

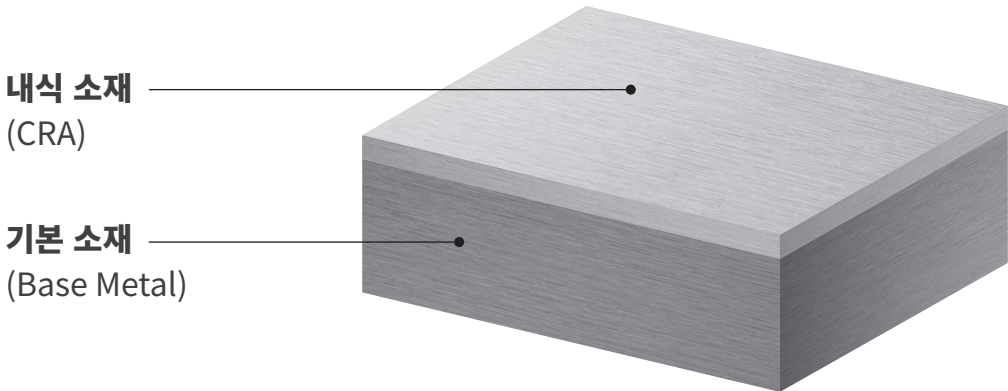
# ROLL-BONDED CLAD STEEL PLATE

동국제강 클래드 후판

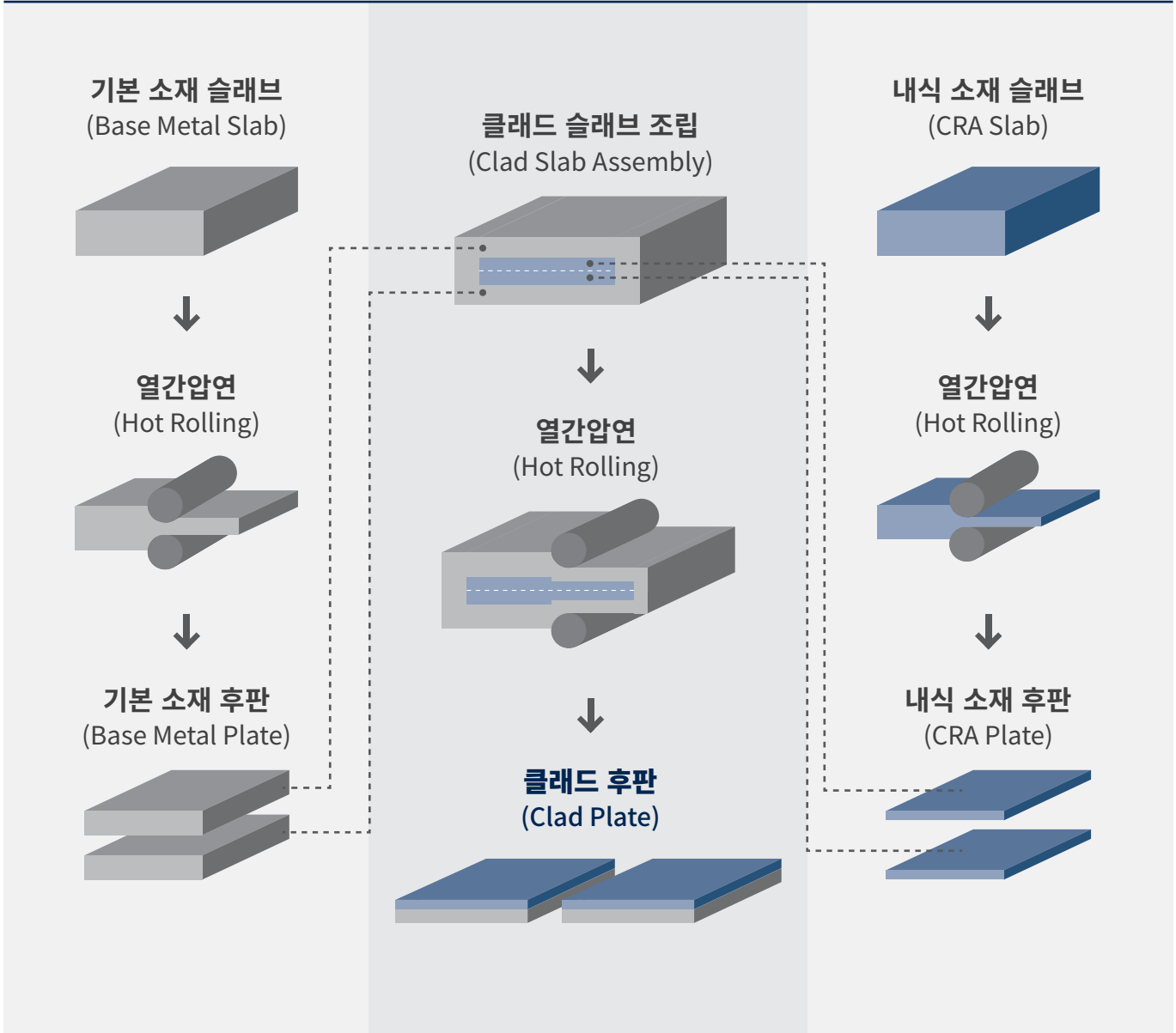
# 클래드 후판 (Clad Steel Plate)

두 가지 이상의 다양한 금속을 높은 온도와 압력을 통해 접합하여 각 금속의 장점만을 취하는 제품으로, 탄소강 기본 소재(Base Metal)에 부식 방지를 위한 내식 소재(Corrosion Resistant Alloy, CRA)를 얇게 붙이는 것이 대표적인 조합입니다.

Clad steel plates are metallurgically bonded and composited with two or more layers. The bond is formed during hot rolling process in high temperature and high pressure. A typical structure of Clad material is configured by adding thin corrosion-resistant alloy(CRA) on a base material, generally a thick carbon steel.



## 제조과정 (Manufacturing Process)



# 동국제강의 기술력 (Dongkuk Steel Technology)

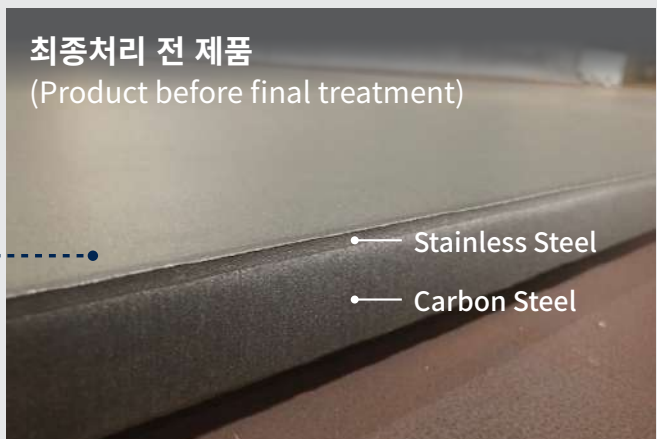
동국제강은 국내 최초의 철강기업이며, 국내 최초로 후판을 생산하였습니다.  
동국제강은 오랜 역사와 경험을 바탕으로 최상의 압연 기술을 발휘하고 있으며, 압연을 통한 고품질의 클래드 후판을 개발 및 생산하고 있습니다.

Dongkuk Steel is the first steel company in Korea to produce steel plates.  
Throughout many years we managed to perform excellent rolling techniques and our team has been successful producing high quality Roll-bonded Clad Steel Plates.

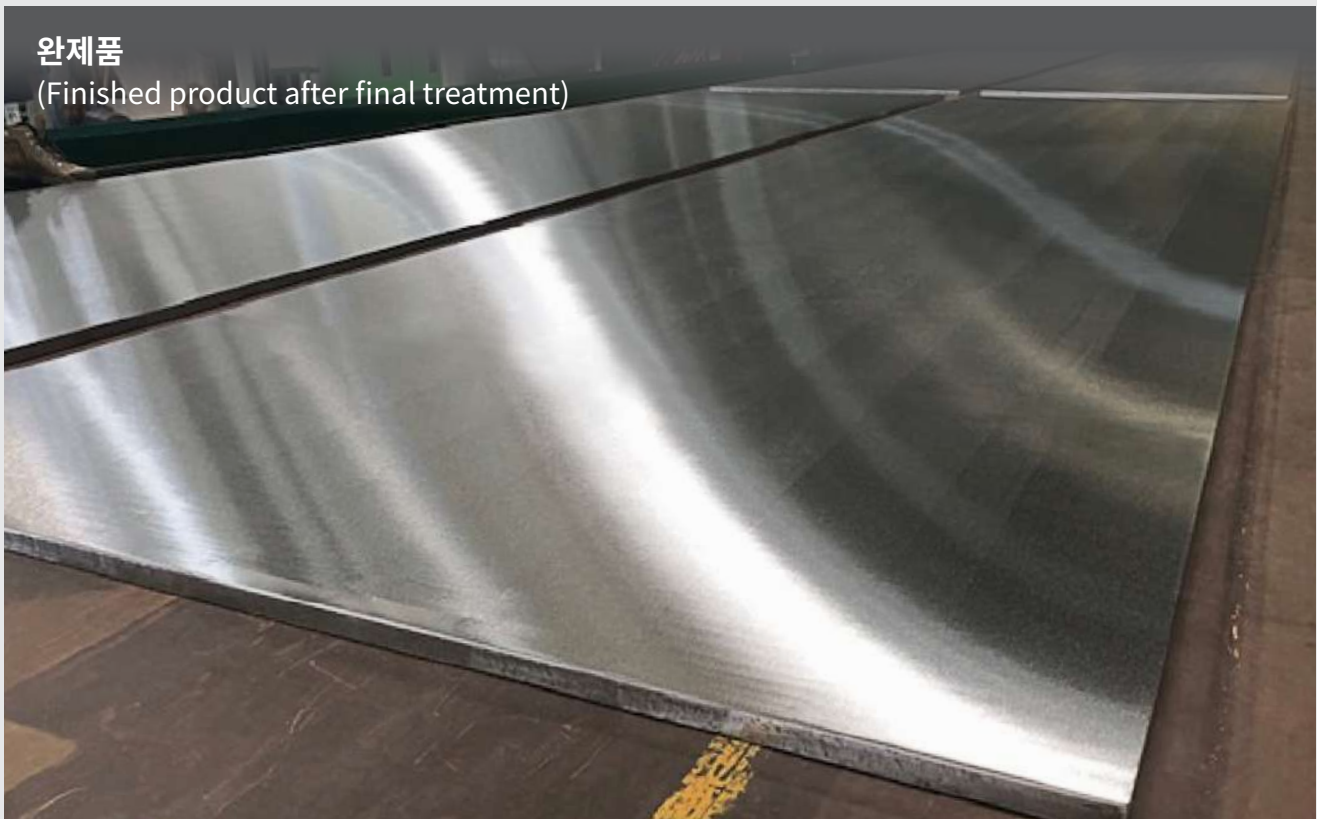
## Dongkuk Steel Clad Plate



최종처리 전 제품  
(Product before final treatment)



완제품  
(Finished product after final treatment)

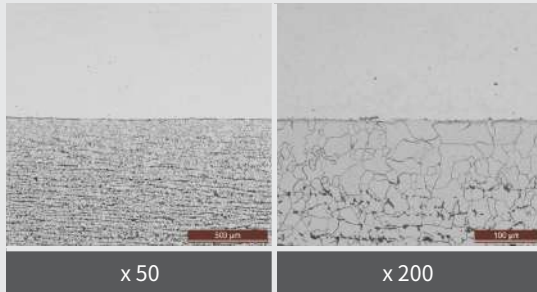


# 제품 평가 (Quality Evaluation)

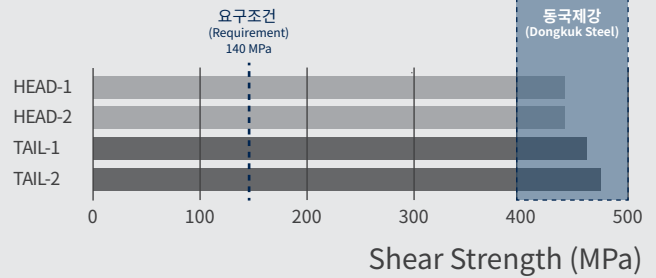
- 강종 (Grade of Clad Steel Plate) : ASTM A516-70N + A240 316L
- 두께 (Thickness) : 33.5 mm (30 mm Carbon Steel + 3.5 mm Stainless Steel)



## 계면 미세조직 (Microstructure of Bonded Inter-Layer)



## 전단시험 (Shear Strength Test)



## 가공시험 (Machining Test)



압력용기의 Head 부분은 가공 변형량이 가장 큰 부위로, 가공 시 가장 취약한 부분

The Head of pressure vessel is the part with the largest amount of processing deformation and most vulnerable part during processing.



| ULTRASONIC EXAMINATION REPORT                                                                                                                                                            |                                                                                                                                                                                          | MAGNETIC PARTICLE EXAMINATION                                                                                                                                                            |                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 초음파 탐상검사보고서                                                                                                                                                                              |                                                                                                                                                                                          | 자분탐상검사보고서                                                                                                                                                                                |                                                                                                                                                                                          |
| 1. 검사대상품명: Pressure Vessel Head<br>2. 검사위치: Head<br>3. 검사방법: UT<br>4. 검사기준: ASME Section V, Part 1, UT-100<br>5. 검사결과: No Defects Detected<br>6. 검사인: [Signature]<br>7. 검사일자: 2023.10.20 | 1. 검사대상품명: Pressure Vessel Head<br>2. 검사위치: Head<br>3. 검사방법: MT<br>4. 검사기준: ASME Section V, Part 1, MT-100<br>5. 검사결과: No Defects Detected<br>6. 검사인: [Signature]<br>7. 검사일자: 2023.10.20 | 1. 검사대상품명: Pressure Vessel Head<br>2. 검사위치: Head<br>3. 검사방법: PT<br>4. 검사기준: ASME Section V, Part 1, PT-100<br>5. 검사결과: No Defects Detected<br>6. 검사인: [Signature]<br>7. 검사일자: 2023.10.20 | 1. 검사대상품명: Pressure Vessel Head<br>2. 검사위치: Head<br>3. 검사방법: UT<br>4. 검사기준: ASME Section V, Part 1, UT-100<br>5. 검사결과: No Defects Detected<br>6. 검사인: [Signature]<br>7. 검사일자: 2023.10.20 |

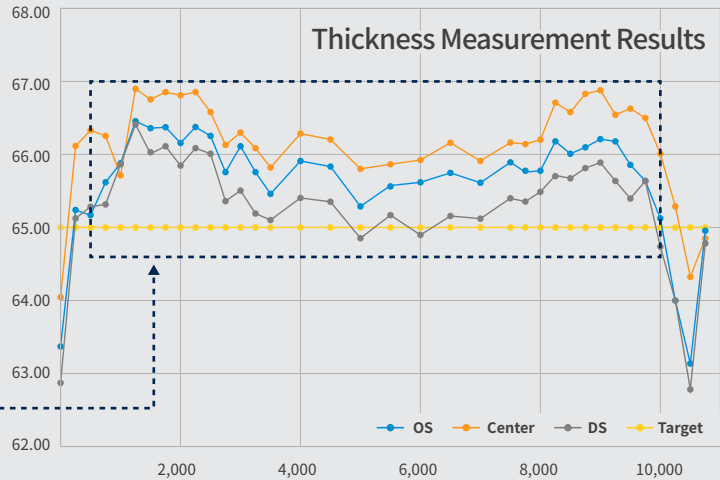
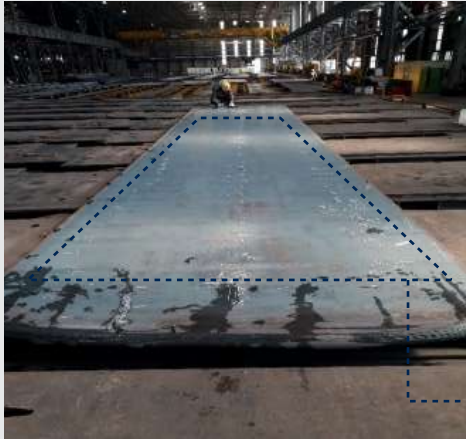
표면 (MT, PT) 및 내부 (UT) 품질 양호  
(Surface (MT, PT) & Internal (UT) Quality - Good)

# 제품 평가 (Quality Evaluation)

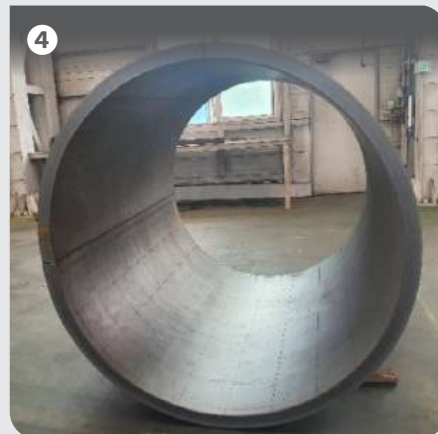
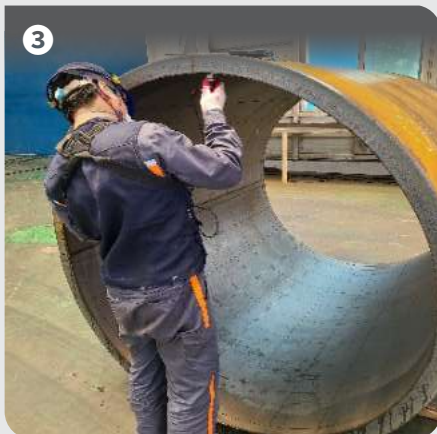
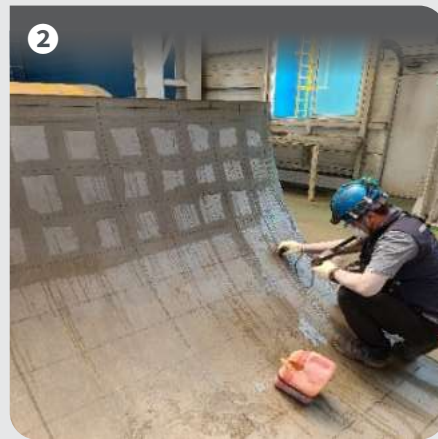
- 강종 (Grade of Clad Steel Plate) : A516-60N + A240 304L
- 두께 (Thickness) : 65 mm (62 mm Carbon Steel + 3 mm Stainless Steel)



## 압연 및 두께 검사 (Rolling & Thickness Inspection)



## 가공시험 (Machining Test)



# 생산 범위 및 납기 (Supply Condition and Lead Time)

| 강종 (Grade of Clad Steel Plate)                                                                                                                                                                       |                                                                                                                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| <div>상업생산</div> <div>(Commercial Production)</div>                                                                                                                                                   | <div>개발 중</div> <div>(Research &amp; Development)</div>                                                              |
| ASTM A516-60/65/70(N)+A240 304(L)<br>ASTM A516-60/65/70(N)+A240 316(L)<br>ASTM A36+A240 304(L)<br>ASTM A36+A240 316(L)<br>KS SS275/JIS SS400+ASTM A240 304(L)<br>KS SS275/JIS SS400+ASTM A240 316(L) | API X60M/65M+ASTM A240 304(L)<br>API X60M/65M+ASTM A240 316(L)<br>API X60M/65M+UNS N08825<br>API X60M/65M+UNS N06625 |

| 치수 (Size)                                                    |            |               |                |
|--------------------------------------------------------------|------------|---------------|----------------|
| <div>두께 (Thickness)</div> <div>CRA 2~4 mm + Base Metal</div> |            | 폭 (Width)     | 길이 (Length)    |
| <div>상업생산</div> <div>(Commercial Production)</div>           | Max. 35 mm | Max. 3,500 mm | Max. 12,000 mm |
| <div>압연 평가 중</div> <div>(Evaluating Rolling Results)</div>   | 35 ~ 65 mm |               |                |

※ 생산가능 범위 지속 확대 중이며, 두께별 생산가능 폭/길이는 상이할 수 있음.

Scope of production will be extended, and producible width/length can vary depending on thickness.

|                                     |
|-------------------------------------|
| 표준납기 (Lead Time) : 2 ~ 4 개월 (month) |
|-------------------------------------|