

# P230

## CLASSIFICATION

Flux	Flux/wire			
<b>ISO 14174</b> S A AB 1 67 AC H5		<b>AWS A5.17 / A5.23</b>	<b>ISO 14171-A : MR</b>	<b>ISO 14171-A : TR</b>
<b>P230 / LNS 135</b>	F7A4/F7P6-EM12	S 38 4 AB S2	S 4T 2 AB S2	
<b>P230 / L-61</b>	F7A4/F6P5-EM12K	S 38 4 AB S2Si		
<b>P230 / L-50M (LNS 133U)</b>	F7A5/F7P5-EH12K	S 46 5 AB S3Si		
<b>P230 / LNS 140A</b>	F8A4-EA2-G	S 46 4 AB S2Mo	S 4T 4 AB S2Mo	
<b>P230 / L-70</b>	F8A4-EA1-G	S 46 4 AB S2Mo	S 4T 4 AB S2Mo	
<b>P230 / LNS 160</b>	F7A8/F7P8-ENi1-Ni1	S 46 4 AB S2Ni1*		
<b>P230 / LNS 162</b>	F7A8/F7P8-ENi2-Ni2	S 46 6 AB S2Ni2*		
<b>P230 / LNS T55</b>	F7A4/F7P5-EC1	S50 4 AB Tz		

## GENERAL DESCRIPTION

Aluminate basic agglomerated flux

Low hydrogen content

One flux to combine with a wide range of wire electrodes

Good impact values in two-run and multi-run technique

Selection of wires provides application possibilities from -40 to +400°C

## APPROVALS

Wire grade	BV	ABS	LRS	DNV	GL	RMRS	RINA	TÜV
L-61		4YTM	4YTM				4YTM	X
L-50M (LNS 133U)	A4YM/A3YT		4Y40M/3Y40T	4YM				X
LNS 140A (L-70)	A4YTM	4YTM/2YT	4YM		4Y40TM	3YTM	4YTM	X
LNS 135								X
LNS 160								X
LNS 162								X
LNS T55								X

## CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

Wire grade	C	Mn	Si	P	S	Mo	Ni
L-61	0.06	1.4	0.4	<0.03	<0.02		
LNS 135	0.07	1.4	0.25	<0.03	<0.02		
L-50M (LNS 133U)	0.08	1.8	0.5	<0.03	<0.02		
LNS 140A (L-70)	0.07	1.4	0.3	<0.03	<0.02	0.5	
LNS 160	0.07	1.4	0.3	<0.03	<0.02		1.1
LNS 162	0.08	1.2	0.3	<0.03	<0.02		2.1
LNS T55	0.07	1.8	0.8	0.02	0.015		

## MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

Wire grade	Condition*	Yield strength (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )	Elongation (%)	Impact ISO-V(J)		
					-20°C	-40°C	-60°C
LNS 135	AW	400	500	30	50		
L-61	AW	450	520	30	100		
	SR	400	490	30	140	80	
L-50M (LNS 133U)	AW	480	580	30		80	
	SR	460	540	28		70	
LNS 140A (L-70)	MR	540	620	28	70		
	TR		620			60	
LNS 160	AW	490	570	28		120	45
	SR	430	550	28		140	75
LNS 162	AW	500	590	28		120	50
	SR	460	570	28		150	80
LNS T55	AW	540	630	28	90	60	
	SR	520	610	28	80	50	

\* MR : Multirun - TR : Two-run - AW : As welded - SR : Stress relieved

P230-1: rev. C-EN25-11/05/16

All information in this data sheet is accurate to the best of our knowledge at the time of printing. Please refer to [www.lincolnelectric.eu](http://www.lincolnelectric.eu) for any updated information.  
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## EXAMPLES OF MATERIALS TO BE WELDED

Code	Type / Steel grades	Multi-run			
		LNS 135	L-61	L-50M (LNS 133U)	LNS 140A (L-70)
<b>Ship plates</b>					
	A to D	✓	✓	✓	✓
	AH(32),DH(40)	✓	✓	✓	✓
<b>General structural steels</b>					
EN 10025 part 6	500A				✓
EN 10025 part 3/part 4	S275 to 460 N, NL	✓	✓	✓	✓
	S275 to 420 N, NL, M & ML		✓	✓	✓
	S275 to 460 N, NL, M & ML			✓	✓
EN 10149	S315 & S355 MC & NC	✓	✓	✓	✓
	S315 to S420MC & NC		✓	✓	✓
	S315 to S460MC & NC			✓	✓
	S315 to S500MC & NC				✓
<b>Boiler &amp; pressure vessel steels</b>					
EN 10028-2	P295GH, P355GH, 16Mo3	✓	✓		
EN 10022-2	17Mo3, 14Mo6	✓	✓		

## FLUX CHARACTERISTICS

Current type	DC (+-/)/AC
Basicity (Boniszewski)	1.6
Solidification speed	High
Density (kg/dm <sup>3</sup> )	1.2
Grain size (ISO 14174)	2 -20

## SUGGESTIONS FOR USE

- Excellent multi application flux on the shop floor
- Excellent welding behaviour in single arc and tandem application
- Very good mechanical properties at low temperature in either two-run or multi run technique.

## PACKAGING AND AVAILABLE SIZES

Unit	Net weight (kg)
Bag	25
Sahara ReadyBag™ (SRB)	25

# P230

## CLASSIFICATION

Flux	Flux/wire			
ISO 14174 S A AB 1 67 AC H5	P230 / LNS 150	AWS A5.17 / A5.23 F8P2-EB2-B2R	ISO 14171-A / ISO 26304	ISO 21952-A S CrMo1
	P230 / LNS 151	F9PZ-EB3-B3R		S CrMo2
	P230 / LNS 163		S 38 4 AB S2 NiCu	
	P230 / LNS 164	F9A6-EF1*-F3	S 50 4 AB S3NiMo1	
	P230 / LNS 168		S 69 4 AB S3Ni2.5CrMo	

## GENERAL DESCRIPTION

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 Low hydrogen content  
 One flux to combine with a wide range of wire electrodes  
 Good impact values in two-run and multi-run technique  
 Selection of wires provides application possibilities from -40 to +400°C

## APPROVALS

Wire grade	TÜV
LNS 164	✓

## CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

Wire grade	C	Mn	Si	P	S	Mo	Ni	Cr	Cu
LNS 150	0.08	1.1	0.3	<0.02	<0.01	0.5		0.9	
LNS 151	0.12	0.8	0.3	<0.02	<0.01	1.0		2.6	
LNS 163	0.07	1.1	0.6	<0.02	0.02		0.7		0.7
LNS 164	0.07	1.5	0.3	<0.02	<0.01	0.5	1.0		
LNS 168	0.09	1.7	0.4	<0.02	<0.02	0.4	2.4	0.25	

## MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

Wire grade	Condition*	Yield strength (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )	Elongation (%)	Impact ISO-V(J)		
					0°C	-20°C	-40°C
LNS 150	SR	535	620	25	70	90**	60**
LNS 151	SR	560	640	24		30	
LNS 163	AW	450	600	20	60	70	
LNS 164	AW	630	710	22	90	80	50
	SR	630	710	24	70	60	35
LNS 168	AW	710	840	20		65	min. 47

\* SR : Stress relieved - AW : As welded - \*\*SR = 2h/720°C

P230-2: rev. C-EN25-11/05/16

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## EXAMPLES OF MATERIALS TO BE WELDED

Code	Type / Steel grades				
		LNS 150	LNS 151	LNS 164	LNS 168
<b>Pipe materials</b>					
EN 10208-2	L415			✓	
	L445, L480			✓	
API 5LX	X56, X60			✓	
	X65, X70			✓	
Gaz de France	X63			✓	
<b>Boiler &amp; pressure vessel steels</b>					
EN 10028-2	13CrMo 4-5	✓	✓		
High temperature steel	10CrMo 9-10	✓	✓		
EN 10028-4/10222-3	13MnNi6-3				
Low temperature steel	11MnNi5-3				
<b>Fine grained steels</b>					
EN 10025 part 3/part 4	S420			✓	
EN 10025 part 6	S460			✓	
<b>High yield strength steels</b>					
EN 10025 part 6	S460, S690				✓

## FLUX CHARACTERISTICS

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Solidification speed	High
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Grain size (ISO 14174)	2 -20

## SUGGESTIONS FOR USE

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Bag	25
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