAR류 (일본 미쯔비시 중공업 납품)

1 · 2 PLANETARY REDUCER /行星齿轮减速装置/遊星減速機/유성치차 감속기
3 TURBO COMPRESSOR /涡轮压缩机/圧縮機/압축기
4 REDUCER /化学齿轮减速设备/化学機械用減速機/화학기계용 감속기
5 REDUCER /诼纸齿轮减速设备/製紙機械用減速機/제지기계용 감속기



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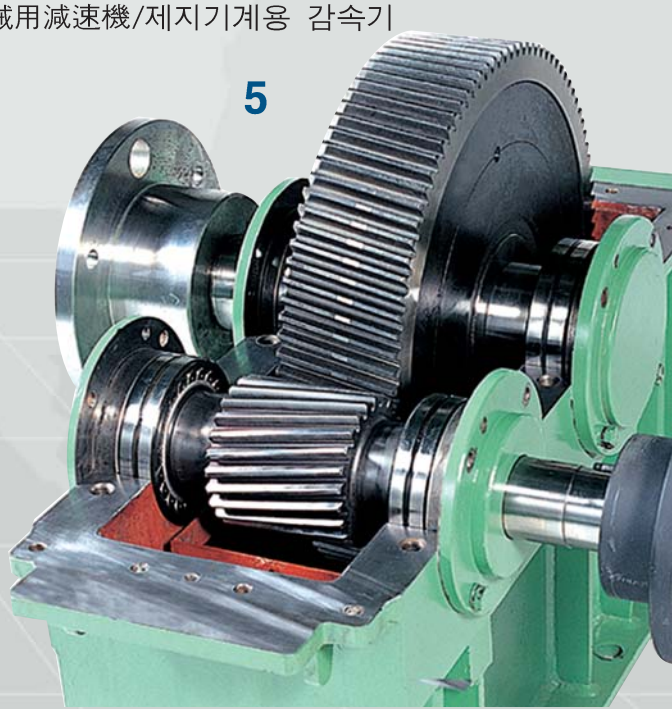

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Classification by application / 按应用行业分类 / 適用産業別の分類 / 적용산업별 분류

Gears for Wind power / 风力发电机齿轮 / 風力発電用ギア / 풍력 발전용 기어

- Gears for Pitch & Yaw drive of wind turbine
- 风力发电机螺距和侧滑(pitch & yaw)驱动减速器齿轮
- 風力発電用ピッチ&ヨードライブピニオンギア
- 풍력 발전기용 피치 & 요 드라이브 감속기 기어

Gears for Marine engine / 船舶齿轮 / 船舶用エンジンギア / 선박엔진용 기어

- Gear for Marine engine
- Gear manufacturing as per classification Criterion

- 船舶发动机齿轮
- 按照船级检查标准制造齿轮

- 船舶用エンジンギア
- 船級検査基準によるギア製作

- 선박용 엔진기어
- 선급검사기준에 의한 기어 제작

Gears for Railway vehicles / 用于铁路车辆上的齿轮 / 鉄道車両ギア / 철도 차량용 기어

- Driving gears for railway vehicles
- 用于铁路车辆上的齿轮
- 鉄道車両ギア製作
- 철도차량용 기어 제작

Gears for Industrial machinery / 工业机械用的齿轮 / 産業機械用ギア / 산업기계용기어

- Gears for printing, chemical, paper and iron industry
- Bull gear & pinion for Turbo compressor
- 印刷, 化学, 造纸, 炼铁工业用的齿轮
  用于涡轮压缩机的斜齿轮
- 印刷機, 化学, 製紙, 製鉄など産業用ギア製作
- ターボ圧縮機用ブル・ギヤ, ピニオン
- 인쇄기, 화학, 제지, 제철등 산업용 기어 제작
- 터보 압축기용 불기어, 피니언

Gears for Locomotive / 船舶牵引电动车齿轮 / 船舶引き電動車用ギア / 선박 예인 전동차용 기어

- Supplied driving gear for railway vehicles
- Gear & Shaft set for towing locomotives in the Panama Canal
- 船舶牵引电动车减速器
- 船舶引き電動車用減速機 Gear & Shaft
- 선박예인 전동차용 감속기 Gear & Shaft

Gears for Machine tools & Robot / 机床齿轮、机械齿轮 / 工作機械&ロボット用ギア / 공작기계용 기어 & 로봇용 기어

- High precision gears for Machine tools(Milling, Lathe, Boring machine, Machining center, etc) and Industrial Robots
- 用于磨床, 钻床, 车床, 多工序自动数控车床等设备上的高精度齿轮 与机械齿轮
- フライス盤, 旋盤, ボーリングマシン, マシニングセンター用高精密度の工作機械用ギア及び産業ロボットギア製作
- 밀링, 선반, 보링머신, 머시닝센터용 고정밀도의 공작기계용 기어 및 산업 로봇 기어제작

Classification by kind / 种类的分类 / 種類別分類 / 종류별 분류

Spur gear·Helical gear·Bevel gear /直齿轮·斜齿轮·锥齿轮 /平歯車·はすば歯車·傘歯車/평기어·헬리컬기어·베벨기어

- Module : 0.5~30 • Pressure angle : 20°, 25°, special pressure angle. • Angle of torsion : 0°~45°(left, right) • Max.working dia : Ø3150 • Class : DIN4~DIN8(JIS0~JIS4) • Material : SM45C, SCM415, SCM440.etc. • Hardning treatment : Carburizing, Induction Hardening, Nitriding
- 模数 : 0.5~30 ·齿直角压力角 : 20°, 25°, 特殊压力角 ·螺旋角 : 0°~45°(左旋右旋) ·最大直径 : Ø3150 ·精度等级 : DIN4~DIN8(JIS0~JIS4)/材质 : SM45C, SCM415, SCM440等 ·热处理 : 渗炭, 高频淬火, 氮化处理等
- モジュール: 0.5~30 • 歯直角圧力角 : 20°, 25°,特殊圧力角 • れじれ角 : 0°~45°(左, 右) • 最大加工外径 : Ø3150 • 等級 : DIN4~DIN8(JIS0~JIS4)/材質 : SM45C, SCM415, SCM440 等 • 熱処理 : 浸炭, 高周波, 窒化等
- Module : 0.5~30 • 치직각 압력각 : 20°, 25°, 특수 압력각 • 비틀림각 : 0°~45°(좌,우) • 최대가공외경 : ø3150 • 등급 : Din4~DIN8(JIS0~JIS4) • 재질 : SM45C, SCM415, SCM440 등 • 경화처리 : 침탄, 고주파, 질화 등

Internal gear·Worm & Worm wheel gear /内齿轮·蜗杆和蜗轮 /内歯車·ウォーム&ウォームホイール / 내접기어·웜&웜휠기어

Internal gear / 内歯車

- Max.module : 12.7 • Max.tooth width : 200mm
- 最大模数 : 12.7 ·最大齿宽 : 200mm
- 最大モジュール:12.7 • 最大歯幅 : 200mm
- 최대 모듈 : 12.7 • 최대 치폭 : 200mm

Worm & Worm wheel gear / ウォーム&ウォームホイール

- Consisted of a round and screw shaped worm gear and a spur gear shaped worm wheel. It is useful to get great reduce rate and the function of anti-reversion
- 渐开线圆柱蜗轮蜗杆和阿基米德圆柱蜗轮蜗模具有大减速比, 防逆转性强.
- 直径が小さいネジ形のウォームギアとそれに合う平歯車形のウォームホイールギアを組み合わせた機構で大きい減速率を得るためによく使われます, 逆転防止機能があります.
- 지름이 작은 나사 모양의 웜과 평기어 모양의 웜휠기어로 이루어진 것으로 큰 감속비를 얻을 때 많이 쓰이며, 역전방지기능을 갖는다.

Rack gear·Spline shaft·Timing pulley/齿条·花键轴·同步齿轮/ラックギア·スプラインシャフト·タイミングプーリー/랙기어·스플라인샤프트·타이밍풀리

Rack gear/ラックギア

- Products for linear motion that require high-precision quality
- Module : 0.5~1.5 • Length : Max 6000mm
- 用于要求高精度, 高质量的直线传动 • 模数 : 0.5~1.5 • 长度 : Max 6000mm
- 高精密度の直線運動に対応できる製品 • モジュール : 0.5~1.5 • 全長 : Max 6000mm
- 고정밀도의 직선운동에 대응할 수 있는 제품 • Module : 0.5~1.5 • 전장 : Max 6000mm

Spline shaft/スプラインシャフト

- Involute spline, angle spline, spindle for industries and machine tools • Spline shaft
- 渐开线花键 矩形花键, 工业和机床行业用的连接轴, 花键轴
- インボリュートスプライン, 角スプライン, 産業機械や工作機械のスプラインシャフト
- 인벌루트 스플라인, 각스플라인, 산업 및 공작기계의 스핀들 • 스플라인 샤프트

Timing pulley/タイミングプーリー

- Max.working dia : Max 380mm
- 最大直径 : 380mm
- 最大加工外径 : Max 380mm
- 최대가공외경 : Max 380mm

SPEED REDUCER / 减速设备 / 減速機 / 감속기

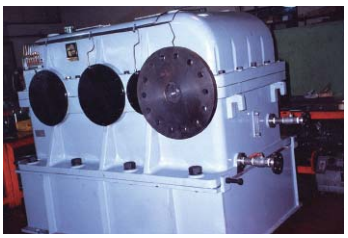
Based on our long experience and excellent technology, we design gear boxes to be most suitable for every customer's needs by examining teeth face intensity, considering the accuracy of gears and the characteristics of lubrication oil as well as revolution speed and transfer torque, we are eager to meet various demands from our customer with the high-speed, low noise and low vibration productions.

基于丰富的经验和杰出的工艺，通过检测齿面强度，考虑到齿面精度，润滑油的特点以及对转速，转矩的要求，瑞岩机械生产出满足客户要求的高转速，低噪音，低振动的产品.

主速度，伝達力以外にギアの精度，潤滑油の性質などを考えてギアの硬度を検討し，長年の経験と卓越した技術で用途に最も適切な設計を行い，高速，低騒音，低振動を実現してお客様のさまざまなご要求にお応えしております.

주속도, 전달력 외에 기어의 정도, 윤활유의 성질등을 고려한 기어의 강도를 검토하여 오랜 경험과 탁월한 기술로써 용도에 가장 적절한 설계를 실시하고 있으며, 고속, 저소음화, 저진동 실현으로 고객의 다양한 요구에 대응하고 있습니다.

Gear reducer for Paper industry / 用于造纸业的齿轮减速设备 / 製紙機械用減速機 / 제지기계용 감속기



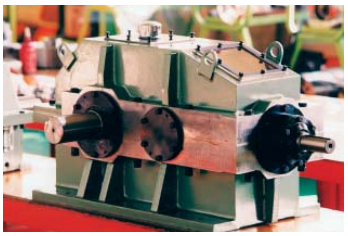
- Customer : HANSOL PAPER. etc • Use : Reducer for driving kneader
- Remarks : moter capacity - 1000kw, output shaft-2 shaft

- 客户 : HANSOL纸业等
- 用途 : 减速设备用在混捏机上
- 备注 : 电动机功率 - 1000kw, 输出轴 - 2軸

- 納入先:Hansol Paper co., Ltd. 等
- 用途 : Kneader 駆動用減速機
- 仕様 MOTOR容量-1000kw, 出力軸 -2軸

- 납 품 처 : 한솔제지(주) 外
- 용도 : Kneader 구동용 감속기
- 특기사항 : MOTOR용량 - 1000kw, 출력축 2축

Gear reducer for Iron manufacture/用于钢铁工业的齿轮减速设备/製鉄用減速機/제철용 감속기



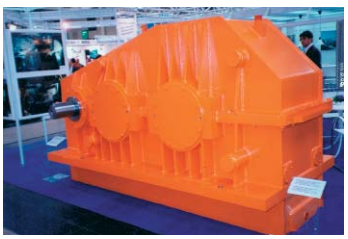
- Customer : JSW (Japan steel works). etc
- Use : Driving gear for a screw of a extruder

- 客 户 : 日本钢铁行业
- 用途 : 驱动齿轮用于挤压机螺旋杆

- 納入先 : 日本製鋼所等
- 用途 : 圧出機SCREW駆動用

- 납 품 처 : 일본 제강소 外
- 특기사항 : 압출기 SCREW 구동용

Industrial gear reducer / 工业用的齿轮减速设备 / 産業用減速機 / 산업용 감속기



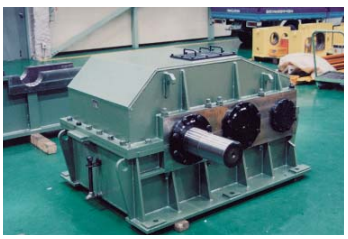
- Customer : POSCO.etc
- Use : Driving gear for ceiling crane

- 客 户 : POSCO 等
- 用途 : 驱动齿轮用于棚顶升降架

- 納入先 : POSCO 等
- 用途 : 天井クレーン駆動用

- 납품처 : 포스코 外
- 용도 : 천정 크레인 구동용

Reducer for Textile machine / 纺织机械上用的齿轮减速设备 / 繊維機械用減速機 / 섬유기계용 감속기



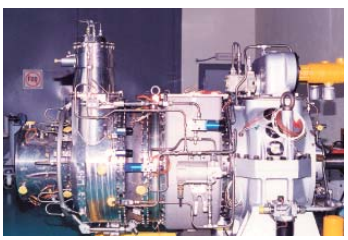
- Customer : Huvis.etc
- Use : S/F stretch line for drive

- 客 户 : Huvis 等
- 用途 : 用于驱动 S/F 拉长线

- 納入先 : Huvis 等
- 用途 : S/F ストレッチライン駆動用

- 납품처 : Huvis 外
- 용도 : S/F 연신라인 구동용

Turbine & Pump reducer/涡轮机和泵的齿轮减速设备/タービンポンプ用減速機/터빈펌프용 감속기



- Customer : Samsung Techwin.etc
- Use : Driving gear for small industrial gas turbine

- 客 户 : 三星机械等
- 用途 : 小型工业燃气轮机用的驱动齿轮

- 納入先 : SAMSUNG TECHWIN Co., Ltd. 等
- 用途 : 産業用小型ガスタービン駆動用

- 납품처 : 삼성테크윈 外
- 용도 : 산업용 소형 가스터빈 구동용

GEAR GRINDING MACHINE /ギア研削盤

1. GEAR GRINDING MACHINE /ギア研削盤 : Gleason-PFAUTER P2800G & 1200G

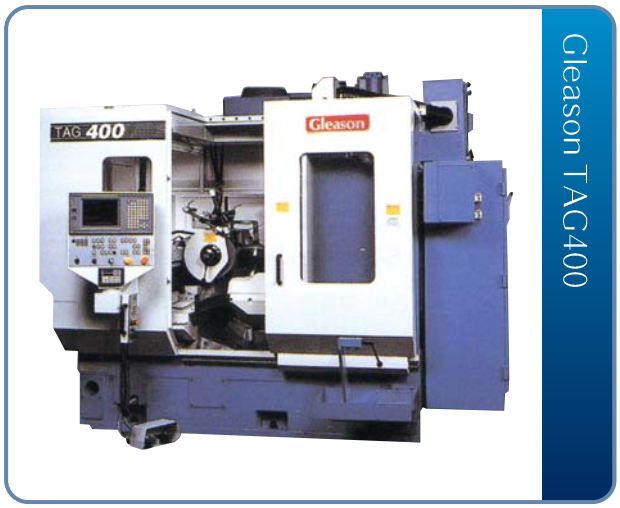
Gleason-PFAUTER P2800G

Gleason-PFAUTER P1200G

CAPACITY 가공능력 / MODEL 기종	Max.tip Dia. 최대외경 mm	Min. root Dia. 최소치저경 mm	Max. slide Travel 최대치폭 mm	Min. and max Module 모듈	Max. workpiece Weight 최대중량 kg
P2800G(1대)	2,800	360	1,000	1.5~35	30,000
P1200G(2대)	1,200	20	1,000	1.5~35	10,000

2. GEAR GRINDING MACHINE /ギア研削盤 : Gleason 400GX & TAG400

Gleason 400GX



Gleason TAG400

CAPACITY 가공능력 / MODEL 기종	Max.tip Dia. 최대외경 mm	Min. root Dia. 최소치저경 mm	Max. slide Travel 최대치폭 mm	Min. and max Module 모듈	Max. workpiece Weight 최대중량 kg
400GX	400	10	200	0.5~8.0	70
TAG400	400	10	200	0.5~8.0	70

3. GEAR GRINDING MACHINE /ギア研削盤 : REISHAUER RZ1000 & RZ360

REISHAUER RZ1000

REISHAUER RZ360

CAPACITY 가공능력 / MODEL 기종	Max.tip Dia. 최대외경 mm	Min.pitch Dia. 최소피치원경 mm	Max. tooth width 최대치폭 mm	Min. and max Module 모듈	Max. workpiece Weight 최대중량 kg
RZ1000	1,000	85	200	1.0~8.0	600
RZ360	360	10	180	0.5~6.0	100

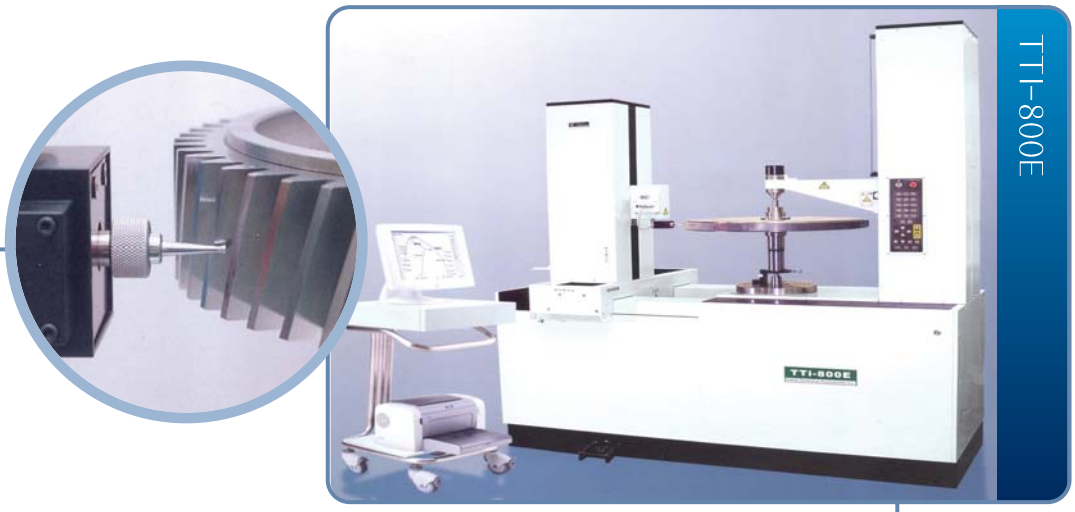
4. CNC VERTICAL GRINDING MACHINE / CNC立型研削盤

TAIYO KOKI

CAPACITY 가공능력 / MODEL 기종	Max.tip Dia. 최대외경 mm	Max. tip Int Dia. 최대내경 mm	Length 연삭길이 mm	Max. workpiece Weight 최대중량 kg
NVGH-12TC	1,200	1,200	600	2,500
NVG-12	1,200	1,200	500	2,500
NVG-8TC	800	800	500	700
NVG-8	800	800	500	700
Vertical Mate85	800	800	500	700

MEASURING INSTRUMENT & etc. / 測定器 & 其他設備

5. CNC GEAR MEASURING CENTER / CNCギア測定器 : Klingelnberg & Tokyo Technical



CAPACITY 가공능력 / MODEL 기종	Max.tip Dia. 최대외경 mm	Max. tooth widge 최대치 폭 mm	Min. and max Module 모듈	Center Distance 센터거리 mm	Max. workpiece Weight 최대중량 kg
PNC 60	600	400	0.5~20	0~800	450
PFSU1200	1,200	600	0.7~30	900	1,500
TTI-800E	850	600	0.5~20	30~1,000	1,500

6. COORDINATE MEASURING MACHINE / 3次元測定器 : Gidding & Lewis, Sheffield Div. RS-150DCC

CAPACITY 가공능력 / MODEL 기종	X mm	Y mm	Z mm	Table size 테이블 규격 mm	Max. workpiece Weight 최대중량 kg
RS-150DCC	1,200	2,000	1,000	1,270~2,080	1,800

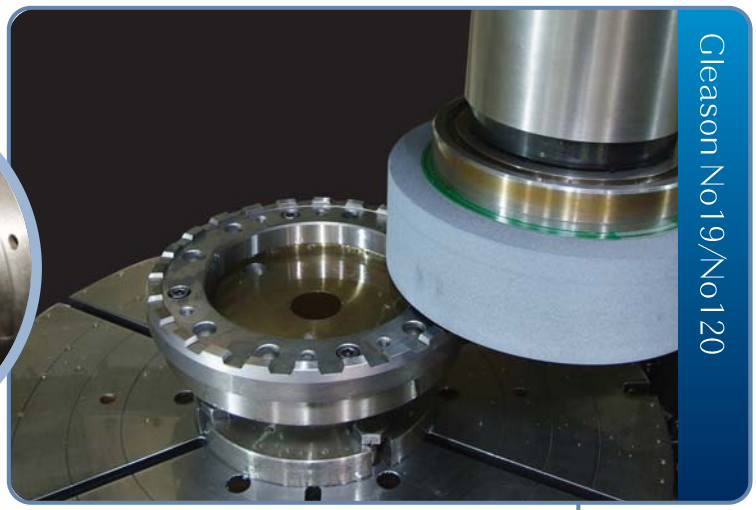
7. METALLURGICAL MICROSCOPE & AUTOCOLLIMATOR / 金属顕微鏡 & オートコリメーター

금속현미경/金属顕微鏡

오토콜리메터/オートコリメータ

CAPACITY 가공능력 / MODEL 기종	Model 모델	Magnification 배율	Specification 사양	Maker 메이커
Autocollimator	6D	×38	30℃	Nikon
Metallurgical Microscope	GX51	×1,000	1.3 M-fixel	Olympus

8. CURVIC COUPLING GRINDER / カービックカップリング研削盤 : Gleason No19 · No120



CAPACITY 가공능력 / MODEL 기종	Max. Out dia. 최대외경 mm	Max. Depth 최대깊이 mm	Max. Divide 최대분할	Max. Workpiece Weight 최대중량 kg
NO 120(5대)	610	9.5	360	680
NO 19(2대)	610	12	72	680

CURVIC COUPLING / 端面齿盘 / カービックカップリング

Curvic coupling is a key part of indexing devices. It secures operation accuracy in turret devices of CNC lathes, machining centers and other indexing devices.

端面齿盘是分度设备的关键部件，它能确保CNC车床转塔刀架，多工序自动数控机床和其它分度设备的运行精度.

カービックカップリングは超精密インデックス装置の核心部品でCNC旋盤の ターレット装置及びマシニングセンターだけではなくさまざまな角度分割装置に使われ，機械の精密度をより高めます.

커빅커플링은 초정밀 인덱스 장치의 핵심부품이며 CNC선반의 TURRET 장치 및 MACHINING CENTER 뿐만 아니라 각종 각도분할장치에 사용되어 기계의 정밀도를 더욱 높여줍니다.

1.Standardized Model • Selection range has been expanded by producing various standardized products based on the size and the number of teeth. **2.Rigidity and abrasion resistance** • Extended product life cycle is achieved by increasing abrasion resistance and rigidity through heat treated chrome molybdenum steel **3.Improved Restoration and Division Accuracy** • It guarantees ±1 sec restoration and 5 sec remained division of the same teeth position **4.Precise Self-Centering & Compatibility** • By teeth mating of convex and concave teeth, precise automatic centering is realized. As master curvic coupling is used in the process of manufacturing, high compatibility is achieved. **5.Long term quality assurance** • Long term quality assurance is provided by secure quality control of the entire products. **6.Customized production** • More satisfaction provided by customized manufacturing in response to customers' special needs

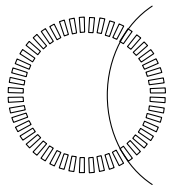
1• 标准型：为客户提供多种标准型号和齿数的产品，选择范围广. **2**• 硬度高，耐磨损：采用经过严格热处理的铬钼钢为材质的端面齿盘，具有耐磨损，使用寿命长量的特点. **3**• 定位精度和重复定位精度高：确保±1秒重复定位精度，5秒的定位精度. **4**• 自定中心精确，啮合精准：通过凹凸齿的啮合，可实现精确的自动定中心. **5**• 使用寿命长：所有产品都经过可靠的质量监控，从而确保较长的使用寿命. **6**• 可订制：可根据客户的要求订制.

1• 標準化されたモデル **2**• 剛性と耐磨耗性確保 **3**• 復元精度及び分割精度の向上
4• 超精密のセルフセンタリング及び互換性 **5**• 長期間品質保証 **6**• 注文生産可能

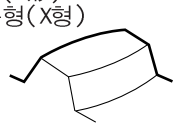
1• 표준화된 모델 **2**• 강성과 내마모성 확보 **3**• 복원정도 및 분할정도의 향상
4• 초정밀의 자동조심성 및 호환성 **5**• 장기간 품질보증 **6**• 주문 생산 가능

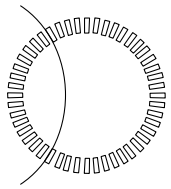
Shape of Tooth / 齿形 / 歯の形状 / 歯의 형상

2 PCC 2 ピース

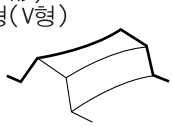


CONVEX TEETH
凸齿
凸形(X形)
볼록형(X형)

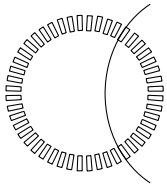




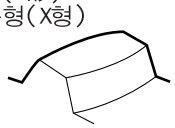
CONCAVE TEETH
凹齿
凹形(V形)
오목형(V형)

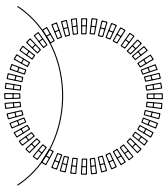


3 PCC 3 ピース

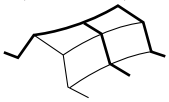


CONVEX TEETH
凸齿
凸形(X形)
볼록형(X형)

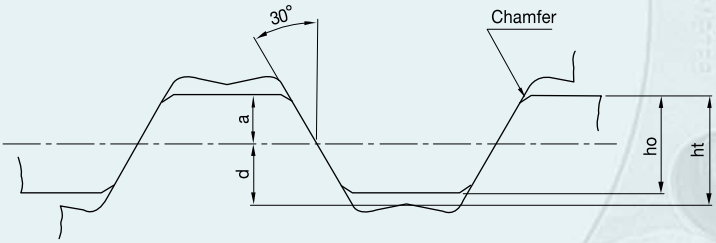




CONCAVE TEETH
凹齿
凹形(VI, VO形)
오목형(VI, VO형)



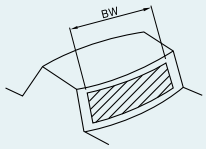
View at outside / 齿轮外周展开图 / 歯の外周展開図 / 歯의 외주 전개도



a addendum 齿顶高/歯先の高さ/치끝높이
d dedendum 齿根高/歯底の高さ/치저높이
ho effective depth 有效深度/有効歯たけ/유효접촉치높이
ht tooth depth 齿深/全歯たけ/全歯높이

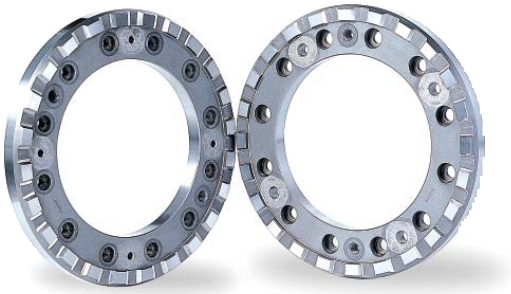
QUALITY CONTROL PROCEDURES / 精度基準

(unit : mm)

Item / 项目 / 項目 / 항목		Tolerance/公差/公差/허용치	Note / 说明 / 内容 / 내용
Tooth Contact 齿接触 歯接触 齿접촉	At the number of teeth 接触齿数 (B.N) 歯接触の量 齿접촉의 量(B.N)	More than 80% (大于80%) (80% 以上) (80% 이상)	Tooth mating state is confirmed by mating with the standard master curvic coupling. The standard teeth contacting length should be above 50% of teeth length. Throughout the whole teeth, two adjacent teeth should not be disconnected. More than 80% of teeth surface should be contacted evenly. 标准齿接触的长度应该大于齿总长度的50%，两个相邻的齿在接触过程中不可脱离，且大于80%的齿面要密切的结合在一起. 基準になるマスタカービックカップリングに接触させ歯合状態を確認，歯接触長さは 歯中央の歯幅の約50%以上が基本です．全歯数にわたって接触されてない歯が 2つ連続しないこと，80%以上の歯面が均一に接触すること. 기준이 되는 마스터 커빅커플링에 접촉시켜 치합상태를 확인하며，치접촉길이는 치중앙에 치폭의 약 50%이상이 기본입니다. 全齿數에 걸쳐서 접촉되지 않는 齿가 연속하여 2개가 계속되지 않아야 하며，80%이상의 齿面이 고르게 접촉되어야 합니다.
	At the face width 接触齿宽 (B.W) 歯接触の量 齿접촉의 幅(B.W)	More than 50% (大于50%) (50% 以上) (50% 이상)	
Runout 跳动 振れ 흔들림	Runout on top face 轴向跳动/上面振れ 上面흔들림	0.02	The run out is checked by light mating with master curvic coupling 通过与主端面齿盘轻微啮合来检测. マスタカービックカップリングに軽くかみ 合わせて振れをチェックすること. 마스터 커빅커플링에 가볍게 맞물려서 흔들림을 체크합니다.
	Runout at outside diameter 径向跳动/外周振れ/外周흔들림	0.02	
Stacking Distance 啮合高度 / 調合厚さ / 조합 두께		±0.10	The combined thickness of mated convex and concave teeth is marked as S in the standard dimension table. 在标准的尺寸系列中，用S表示凸齿盘与凹齿盘的啮合高度. 凸形歯と凹形歯をかみ合わせた時の背面間の距離の意味，標準寸法表にはSと表示されています 볼록형치(凸歯)와 오목형치(凹歯)를 맞물렸을때의 背面間 距離를 의미하며 표준치수표에서 S로 표시되어 있습니다.

2PCC

2-PIECES CURVIC COUPLING
两体端面齿盘 / 2ピースカービックカップリング/2-피스 커빅커플링



1. Simple structure.
2. Applicable to general purpose index devices.
3. Excellent interchangeability with other types coupling.
4. Customized model manufacturin gavailable.

1 结构简单
2 便于作为标准部件用于分度装置中
3 兼容性强
4 可根据客户要求订制

1 構造が単純です.
2 一般的な分割装置に使いやすいです.
3 互換性に優れています
4 特別仕様は注文生産ができます

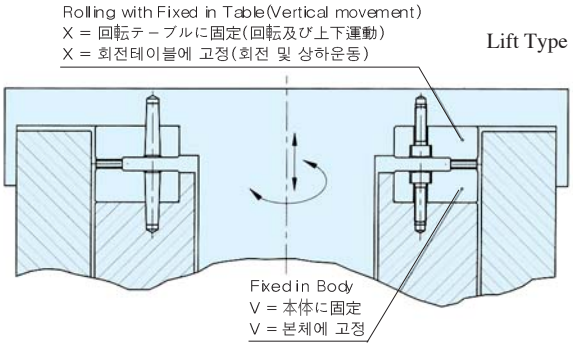
1 구조가 간단합니다.
2 일반적인 분할장치에 사용이 용이합니다.
3 호환성이 우수합니다.
4 특별 사양은 주문생산이 가능합니다.

Model Description / 型号说明 / 形式番号表示 / 형식번호 표시

24 - 250 - 160

- 24: No. of Teeth / 齿の数/잇수
- 250: Outside Dia. / 外径/외경
- 160: Inside Dia. / 内径/내경

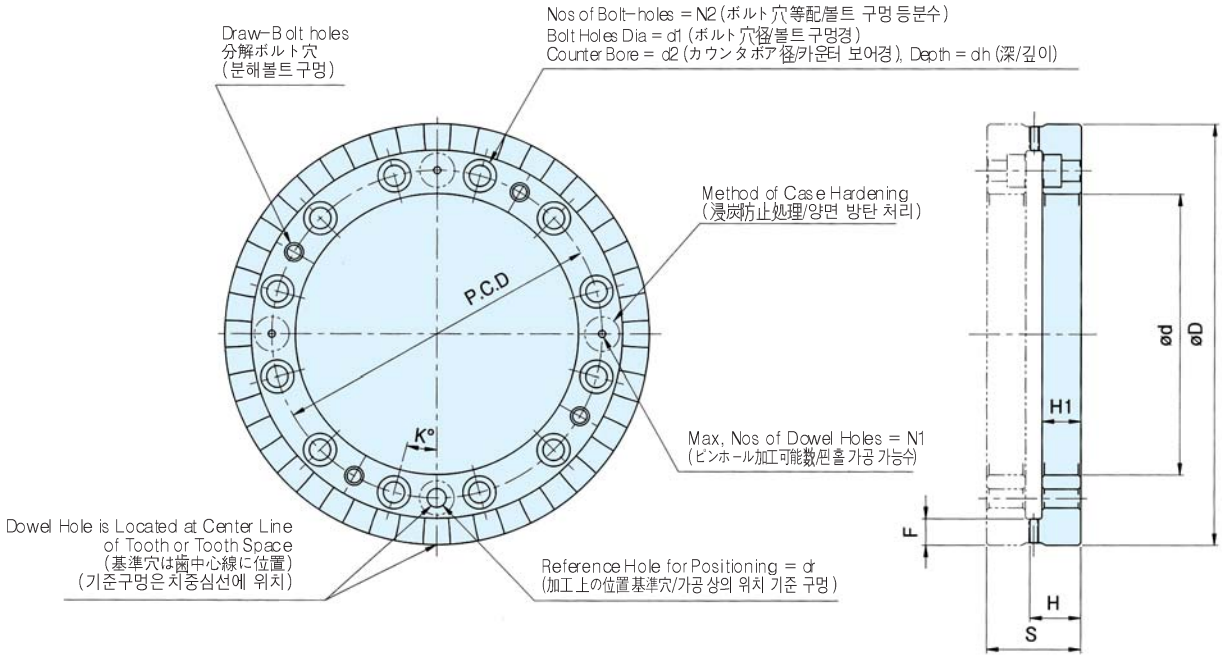
Example / 例 / 使用例 / 사용예



Dimension / 尺寸 / 寸法表 / 치수표

NO.	Model NO. 형식 번호	No. of Teeth 잇수	D	d	F	H	H1	S	Dowel Holes 위치 결정구멍				Bolt Holes 부착 볼트구멍					Draw Bolt 분해볼트	ht	ho
									P.C.D	K	N1	dr	P.C.D	N2	d1	dh	d2			
1	20-050-022	20	50	22	5	10.5	8	20	32	45	4	2	34	4	M5	6	8	4-M5	1.30	1.00
2	063-036	20	63	36	6	12.8	10	24	44	30	4	2	48	6	M5	6.8	8	6-M5	2.00	1.60
3	080-044	20	80	44	10	15.3	12	29	55	30	4	2	60	6	M8	8.8	11	6-M8	2.00	1.60
4	100-040	20	100	40	10	18.37	14	34	60	30	3	8	60	6	6.6	6	11	2-M8	3.08	2.74
5	120-060	20	120	60	10	18.3	14	34	80	30	3	8	80	6	6.6	6	11	2-M8	3.06	2.60
6	24-050-022	24	50	22	5	10.5	8	20	32	45	4	2	34	4	M5	6	8	4-M5	1.30	1.00
7	063-036	24	63	36	6	12.8	10	24	44	30	4	2	48	6	M5	6.8	8	6-M5	2.00	1.60
8	080-044	24	80	44	8	15.3	12	29	55	30	3	2	60	6	M8	6.8	11	6-M8	2.00	1.60
9	100-040	24	100	40	8	18.37	14	34	60	30	3	8	60	6	6.6	6	11	2-M8	3.08	2.74
10	120-060	24	120	60	8	18.3	14	34	80	30	3	8	80	6	6.6	6	11	2-M8	3.06	2.60
11	140-080	24	140	80	10	18.59	14	34	100	30	3	8	100	6	6.6	6	11	2-M8	3.60	3.18
12	160-100	24	160	100	10	21.73	16.5	40	118	22.5	3	8	118	8	9	8	14	2-M8	3.91	3.46
13	180-120	24	180	120	10	21.61	16.5	40	140	22.5	3	8	140	8	9	8	14	2-M8	3.36	3.22
14	200-120	24	200	120	10	21.78	16.5	40	150	22.5	3	8	150	8	9	8	14	2-M8	4.03	3.56
15	210-135	24	210	135	12	21.71	16.5	40	165	15	3	10	165	12	9	8	14	2-M8	3.85	3.42
16	250-160	24	250	160	11	21.42	16.5	40	195	22.5	3	10	195	8	11	10	17.5	2-M10	3.21	2.84
17	30-100-040	30	100	40	8	18.3	14	34	60	30	3	8	60	6	6.6	6	11	2-M8	2.93	2.60
18	120-060	30	120	60	8	18.56	14	34	80	30	3	8	80	6	6.6	6	11	2-M8	3.52	3.12
19	36-140-080	36	140	80	12	18.52	14	34	100	30	3	8	100	6	6.6	6	11	2-M8	3.42	3.04
20	160-100	36	160	100	10	21.73	16.5	40	118	22.5	3	8	118	8	9	8	14	2-M8	3.91	3.46
21	180-120	36	180	120	10	21.37	16.5	40	140	22.5	3	8	140	8	9	8	14	2-M8	3.08	2.74
22	200-120	36	200	120	12	21.52	16.5	40	150	22.5	3	8	150	8	9	8	14	2-M8	3.42	3.04
23	40-140-080	40	140	80	12	18.37	14	34	100	30	3	8	100	6	6.6	6	11	2-M8	3.08	2.74
24	160-100	40	160	100	10	21.56	16.5	40	118	22.5	3	8	118	8	9	8	14	2-M8	3.52	3.12
25	180-120	40	180	120	10	21.76	16.5	40	140	22.5	3	8	140	8	9	8	14	2-M8	3.96	3.52
26	200-120	40	200	120	10	21.37	16.5	40	150	22.5	3	8	150	8	9	8	14	2-M8	3.08	2.74
27	210-135	40	210	135	12	21.71	16.5	40	165	15	3	8	165	12	9	8	14	2-M8	3.85	3.42
28	250-160	40	250	160	14	21.71	16.5	40	195	22.5	3	10	195	8	11	10	17.5	2-M10	3.85	3.42
29	48-210-135	48	210	135	14	21.71	16.5	40	165	15	3	10	165	12	9	8	14	2-M8	3.85	3.42
30	250-160	48	250	160	12	21.42	16.5	40	195	22.5	3	10	195	8	11	10	17.5	2-M10	3.21	2.84

Outward Drawing / 外型图 / 外形図 / 외형도

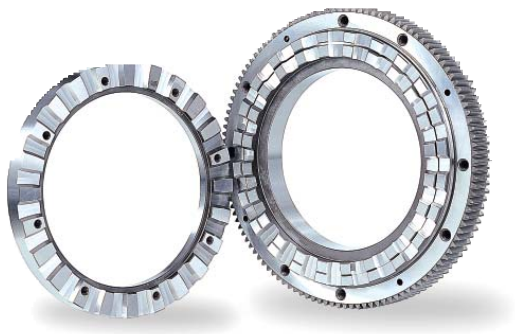


Dimension / 尺寸 / 寸法表 / 치수표

NO.	Model NO. 형식 번호	No. of Teeth 잇수	D	d	F	H	H1	S	Dowel Holes 위치결정구멍				Bolt Holes 부착볼트구멍					Draw Bolt 분해볼트	ht	ho
									P.C.D	K	N1	dr	P.C.D	N2	d1	dh	d2			
31	280-190	48	280	190	14	21.59	16.5	40	222	22.5	3	12	222	8	14	12	20	2-M10	3.59	3.18
32	320-210	48	320	210	12	30.82	25.5	58	258	15	3	12	258	12	14	12	20	4-M12	4.11	3.64
33	400-280	48	400	280	14	31.52	26	60	335	15	3	12	335	12	14	12	20	4-M12	3.42	3.04
34	520-415	48	520	415	16	31.97	26	60	450	15	3	12	450	12	14	12	20	4-M12	4.45	3.94
35	60-210-135	60	210	135	10	21.71	16.5	40	165	15	3	10	165	12	9	8	14	4-M12	3.85	3.42
36	250-160	60	250	160	10	21.63	16.5	40	195	22.5	3	10	195	8	11	10	17.5	4-M12	3.67	3.26
37	280-190	60	280	190	12	21.82	16.5	40	222	22.5	3	12	222	8	14	12	20	4-M12	4.11	3.64
38	320-210	60	320	210	12	30.46	25.5	58	258	15	3	12	258	12	14	12	20	4-M12	3.28	2.92
39	360-250	60	360	250	14	30.64	25.5	58	300	15	3	12	300	12	14	12	20	4-M12	3.75	3.28
40	400-280	60	400	280	16	31.82	26	60	335	15	3	12	335	12	14	12	20	4-M12	4.10	3.64
41	520-415	60	520	415	16	31.97	26	60	450	15	3	12	450	12	14	12	20	4-M12	4.45	3.94
42	600-480	60	600	480	16	36.95	29	70	530	15	3	16	530	12	18	16	26	4-M12	4.40	3.90
43	72-200-120	72	200	120	10	21	16.5	40	150	22.5	3	8	150	8	9	8	14	2-M8	2.35	2.00
44	210-135	72	210	135	12	21.12	16.5	40	165	15	3	10	165	12	9	8	14	2-M8	2.52	2.24
45	250-160	72	250	160	12	21.42	16.5	40	195	22.5	3	10	195	8	11	10	17.5	2-M10	3.21	2.84
46	280-190	72	280	190	12	21.42	16.5	40	222	22.5	3	12	222	8	14	12	20	2-M10	3.21	2.84
47	320-210	72	320	210	12	30.74	25.5	58	258	15	3	12	258	12	14	12	20	4-M12	3.91	3.48
48	360-250	72	360	250	12	30.37	25.5	58	300	15	3	12	300	12	14	12	20	4-M12	3.08	2.74
49	400-280	72	400	280	14	31.52	26	60	335	15	3	12	335	12	14	12	20	4-M12	3.42	3.04
50	420-320	72	420	320	14	31.59	26	60	360	15	3	12	360	12	14	12	20	4-M12	3.59	3.18
51	450-340	72	450	340	16	31.71	26	60	387	15	3	12	387	12	14	12	20	4-M12	3.85	3.42
52	520-415	72	520	415	16	31.97	26	60	450	15	3	12	450	12	14	12	20	4-M12	4.45	3.94
53	600-480	72	600	480	20	37.28	29	70	530	15	3	16	530	12	18	16	26	4-M12	5.13	4.56
54	700-560	72	700	560	19	36.5	30	70	610	15	3	16	610	12	18	16	26	4-M12	4.00	3.00
55	800-660	72	800	660	19	39	32.5	75	710	10	3	16	710	18	18	16	26	4-M12	4.00	3.00
56	1000-830	72	1000	830	22	61.7	55	120	900	10	4	16	900	18	18	8	26	4-M12	4.10	3.40
57	360-320-230	360	320	230	11	29.36	25.5	58	265	15	3	12	265	12	14	12	20	2-M10	0.81	0.72
58	420-320	360	420	320	13	30.46	26	60	350	15	3	12	350	12	14	12	20	4-M10	1.07	0.92
59	520-415	360	520	415	15	30.58	26	60	450	15	3	12	450	12	14	12	20	4-M10	1.32	1.16
60	650-500	360	650	500	19	35.65	32	70	560	15	3	15	560	12	18	16	26	4-M10	1.60	1.30

3PCC

3-PIECES CURVIC COUPLING
三体端面齿盘/3ピースカービックカップリング/3-피스 커빅커플링



1 No table lifting needed.
2 Suitable for heavy workpiece.
3 Enable chip preventable structure.
4 Customized model manufacturing available.

1 分度工作台不必抬起
2 可用于重型加工
3 有效防止内部切屑进入工作台
4 可根据客户要求订制

1 回転テーブルが浮上しません.
2 重量物のワークに対応できます
3 チップの侵入を防げます.
4 特別仕様は注文生産ができます.

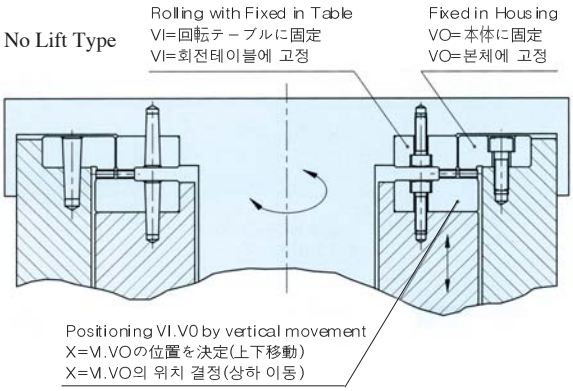
1 회전테이블이 부상하지 않습니다.
2 중량물의 워크피스를 사용할 수 있습니다.
3 칩의 침입을 방지할 수 있습니다.
4 특별 사양은 주문생산이 가능합니다.

Model Description / 型号说明 / 形式番号表示 / 형식번호표시

48	-	335	-	220	-	3P
No. of Teeth 齿の数/잇수		Outside Dia. 外径/외경		Inside Dia. 内径/내경		3PCC 3ピース

Example / 例/使用例 / 사용예

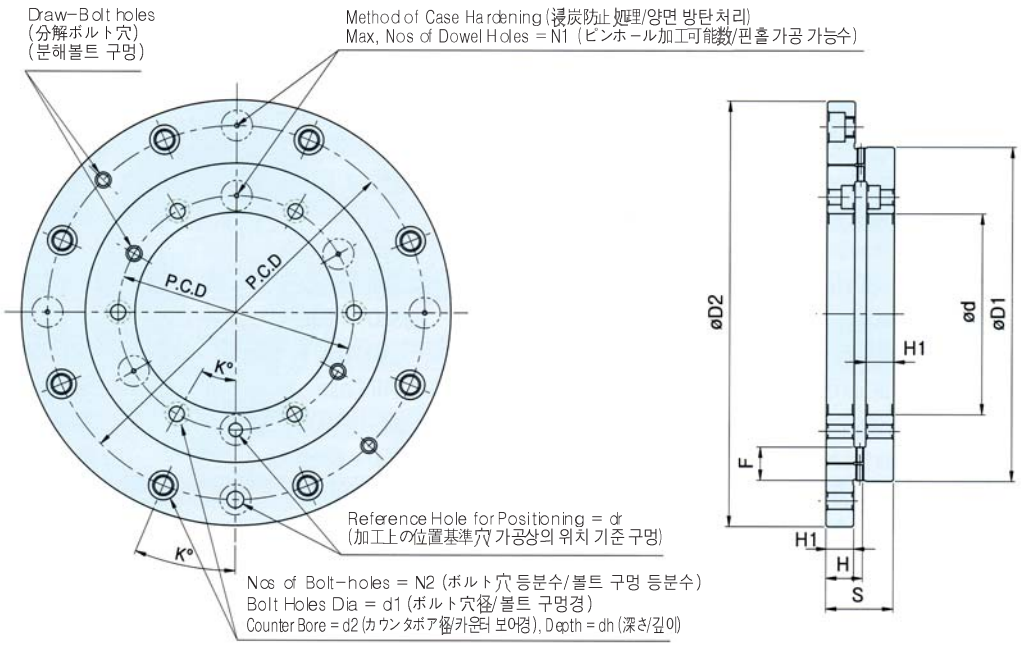
No Lift Type



Dimension / 尺寸 / 寸法表 / 치수표

NO.	Model NO. 형식 번호		No. of Teeth 잇수	D1	D2	d	F	H	H1	S	Dowel Holes 위치결정구멍				Bolt Holes 부착볼트구멍				Draw Bolt 분해볼트	ht	ho
											P.C.D	K°	N1	dr	N2	d1	dh	d2			
1	24-110-040-3P	VI.X	24	110	–	40	10	16.75	11.5	30	60	30°	1	8	6	6.6	6	11	2-M8	3.94	3.5
		VO		–	170	–	–				140	22.5°	1	8	8	9	8.5	14	2-M8		
2	135-060-3P	VI.X	24	135	–	60	14	18.75	13.5	34	80	30°	1	8	6	6.6	6.	11	2-M8	3.94	3.5
		VO		–	175	–	–				150	22.5°	3	8	8	9	8.5	14	2-M8		
3	165-080-3P	VI.X	24	165	–	80	20	20.75	15.5	38	100	30°	1	8	6	6.6	6	11	2-M8	3.94	3.5
		VO		–	220	–	–				195	22.5°	3	10	8	11	10.5	17.5	2-M10		
4	200-120-3P	VI.X	24	200	–	120	20	21.75	16.5	40	140	22.5°	3	8	8	9	8	14	2-M8	3.94	3.5
		VO		–	255	–	–				222	18°	3	10	8	11	10.5	17.5	2-M10		
5	230-135-3P	VI.X	24	230	–	135	22	21.75	16.5	40	165	15°	3	8	6	9	8	14	2-M8	3.94	3.5
		VO		–	290	–	–				258	15°	3	12	8	11	10.5	17.5	2-M10		
6	270-160-3P	VI.X	24	270	–	160	24	21.75	16.5	40	195	22.5°	3	10	8	11	10	17.5	2-M10	3.94	3.5
		VO		–	330	–	–				300	15°	3	12	12	14	12.5	20	4-M12		
7	30-110-040-3P	VI.X	30	110	–	40	10	16.75	11.5	30	60	30°	1	8	6	6.6	6	11	2-M8	3.94	3.5
		VO		–	170	–	–				140	22.5°	1	8	8	9	8.5	14	2-M8		
8	135-060-3P	VI.X	30	135	–	60	14	18.75	13.5	34	80	30°	1	8	6	6.6	6	11	2-M8	3.94	3.5
		VO		–	175	–	–				150	22.5°	3	8	8	9	8.5	14	2-M8		
9	165-080-3P	VI.X	30	165	–	80	20	20.75	15.5	38	100	30°	1	8	6	6.6	6	11	2-M8	3.94	3.5
		VO		–	220	–	–				195	22.5°	3	10	8	11	10.5	17.5	2-M10		
10	200-120-3P	VI.X	30	200	–	120	20	21.75	16.5	40	140	22.5°	3	8	8	9	8	14	2-M8	3.94	3.5
		VO		–	255	–	–				222	18°	3	10	8	11	10.5	17.5	2-M10		
11	230-135-3P	VI.X	30	230	–	135	22	21.75	16.5	40	165	15°	3	8	6	9	8	14	2-M8	3.94	3.5
		VO		–	290	–	–				258	15°	3	12	8	11	10.5	17.5	2-M10		
12	270-160-3P	VI.X	30	270	–	160	24	21.75	16.5	40	195	22.5°	3	10	8	11	10	17.5	2-M10	3.94	3.5
		VO		–	330	–	–				300	15°	3	12	12	14	12.5	20	4-M12		

Outward Drawing / 外型図 / 外形图 / 외형도



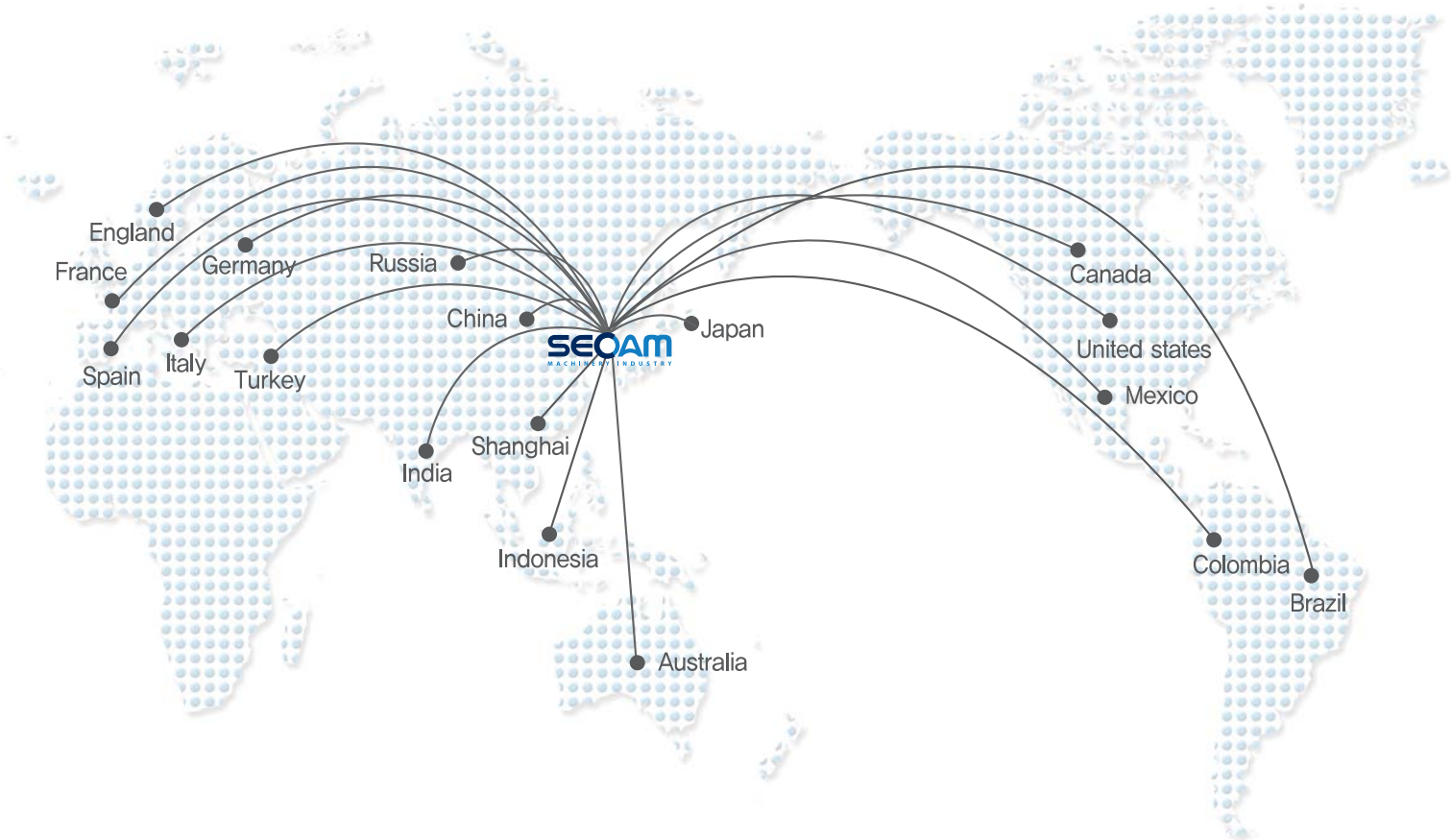
Dimension / 尺寸 / 寸法表 / 치수표

NO.	Model NO. 형식 번호		No. of Teeth 잇수	D1	D2	d	F	H	H1	S	Dowel Holes 위치 결정구멍				Bolt Holes 부착볼트구멍				Draw Bolt 분해볼트	ht	ho
											P.C.D	K	N1	dr	N2	d1	dh	d2			
13	48-335-220-3P	VIX	48	335	–	220	24	25.75	20.5	48	258	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	400	–	–				360	15°	3	12	12	14	12.5	20	4-M12		
14	425-300-3P	VIX	48	425	–	300	26	26.75	21.5	50	335	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	482	–	–				450	15°	3	12	12	14	12.5	20	4-M12		
15	540-415-3P	VIX	48	540	–	415	30	29.25	24	55	450	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	604	–	–				570	15°	3	12	12	18	16.5	26	4-M12		
16	60-335-220-3P	VIX	60	335	–	220	24	25.75	20.5	48	258	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	400	–	–				360	15°	3	12	12	14	12.5	20	4-M12		
17	425-300-3P	VIX	60	425	–	300	26	26.75	21.5	50	335	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	482	–	–				450	15°	3	12	12	14	12.5	20	4-M12		
18	540-415-3P	VIX	60	540	–	415	30	29.75	24	55	450	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	604	–	–				570	15°	3	12	12	18	16.5	26	4-M12		
19	72-335-220-3P	VIX	72	335	–	220	24	25.75	20.5	48	258	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	400	–	–				360	15°	3	12	12	14	12.5	20	4-M12		
20	425-300-3P	VIX	72	425	–	300	26	26.75	21.5	50	335	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	482	–	–				450	15°	3	12	12	14	12.5	20	4-M12		
21	540-415-3P	VIX	72	540	–	415	30	29.75	24	55	450	15°	3	12	12	14	12	20	4-M12	3.94	3.5
		VO		–	604	–	–				570	15°	3	12	12	18	16.5	26	4-M12		
22	630-490-3P	VIX	72	630	–	490	32	31.75	24	60	530	15°	3	12	12	18	16	26	4-M12	3.94	3.5
		VO		–	700	–	–				660	10°	3	12	12	18	16.5	26	4-M12		
23	820-670-3P	VIX	7	820	–	670	8	39.25	28.5	75	710	10°	3	14	18	18	14	26	4-M12	3.94	3.5
		VO		–	890	–	–				850	10°	3	14	18	18	16.5	26	4-M12		

Export Market

세계의, 세계를 향한 기술

주요수출지역 : 중국, 일본, 미국, 캐나다, 이탈리아, 스페인
러시아, 독일, 프랑스, 터키, 인도, 호주, 멕시코 등



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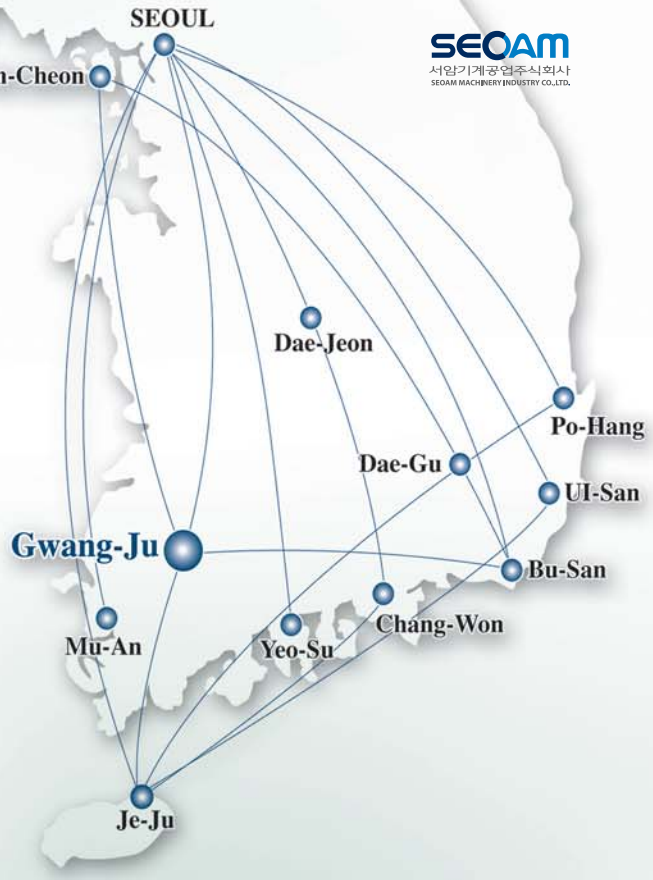

Operation area	Duration
Seoul - Gwangju	50minute
Seoul - Mokpo	55minute
Seoul - Muan	55minute

Operation area	Duration
Gwangju - Seoul	160minute
Songjungi - Seoul	170minute
Songjungi - Mokpo	35minute

Operation area	Duration
Gwangju - Seoul	210minute
Gwangju - Pusan	210minute
GwangJu - DæJeon	110minute

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