

TEST CERTIFICATE

MODISON METALS LTD.

G I D C, VAPI – 396195.

GUJARAT, INDIA.

TEL. NO.: 91-260-2424819

FAX NO.: 91-260-2429262

T.C No: 2K21-1513 DT: 29.10.2021

INV. NO.: EXP2100651 DT: 29.10.2021

DRG. NO.: 8EA.267.016

APPENDIX NO.: 80 dtd.05.08.2021

contract no. 007-07122016

Consignee :

Energoprofit LTD

CHAPAVE STR

14/16 OFF-9 EKATERINGBURG

6201202, RUSSIA

RUSSIA

QTY: 50 NOS

KIND ATTN: MS. ALEKSEI.N.SAIDALIEV

(TEL: +7 903 263 72 66)

PHYSICAL / CHEMICAL TESTS

COMPOSITION: WCu 25 + COPPER

WCu 25		Cu		
TEST	POWDER BATCH NO	TEST	REQUIRED	ACTUAL VALUE
Cu % BY WT.	2K21-288	Cu% BY WT.	MIN. 99.90	99.98
W % BY WT.	PLEASE REFER PAGE 2	TENSILE STRENGTH	MIN 250N/mm ²	303.48N/mm ²
DENSITY		% ELONGATION	MIN 15%	18.57 %
CONDUCTIVITY		HARDNESS	MIN 80 BHN	96 BHN
HARDNESS		CONDUCTIVITY	MIN 97 % IACS	99.2%IACS
MICROSTRUCTURE: Uniform distribution of TUNGSTEN & COPPER particles observed. Microstructure okay. Insitu bonding of WCu with Cu found okay. E B Welding joint found okay.				

DIMENSIONAL REPORT

DRAWING DIMENSION	TOLERANCE	ACTUAL DIMENSION	
		1	2
40	-0.25	39.83	39.85
12	+0.19	12.11	12.13
6Slots 0.6	+0.2	0.71	0.70
81	±0.3	81.2	81.0
Ø48	-0.8	47.64	47.61
Concentricity 0.1 K		0.08	0.05
1x45°		OKAY	OKAY
18	±0.1	18.05	17.99
Perpendicular 0.1 K		0.02	0.04
Ø26	+0.5	26.27	26.24
5	-0.5	4.78	4.74
90	-0.35	89.82	89.84
WCu 8		8.3	8.1
R6.5		OKAY	OKAY
M36x1.5-6g		OKAY WITH GAUGE	
R2.5		OKAY	OKAY
Ø18	+0.18	18.09	18.10
Ø36	-0.39	35.85	35.87
R0.5		OKAY	OKAY
4	±0.8	3.97	3.95
Ø34	-0.4	33.81	33.85

FNI-F-01

INSPECTED BY:


(Mahela R. R.)

SEEN BY:



TEST CERTIFICATE

CONFORMANCE TO MODISON'S WCu 25 SPECIFICATION

REFER T. C. No.: 2K21 1513 DT: 29.10.2021

FOR DRG NO.: 8EA.267.016

PROPERTIES	UNIT	REQUIRED VALUE	ACTUAL VALUE
			POWDER BATCH NO 2K21-288
Density	g/cm ³	14.6 - 15.2	14.82
Hardness	HB	180 - 220	191
Electrical Conductivity	% IACS	29.31MIN	30.12
Metallographic Aspect		Homogeneous	Homogeneous
• Grain size Distribution			
• Range	µm	1 - 15	1 - 15
• Mean size of grains of W	µm	4 - 6	5.0
Porosity			
• Quantity of pores	%	≤ 1.5	0.17
• Size of pores	µm	≤ 30	< 30

Chemical composition in %

Elements	Tungsten	Copper	Nickel	Traces
Required value	72 - 78	22 - 28	0.2 - 0.5	≤ 0.2
Actual value	74.11	25.46	0.35	0.08



100%CDR



MICROSTRUCTURE



VISUAL



2PC ALL DIMENSION REPORT

NOTE:

VISUAL: Visual inspection includes surface finish, Pin holes, feed marks, burrs, dents, cracks, blow holes, inclusions, forging folds etc.

INSPECTED BY


(Mahela R.R.)

SEEN BY



Wrt	Acem	N. deury	Proct	long
Empoet	Kapod		Act	02.20
Prodeq				02.20
I. nasep	I. papeps			02.20
Imopeng	Imopoch			02.20
Imed	Kapod		Act	02.20

Danzon / Collet

Ann.	Mozca	Micromos
Ann. 1	0.53	2.5.1

Формат А3

