KOBELCO
KOBE STEEL GROUP

KOBELCO WELDING ASIA PACIFIC PTE. LTD.

HQ/Factory:

No. 20, Pandan Avenue, Off Pandan Road,
Singapore 609387.
Tel: (65) 6268 2711/2 Fax: (65) 6264 1751

Office:

No. 237, Pandan Loop, #07-10 Westech Building,
Singapore 128424.
Tel: (65) 6684 8107/5 Fax: (65) 6684 8110



Distributed by:

TRUSTARC™

LB-52NS Arc Welding Electrode

AWS A5.5 E7016-G EN ISO 2560-A-E 42 6 Z B
(For High Tensile Steel)

LB-52NS is a highly reputed, dependable electrode for various low temperature application such as LPG carriers, storage tanks, offshore structures and heat exchangers.

General Characteristics

Workability

- Applicable to use for all welding position
- Better impact values at temperatures down to -60°C
- Good CTOD properties at temperature down to -30°C
- Both AC and DC-EP can be used
- Re-drying condition: 350°C - 400°C x 1hr

KOBELCO WELDING ASIA PACIFIC PTE. LTD.

TRUSTARC™ LB-52NS Arc Welding Electrode

KOBELCO KOBE STEEL GROUP

Production Sizes and Recommended Welding Current

Table 1: Production sizes and recommended welding current (AC or DC±)

Electrode Diameter	(mm)	2.6	3.2	4.0	5.0
Electrode Length	(mm)	300	350	400	450
Current Range (Amp)	F, HF, H	55 ~ 85	90 ~ 130	130 ~ 180	180 ~ 240
	VU, OH	50 ~ 80	80 ~ 120	110 ~ 170	150 ~ 200

Weldability

Mechanical Properties of All Weld Metal

Table 2: Typical mechanical properties of all weld metal

	0.2%OS (MPa)	T.S (MPa)	El (%)	I.V (J)	PWHT (℃×h)
Typical (AC)	490	580	29	130 @ -60℃	AW
	470	570	31	120 @ -60℃	620×1
Guaranty (AC, DC-EP)	≧393	≧483	≧27	≧27 @ -60℃	AW
	≧393	≧483	≧27	≧27 @ -60℃	620×1

Chemical Composition of All Weld Metal

Table 3: Typical chemical composition of all weld metal (%)

C	Si	Mn	P	S	Ni	Ti	B
0.06	0.36	1.38	0.01	<0.01	0.46	0.019	0.0027

Diffusible Hydrogen Content

Table 4: Test method: JIS Z3118 (Gas chromatography method)

Size	Atmospheric Condition	Diffusible hydrogen content (ml/100g)				
4.0	20℃×45% R.H	1	2	3	4	**Avg**
		3.7	3.8	4.1	4.1	**3.9**

Approval List

Table 5: LB-52NS is approved for welding 490MPa class high tensile steel by the following classification

NK	LR	ABS	BV	DNV
KMW54Y40 KMWL3H10	5Y40m (H15)	3Y, 4Y400 H10	4Y40M, HH (KV-60)	5Y40H10, NV2-4 (L), 4-4 (L)

Notes of Usages

- Dry the electrodes at 350°C - 400°C for about one hour before use.
- Keep the arc length as short as possible.
- Pay attention not to exceed proper heat-input because excessive heat-input causes deterioration of impact values of weld metal
- Re-drying of electrode is not needed within 8hr after opened.
- If more than 8hr, re-dry at 350°C - 400°C for 1hr [APPLICABLE FOR VACUUM PACK ONLY]

Reference of LB-52NS

Structure	Year	Country	Specification			
			PWHT	T.S (MPa)	I.V (J)	Hydrogen H[D]
Offshore	2010	Korea	AW	≧480	≧50J @ -50°C	≦5 ml/100g
	2009	Korea	AW	500-660	≧47J @ -60°C	≦5 ml/100g
Pressure vessel	2010	Japan	AW	≧590	≧110J @ -41°C	—
	2010	Japan	600℃×10h	≧545	≧20J @ -60°C	—
	2009	Japan	600℃×1h	≧490	≧27J @ -40°C	—
Storage cask	2010	Japan	600℃×10h	485-655	≧20J @ -60°C	—
LPG Tank	2008	Middle east	AW	≧480	≧50J @ -46°C	≦5 ml/100g
Piping	2010 - 2016	Singapore	AW	≧480	≧50J @ -46°C	≦5 ml/100g
FPSO	2011 - 2016	Singapore	AW	≧480	≧50J @ -46°C	≦5 ml/100g
Pressure vessel	2012 - 2016	Malaysia	600℃×4h	485-655	≧34J @ -60°C	≦5 ml/100g
Piping	2013 - 2016	Malaysia	AW	≧480	≧27J @ -46°C	—

Advantage of Kobelco Vacuum Pack

1. Can be used without re-drying

Hydrogen content and absorption performance of electrode have been improved to use without re-drying.

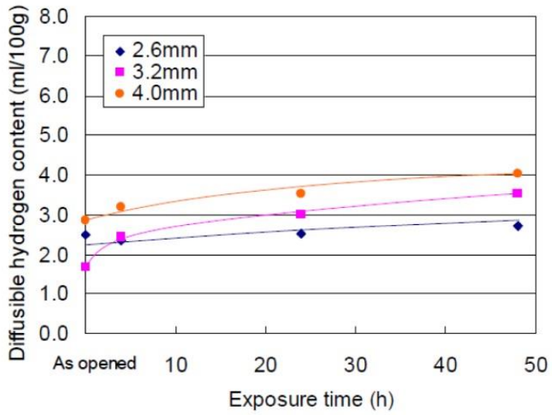
2. Saving time & cost for re-drying

Possible to save time and cost for re-drying.

TIME SAVING — Cost Reduction

- ✓ reduce of man power
- ✓ re-drying time
- ✓ electrical cost for re-drying
- ✓ higher productivity

Diffusible Hydrogen



Electrode	LB-52NS (Ø 4.0mm) (Low Hydrogen type, hermetically sealed container)
Measuring method	AWS A4.3 (Gas chromatography method)
Welding current	160
Current and Polarity	DC-EP
Exposing Atmosphere	30C°, 80%R.H
Welding Atmosphere	21C°, 10%RH