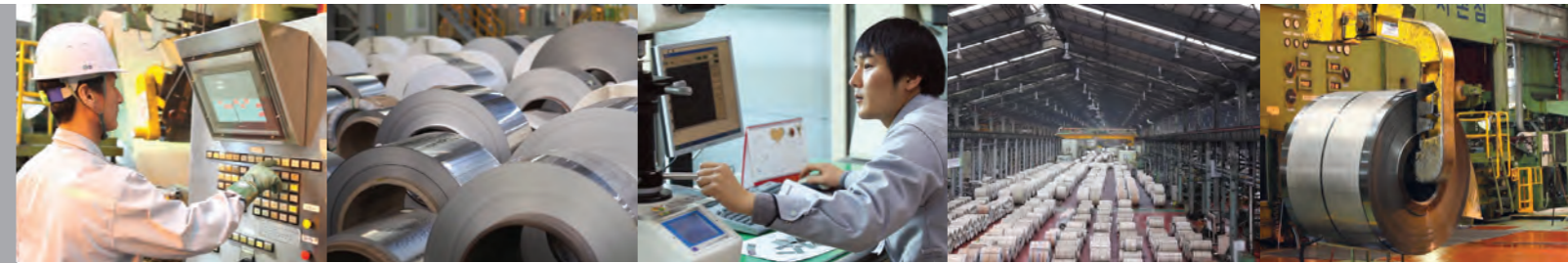


## BNG 443CT

Ni-free high corrosion resistant ferritic stainless steel

HYUNDAI  
**BNGSTEEL**



### Inquiries & Technical assistance

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# BNG 443CT

Ni-free high corrosion resistant ferritic stainless steel

## Newly developed Ni-free high corrosion resistant ferritic stainless steel

The 443CT offers outstanding level of resistance to corrosion and is well suited for a wide range of applications. Use of 443CT, with its many benefits, promises to enhance your competitiveness!

## Features

### 1. Price competitiveness against 304

- Economical choice!
- No influence by the fluctuation of Ni price.

### 2. Excellent corrosion resistance

- Better than 304
- To improve the corrosion resistance, weldability and workability, carbon and nitrogen contents were controlled to their limit, while titanium and niobium have been added for better stability of micro structure.

### 3. Excellent formability

- Deep drawability is outstanding, while work hardening is low.

### 4. Superior physical properties

- Thermal conductivity is higher and thermal expansion is lower than 304.

## Major Applications

<b>Buildings</b>	Elevators, Escalators, Building interiors and exteriors
<b>Home-use items</b>	Kitchen furniture : Gas ranges, Gas range hoods, Sink tops, Tableware, Barbeque grills
<b>Electrical appliances</b>	Refrigerators, Microwave ovens, Dishwashers, Washing machines, Induction heaters, Rice cookers, Pots&Pans
<b>Others</b>	Automotive parts, Fences, Street lamps, Boilers, Water tanks



▶ Elevator



▶ Building interior



▶ Building exterior



▶ Gas range



▶ Gas range hood



▶ Microwave oven



▶ Sink & Kitchen utensils



▶ Dishwasher



▶ Fences

# BNG 443CT

Ni-free high corrosion resistant ferritic stainless steel

## 1. Chemical Composition

[wt%]

TYPE	Ni	Cr	Mo	Ti	Cu
<b>443CT</b>	-	21	-	0.3	0.4
430	-	16	-	-	-
439	-	18	-	0.3	-
436L	-	18	1.1	0.3	-
304	8	18	-	-	-

## 2. Physical Properties

TYPE	Density (g/cm <sup>3</sup> )	Thermal Expansion Coefficient (μm/m·K)	Thermal Conductivity (W/m·K)	Specific Heat (J/kg·K)	Specific Electric Resistance (μΩ·cm)	Young Modulus (10 <sup>4</sup> Mpa)
<b>443CT</b>	7.74	10.5	22.5	440	58	20.5
430	7.70	10.0	26.0	520	60	21.2
439	7.65	10.1	26.1	494	53.8	22.9
436L	7.67	10.1	23.9	491	51.1	22.7
304	7.93	17.3	16.2	500	70	19.3

## 3. Mechanical Properties (in 2.0mmt)

TYPE	Yield Strength [Mpa]	Tensile Strength [Mpa]	Elongation [%]	Hardness [Hv]
<b>443CT</b>	305	483	31	≤200
430	302	494	30	≤200
439	294	476	32	≤180
436L	284	466	32	≤230
304	244	559	56	≤200

## 4. Formability

### Formability Performance

TYPE	Er[mm]	LDR[B.D/P.D]	CCV[mm]	r-bar	Others
<b>443CT</b>	9.4	2.24	27.0	1.6	0.6mmt
	10.5	2.18	46.6	1.2	1.2mmt
430	10.2	2.08	39.6	1.0	1.0mmt
439	10.9	2.14	61.7	1.0	1.5mmt
436L	10.1	2.16	38.4	1.4	1.0mmt
304	12.4	2.06	37.9	1.0	1.0mmt

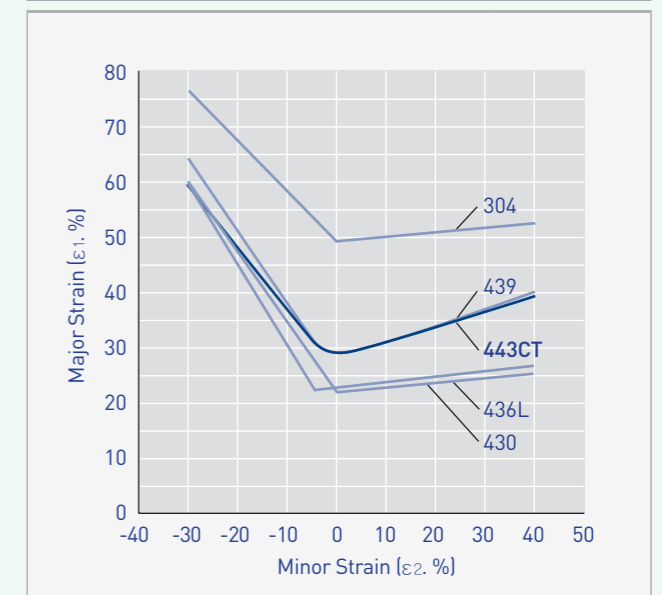
### Test Conditions

-Punch Dia. : 50φ [mm] -Punch Speed : 100mm/min. -Sheet Holder Pressure : 1ton -Lubricating Oil : Tallow

LDR comparison



Forming Limit Diagram



### LDR Test Conditions

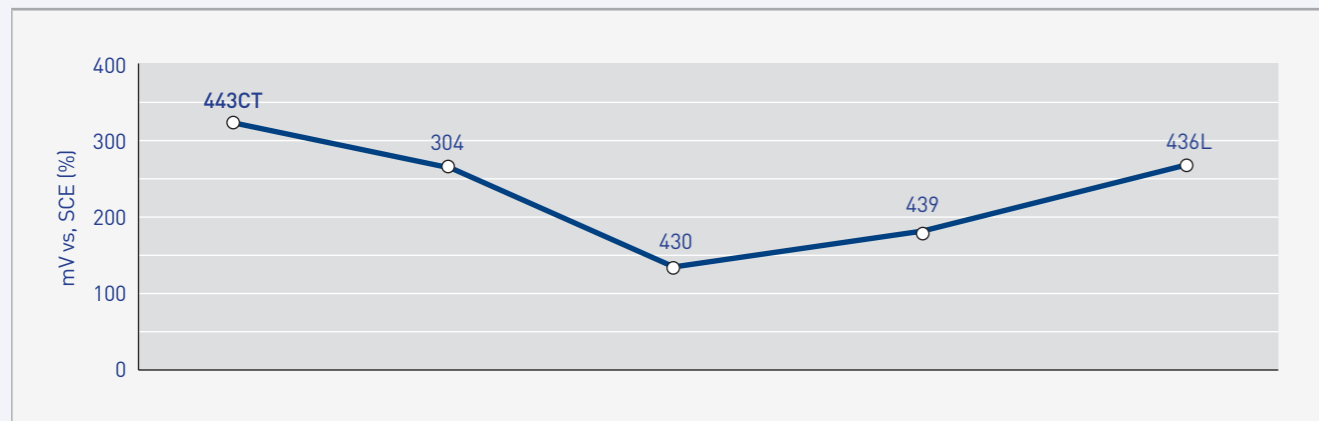
-Punch Dia. : 50 φ [mm] -Punch Speed : 100mm/min. -BHF : 1ton

# BNG 443CT

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## 5. Corrosion-Resistance

Pitting potential measurement [KS D 9502, 30°C, 3.5%NaCL]



### Basic metal saltspray test (ISO 14993, 480hr)

443CT-2B	439M-2B	430-2B	304-2B

### Test Conditions

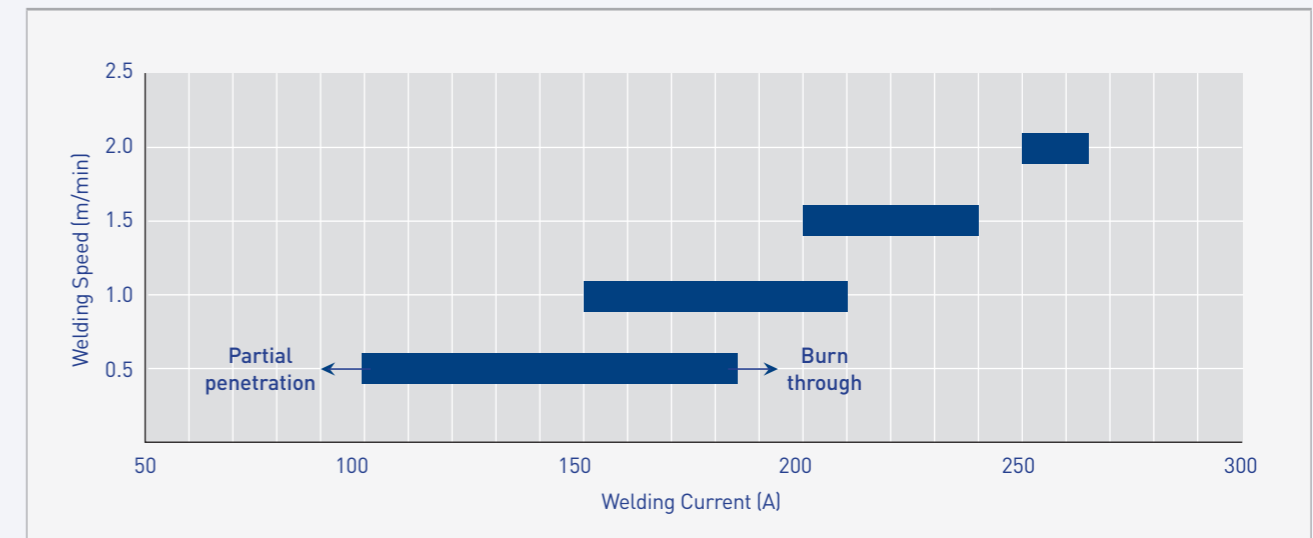
35°C, salt spray 2hour → 60°C, 25%, 4hour → 50°C, 95%, 2hour

### 3D corrosion tests at welded joints (copper sulfate/sulfuric acid test ISO 3651-2)

443CT [no crack]	439M [no crack]	430 [crack]	304 [no crack]

## 6. Welding Feature

Welding Conditions of GTAW [Gas Tungsten Arc Welding]



### Mechanical Properties on Welding Parts [GTAW]

	Mechanical Properties [T-dir]				Bending Property [180°]	Erichsen Value [mm]
	YS [Mpa]	TS [Mpa]	EL [%]	Fractured Location		
Base Metal	305	483	31	-	No crack	10.4
Weldment	-	478.5	-	BM	No crack	9.1

### Welding Part Micro structures

Micro structures	Welded metal	Thermal effective areas	Before welding

- Thickness 1.2mm, GTAW, Butt Joint -Electrode : 2.4mm dia -Arc length : 2.0mm -Shielding gas : Ar, 15L/min