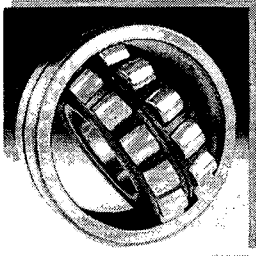


대형 베어링의 열간 전조 공정 해석

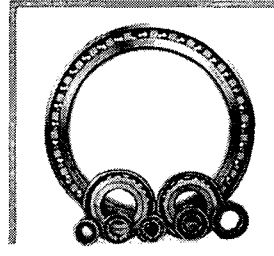
FAG한화베어링

정재현, 문호근

대형베어링의 열간 전조공정 해석



2002. 4. 12

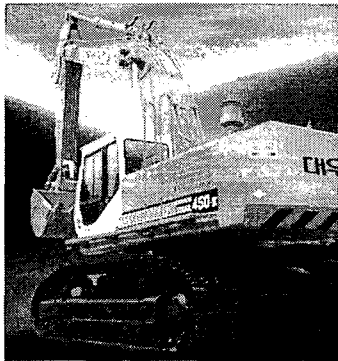


정재현, 문호근

FAG한화베어링(주) 연구소

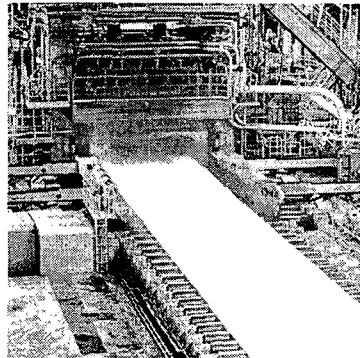
FAGKBC
BEARINGS

대형베어링 APPLICATIONS

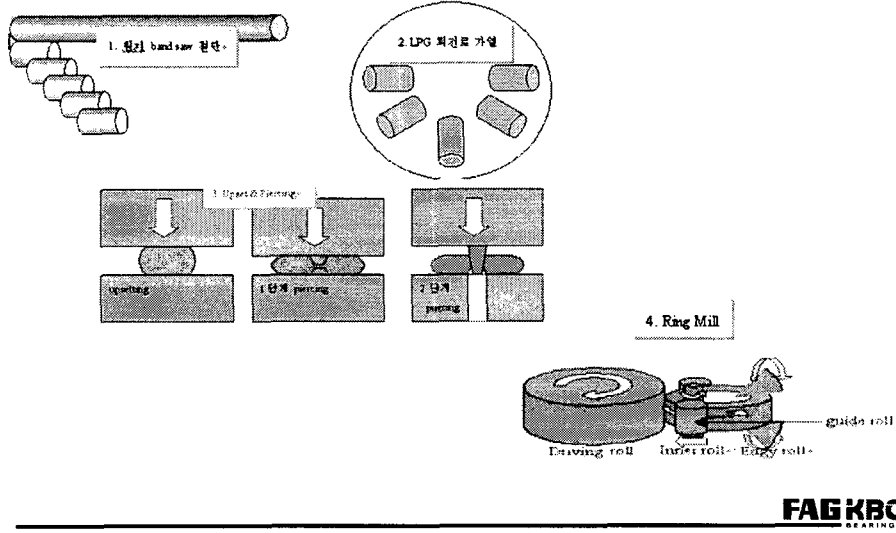


- 산업용 로봇
- 건설 기계
- 감속기류

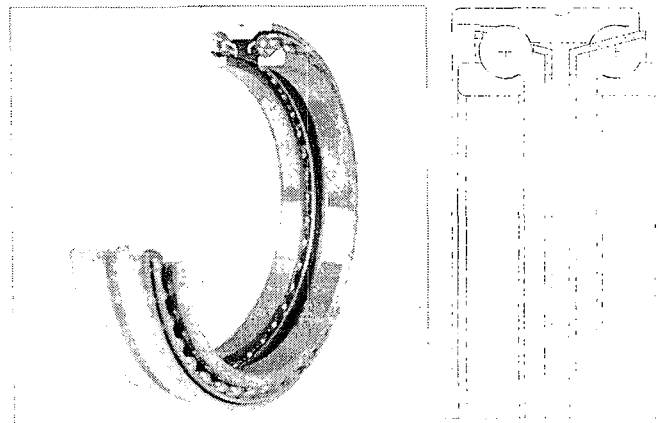
- 철강설비
- 발전설비
- 제지기계



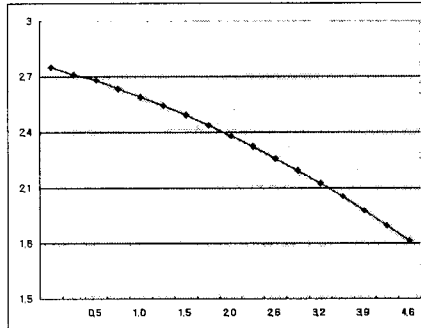
대형베어링 전조 공정도



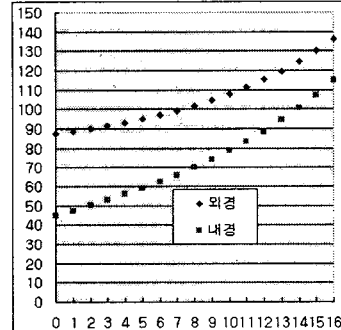
대형베어링 제작 단면도



절입속도 및 내/외경 치수 변화(경험식)



WORK ROLL 절입 속도



WORKPIECE 내/외경 변화

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BEARINGS

RING ROLLING MILL 해석조건

★ 초기조건

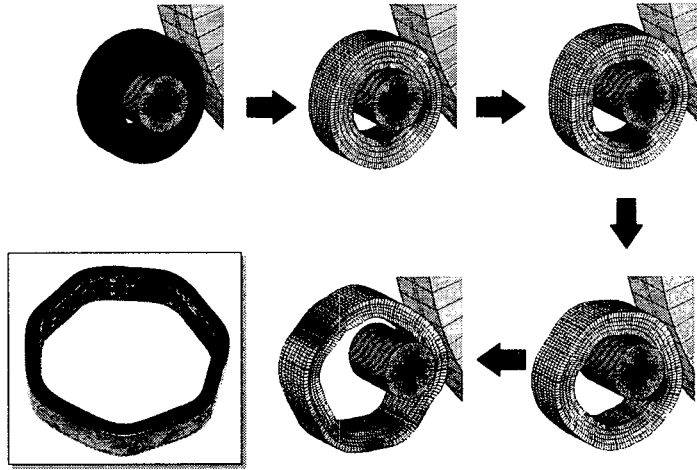
- ▶ 강종 : STB2
- ▶ Workpiece : 45.0 x 87.3 x 27.0 mm
- ▶ 초기온도 : 1100 °C
- ▶ Mandrel : 40.0 mm
- ▶ Forming Roll Outer Dia. : 434.0 mm
- ▶ Forming Roll 절입 속도 : 2.8 ~ 1.8 mm/sec
- ▶ Forming Roll 회전속도 : 30, 40, 50 rpm

★ 변형저항식 : $\bar{\sigma} = 15.72 \varepsilon^{-0.121}$

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BEARINGS

해석결과 1 - Polygonal Shape Formation

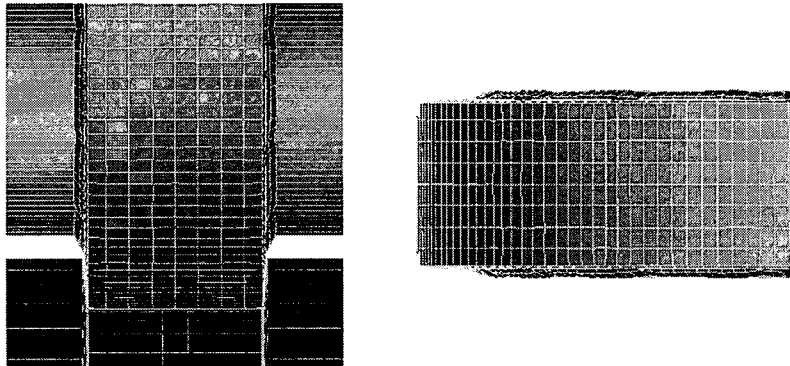


실물사진

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BEARINGS

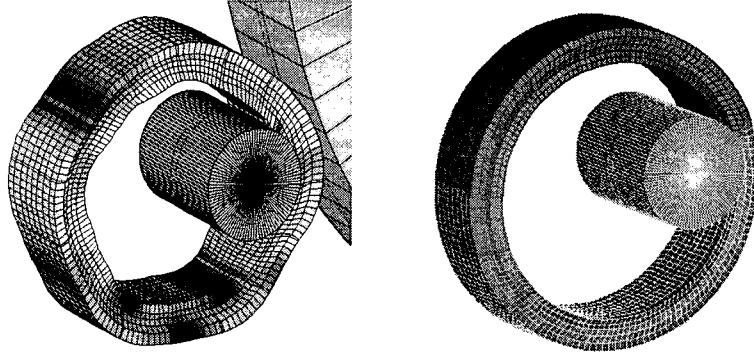
해석결과 2 - Fish Tail



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BEARINGS

해석결과 3 – Conventional Shape

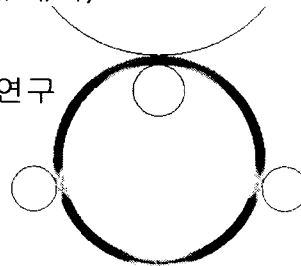


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BEARINGS

향 후 계 획

- 컴퓨터 시뮬레이션 기술 활용
- 전조공정의 해석 설계 적용
(Guide Roll 하중해석/Fish-tail 해석)
- 최적 열간 전조공정조건 설정 연구



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BEARINGS