



Welding Consumable: Approval Certificate

Office: **Mumbai-Port**

Date: **18 June 2019**

This Certificate is issued to Superon Schweisstechnik India Limited, India, to certify that the undernoted welding consumable is recommended for entry in the supplementary list of certified welding consumable in accordance with ASME Section II, Part C, SFA 5.4, specification of the year 2017. This certificate is issued on the basis of satisfactory test results on the test coupons prepared on 15 May 2019 and subsequently tested on 07 June 2019. Welding consumable is manufactured by Superon Schweisstechnik India Limited, IMT Manesar, India

Description:

Consumable name : SUPER OPTIMAL 316L

Size : 2, 2.4, 2.5, 3.2, 4.0, 4.8, 5.0 mm

SFA Classification : SFA 5.4 AWS E316L-16

Results of test :

	2.00mm	2.40 mm	2.50 mm	3.20 mm	4.00 mm	4.80 mm	5.00 mm
0.2% Proof stress (N/mm ²)	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
UTS (N/mm ²)	Not Required	Not Required	Not Required	587.67	593.96	592.17	597.38
% Elongation	Not Required	Not Required	Not Required	44.40	40.80	42.76	41.44
Impact at -50deg C	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required
Chemical	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
Radiography	Not Required	Not Required	Not Required	Acceptable	Acceptable	Acceptable	Acceptable
Fillet(H,V, OH)	Not Required	Not Required	Not Required	Acceptable	Acceptable	Acceptable	Acceptable

Chemical Analysis- Size: 2.00 mm

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
	%	%	%	%	%	%	%	%	%
Range	0.04 max	17 - 20	11 - 14	2.0 -3.0	0.5 - 2.5	1 max	0.04 max	0.03max	0.75 max
Result	0.0157	18.58	11.44	2.31	0.790	0.838	0.0321	0.0157	0.0623

Chemical Analysis- Size: 2.40 mm

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
	%	%	%	%	%	%	%	%	%
Range	0.04 max	17 - 20	11 - 14	2.0 -3.0	0.5 - 2.5	1 max	0.04 max	0.03max	0.75 max
Result	0.0170	18.61	11.43	2.30	0.798	0.828	0.0313	0.0159	0.0625

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Chemical Analysis- Size: 2.50 mm

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
	%	%	%	%	%	%	%	%	%
Range	0.04 max	17 - 20	11 - 14	2.0 -3.0	0.5 - 2.5	1 max	0.04 max	0.03max	0.75 max
Result	0.0156	18.55	11.47	2.29	0.835	0.863	0.0315	0.0157	0.0624

Chemical Analysis- Size: 3.20 mm

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
	%	%	%	%	%	%	%	%	%
Range	0.04 max	17 - 20	11 - 14	2.0 -3.0	0.5 - 2.5	1 max	0.04 max	0.03max	0.75 max
Result	0.0156	18.36	11.48	2.36	0.729	0.792	0.0318	0.0158	0.0629

Chemical Analysis- Size: 4.00 mm

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
	%	%	%	%	%	%	%	%	%
Range	0.04 max	17 - 20	11 - 14	2.0 -3.0	0.5 - 2.5	1 max	0.04 max	0.03max	0.75 max
Result	0.0161	18.47	11.47	2.31	0.787	0.864	0.0342	0.0169	0.0622

Chemical Analysis- Size: 4.80 mm

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
	%	%	%	%	%	%	%	%	%
Range	0.04 max	17 - 20	11 - 14	2.0 -3.0	0.5 - 2.5	1 max	0.04 max	0.03max	0.75 max
Result	0.0159	18.51	11.45	2.32	0.735	0.811	0.0313	0.0166	0.0629

Chemical Analysis- Size: 5.00 mm

	C	Cr	Ni	Mo	Mn	Si	P	S	Cu
	%	%	%	%	%	%	%	%	%
Range	0.04 max	17 - 20	11 - 14	2.0 -3.0	0.5 - 2.5	1 max	0.04 max	0.03max	0.75 max
Result	0.0160	18.45	11.45	2.32	0.765	0.815	0.0314	0.0155	0.0635

Refer Report No. N190521017-9/10/11/12 for radiography, results found satisfactory.

Refer Fillet test report No. 9/10/11/12 dated 07/06/2019 for fillet test and results found satisfactory.

Certificate is valid until 18 May 2020.

TD
Mumbai Port Office
Lloyd's Register Asia



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