

**14.9.2022**

**485630**

Customer's order number 023381		Manufacturer's order number 171943 1	
Customer/consignee Ovako Metals Oy Ab Tuotekatu 3 33840 Tampere		Buyer Ovako Metals Oy Ab Tuotekatu 3 33840 Tampere	
Customer reference number 023381-5130/96-733021			
Product Round bar As rolled Hot rolled, reeled		Steel grade HYDAX 15	
		Specification IS 2720.12.04	
Charge 47103	Abbreviation GSP	Diameter/dimensions 80,00 mm	Tolerance type N
			Reduction ratio 22,83 :1

CAST ANALYSIS

	C	SI	MN	P	S	CR	NI	MO	
	%	%	%	%	%	%	%	%	
Min		0,15	1,00		0,090				
Result	0,17	0,24	1,19	0,017	0,109	0,20	0,13	0,03	
Max	0,20	0,55	1,60	0,035	0,150				
	V	TI	CU	ALS	AS	SN	B	CA	
	%	%	%	%	%	%	%	%	
Min								0,0020	
Result	0,05	0,0009	0,19	0,005	0,008	0,011	0,0003	0,0043	
Max	0,09								
	N	NB	CO	PB	W	SB	CEV		
	%	%	%	%	%	%	%		
Min									
Result	0,011	0,004	0,013	0,0003	0,007	0,002	0,44		
Max							0,47		

CHARPY V2/-20 °C EN ISO 148-1

	KV1	KV2	KV3	KV AVER
	J	J	J	J
Min				27
Result	94	133	80	102
Max				

TENSILE TEST FROM 1/3 RADIUS EN ISO 6892-1

	Rp0.2	Rm	A 5	Z
	MPa	MPa	%	%
Min	335	490	21,0	45
Result	415	568	22,4	54
Max		630		

Steel production process: Electric Arc Furnace, Vacuum Degassing and Continuous Casting

The products supplied are in compliance with the requirements of the order

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This certificate is issued electronically and is valid without a signature

Takala Esa  
Authorized Representative

All of Ovako's operations are carbon neutral beginning January 1, 2022.