



CERTIFICADO DE VERIFICACIÓN / VERIFICATION *CERTIFICATE*

INNOVATECIS CIA LTDA	Certificado No. (Certificate #): 60407
General José Maria Guerrero N69-170 y Alfonso del Hierro	Fecha de Recepción (Reception Date): 2025-08-22
Quito, Ecuador	Fecha de Verificación (Verification Date): 2025-08-29
(+593) 02 6040 607	Próxima Fecha de Verificación (Verification Due): 2026-08-29
innovatec@innovatec.com.ec	Fecha de Emisión (Emission Date): 2025-08-29

Cliente (Client):	AVIANCA - ECUADOR S.A.
	Luis Tamayo N24-33 Y Baquerizo Moreno (SEDE PRINCIPAL)

Información del Instrumento (Instrument Information)			
Equipo (Instrument):	TOOL KIT, ELECTRICAL SERVICE	Tamaño de contacto: (Measurement Range)	12 a 22 .
Marca (Brand):	DMC	Indicación (Readout)	Analógico (Analog)
Modelo (Model):	DMC519	Ubicación (Location):	Taller
Serie/Código:	N-A(oui-000078)	WIRE RANGE	12 - 30
		Lugar de Verificación: (Place of Verification):	Lab. Innovatec / Innovatec's Lab.

Datos de Calibración (Calibration Info)	Condiciones Ambientales (Environmental Conditions)
Procedimiento (Procedure): INN-PC-33	Temperatura (Temp): (20.68 °C a 20.81 °C)
	Humedad (Humidity): (52.76 %HR a 53.12 %HR)

Trazabilidad (Traceability Info)				
Patrón (Standard)	Marca (Brand)	Cert. #	Ultima Calibración (Last Cal.)	Período (Period)
Micrómetro	Pantec	38837	2023-11-26	2 años
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

Resultados (Results)				
Identificación (Identification)	Patrón (Standard)	UBP (UUT)	Error (Error)	Incertidumbre (Uncertainty)

Ver Resultados en Hoja Adjuntada
See results in attached Sheet

El presente Certificado de Verificación posee la trazabilidad en esta magnitud hacia el Patrón Nacional, a través de la realización de la unidad de medida en el NPL, NIST, u otro Laboratorio Nacional reconocido al Sistema Internacional de Medidas. La verificación fue realizada bajo un Sistema de Gestión de Laboratorio conforme a la Norma ISO/IEC 17025:2017. Los resultados y su incertidumbre reportada con un nivel de confianza de K=2, 95% son relacionados a este instrumento y en el tiempo que se realizo las medidas. Este Laboratorio no se responsabiliza de los perjuicios que pueda ocasionar el uso inadecuado del instrumento Verificado. La reproducción parcial es prohibida, la reproducción total deberá hacerse con la autorización escrita aprobada por INNOVATEC Industrial Solutions. *This Certificate of Verification provides traceability of measurement to the National Standard, through units of measurement realized at the NPL, NIST or other recognized National Standar Laboratories to the Internacional System of Units. The Verification was performed under a Laboratory Management System in accordance with the ISO/IEC 17025:2017 Standard. The results and the reported uncertainty at a confidence level of K=2, 95% are related only to this instrument and at the time of measurement. This Laboratory is not responsible for any damages that may result from improper use of the verified instrument. Partial reproduction is forbidden, the total reproduction must have an approved written authorization by INNOVATEC Industrial Solutions.*

Comentarios:	PartN. DMC519 R4402724
Comments	As Received Condition: In Tolerance with MFG Specification. Incoming Condition: Good Condition. As Left Condition: In Tolerance with MFG Specification. "In Tolerance" condition is based on a Simple Decision Rule and does not take into account Uncertainty Evaluation.

Verificado por:	Ing. Isaac Calle	Aprobado por:	
Verified by:		Approved by:	

Fin de Certificado (End of Certificate)

Certificado No.: 60407		Equipo (Instrument): TOOL KIT, ELECTRICAL SERVICE						
Fecha de Calibración: 2025-08-29		Marca (Brand): DMC						
AF8 / M22520/1-01 S/N: 000078-A	Patrón (Standard) (mm)²	Contacs	Color Code	Wire Range or Cable	N° Selector	Área (mm)²	Error (mm)²	Incertidumbre (Uncertainty)
TP465M22520/1-11	2.08	M39029/11-12-12	-	12	8	2.01525	0.06475	± 0.66 mm
	2.08	M39029/12-12-12	-	14	7	2.03467	0.04533	± 0.66 mm
	1.31		-	24	-	1.26125	0.04875	± 0.66 mm
	0.33	M24308/10-1 Y M24308/11-1	-	22	-	0.33124	-0.00124	± 0.66 mm
	0.52		-	20	-	0.53254	-0.01254	± 0.66 mm
TP585	1.65	M24308/16 & 17	RG141A, 142A, 142B, 178B, 180B, 188, 195A, 196A, 303, 316/U	1	-	1.63347	0.01653	± 0.66 mm
	0.52			24	1	0.51719	0.00281	± 0.66 mm
	0.52	-20	R	22	2	0.52155	-0.00155	± 0.66 mm
	0.52			20	3	0.82645	-0.30645	± 0.66 mm
	1.31			20	4	1.22352	0.08648	± 0.66 mm
TH163 M22520/1-04	1.31	-16	B	18	5	1.30746	0.00254	± 0.66 mm
	1.31			16	6	1.38956	-0.07956	± 0.66 mm
	3.31	-12	Y	14	7	3.25649	0.05351	± 0.66 mm
	3.31			12	8	3.54857	-0.23857	± 0.66 mm
	1.31	8522-1-001	B	RG179B/U	8	1.25679	0.05321	± 0.66 mm
TH398S	1.04	8522-2-001	R		8	1.09077	-0.05077	± 0.66 mm
	1.31			RG 213/U	8	1.20586	0.10414	± 0.66 mm
	1.31	01-0501, 01-0502	G	RG 214/U	8	1.17356	0.13644	± 0.66 mm
	1.31			RG 225/U	8	1.15686	0.15314	± 0.66 mm
	1.31			RG 393/U	8	1.97640	-0.66640	± 0.66 mm
	1.31	01-0503	G	RG 142B/U	7	1.25537	0.05463	± 0.66 mm
	1.31			RG 400/U	7	1.24875	0.06125	± 0.66 mm
	1.31			RG 213/U	8	1.28989	0.02011	± 0.66 mm
	1.31	05-0501, 05-0502		RG 214/U	8	1.28829	0.02171	± 0.66 mm
	1.31			RG 225/U	8	1.20744	0.10256	± 0.66 mm
TH285 M22520/1-13	1.31			RG 393/U	8	1.26466	0.04534	± 0.66 mm
	1.31		B	RG 214/U	8	1.25686	0.05314	± 0.66 mm
	1.31	39-0501		RG 225/U	8	1.23569	0.07431	± 0.66 mm
	1.31			RG 393/U	8	1.28585	0.02415	± 0.66 mm
	1.31	05-0503, 39-0503		RG 142/U	7	1.25153	0.05847	± 0.66 mm
	1.31			RG 400/U	7	1.26346	0.04654	± 0.66 mm
	1.31			RG 213/U	8	1.15265	0.15735	± 0.66 mm
	1.31	02-0501, 02-0502 02-0511, 02-0512		RG 214/U	8	1.23465	0.07535	± 0.66 mm
	1.31		R	RG 225/U	8	1.29856	0.01144	± 0.66 mm
	1.31			RG 393/U	8	1.19767	0.11233	± 0.66 mm
	1.31	02-050-, 02-0513		RG 142B/U	7	1.21326	0.09674	± 0.66 mm
	1.31			RG 400/U	7	1.22512	0.08488	± 0.66 mm
	0.52			26	1	0.51674	0.00326	± 0.66 mm
	0.52	20-20	R	24	2	0.51674	0.00326	± 0.66 mm
	0.52			22	3	0.52892	-0.00892	± 0.66 mm
	0.52			20	4	0.51625	0.00375	± 0.66 mm
	1.31	16-22		26	1	1.27673	0.03327	± 0.66 mm
	1.31	16-20		24	2	1.37489	-0.06489	± 0.66 mm
	1.31		B	22	3	1.29038	0.01962	± 0.66 mm
	1.31			20	4	1.22346	0.08654	± 0.66 mm
TH1A M22520/1-02	1.31	16-16		18	5	1.28123	0.02877	± 0.66 mm
	1.31			16	6	1.27894	0.03106	± 0.66 mm
	2.08			20	4	2.07490	0.00510	± 0.66 mm
	2.08	12-16		18	5	2.04642	0.03358	± 0.66 mm
	2.08		Y	16	6	2.01231	0.06769	± 0.66 mm
	2.08	12-12		14	7	2.03764	0.04236	± 0.66 mm
	2.08			12	8	2.04857	0.03143	± 0.66 mm

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Fecha de Calibración: 2025-08-29		Marca (Brand): DMC				
AFM8 / M22520/2-01 S/N: 000078-B	Patrón (Standard) (mm)^2	Wire Range or Cable	N° Selector	Área (mm)^2	Error (mm)^2	Incertidumbre (Uncertainty)
K629 SOURIAU 8572-30	0.38	22	4	0.39815	-0.01815	± 0.66 mm
	0.22	24	3	0.21565	0.00435	± 0.66 mm
	0.15	26	2	0.15136	-0.00136	± 0.66 mm
	0.09	28	1	0.09457	-0.00457	± 0.66 mm
K42 - 22SEL Basic Tool M22520/2-09 Use with M22520/2-01	0.38	22	4	0.38046	-0.00046	± 0.66 mm
	0.22	24	3	0.22817	-0.00817	± 0.66 mm
	0.15	26	2	0.15344	-0.00344	± 0.66 mm
	0.22	24	4	0.21578	0.00422	± 0.66 mm
K42 - 22MSEL Basic Tool M22520/2-09 Use with M22520/2-01	0.15	26	3	0.15789	-0.00789	± 0.66 mm
	0.09	28	2	0.09956	-0.00956	± 0.66 mm
	0.38	22	4	0.38396	-0.00396	± 0.66 mm
	0.22	24	3	0.22994	-0.00994	± 0.66 mm
K42 - 22DSEL Basic Tool M22520/2-09 Use with M22520/2-01	0.15	26	2	0.15224	-0.00224	± 0.66 mm
	0.09	28	1	0.09253	-0.00253	± 0.66 mm
	0.38	22	4	0.37843	0.00157	± 0.66 mm
	0.22	24	3	0.21832	0.00168	± 0.66 mm
K267-1 Basic Tool M22520/2-23 Use with M22520/2-01	0.15	26	3	0.16853	-0.01853	± 0.66 mm
	0.38	22	4	0.37832	0.00168	± 0.66 mm
	0.22	24	3	0.22842	-0.00842	± 0.66 mm
	0.15	26	2	0.14991	0.00009	± 0.66 mm
K41 - 22SEL Basic Tool M22520/2-06 Use with M22520/2-01	0.22	24	4	0.22762	-0.00762	± 0.66 mm
	0.15	26	3	0.14991	0.00009	± 0.66 mm
	0.09	28	2	0.08843	0.00157	± 0.66 mm
	0.38	22	4	0.38287	-0.00287	± 0.66 mm
K41 - 22DSEL Basic Tool M22520/2-06 Use with M22520/2-01	0.22	24	3	0.23221	-0.01221	± 0.66 mm
	0.15	26	2	0.14965	0.00035	± 0.66 mm
	0.09	28	1	0.09383	-0.00383	± 0.66 mm
	0.38	22	4	0.38287	-0.00287	± 0.66 mm
K543 SOURIAU 8522-1-001 8522-2-001	0.38	RG174/U - RG179/U	2	0.38980	-0.00980	± 0.66 mm
	0.38	RG58C	5	0.38963	-0.00963	± 0.66 mm
	0.38	RG223	5	0.38963	-0.00963	± 0.66 mm
	0.38	141 SEMI RIGID	5	0.38963	-0.00963	± 0.66 mm
K345 AMP	0.38	RG180B	5	0.38963	-0.00963	± 0.66 mm
	0.38	RG188	5	0.38963	-0.00963	± 0.66 mm
	0.38	RG58C	5	0.38963	-0.00963	± 0.66 mm
	0.38	RG223	5	0.38963	-0.00963	± 0.66 mm
K13-1 Basic Tool M22520/2-08 Use with M22520/2-01	0.38	RG188	5	0.38963	-0.00963	± 0.66 mm
	0.38	RG58C	5	0.38963	-0.00963	± 0.66 mm
	0.38	141 SEMI RIGID	5	0.38963	-0.00963	± 0.66 mm
	0.15	26	4	0.14052	0.00948	± 0.66 mm
K344 AMP	0.22	24	5	0.22235	-0.00235	± 0.66 mm
	0.38	22	6	0.38473	-0.00473	± 0.66 mm
	0.52	20	7	0.51487	0.00513	± 0.66 mm
	0.38	RG188	5	0.37980	0.00020	± 0.66 mm
K127-2	0.38	RG58C	5	0.37567	0.00433	± 0.66 mm
	0.38	22	3	0.38584	-0.00584	± 0.66 mm
	0.22	24	2	0.22865	-0.00865	± 0.66 mm
	0.15	26	1	0.14547	0.00453	± 0.66 mm
K673 P-001104-100-02	0.15	26	3	0.14992	0.00008	± 0.66 mm
	0.09	28	2	0.08912	0.00088	± 0.66 mm
	0.05	30	1	0.04374	0.00626	± 0.66 mm
	0.38	22	3	0.37846	0.00154	± 0.66 mm
K340 Basic Tool M22520/2-14 Use with M22520/2-01	0.22	24	2	0.22733	-0.00733	± 0.66 mm
	0.15	26	1	0.16846	-0.01846	± 0.66 mm
	0.52	20	5	0.53146	-0.01146	± 0.66 mm
	0.38	22	4	0.37393	0.00607	± 0.66 mm
K1S Basic Tool M22520/2-02 Use with M22520/2-01	0.22	24	3	0.21547	0.00453	± 0.66 mm
	0.52	20	7	0.52144	-0.00144	± 0.66 mm
	0.38	22	6	0.37657	0.00343	± 0.66 mm
	0.22	24	5	0.22873	-0.00873	± 0.66 mm
K43 Basic Tool M22520/2-10 Use with M22520/2-01	0.15	26	4	0.14457	0.00543	± 0.66 mm
	0.52	20	6	0.51484	0.00516	± 0.66 mm
	0.38	22	5	0.38397	-0.00397	± 0.66 mm
	0.22	24	4	0.21357	0.00643	± 0.66 mm

Certificado No.: 60407		Equipo (Instrument): TOOL KIT, ELECTRICAL SERVICE					
Fecha de Calibración: 2025-08-29		Marca (Brand): DMC					
HX4 / M22520/5-01 S/N: 000078-C	Patrón (Standard) (mm)^2	Modelo	Cable	Wire Range or Cable	Área (mm)^2	Error (mm)^2	Incertidumbre (Uncertainty)
87	2.08	Y178A	M22520/5-01	26-12	2.0235	0.0565	± 0.66 mm
239	0.82	Y143	M22520/5-45	A, B	0.9236	-0.1036	± 0.66 mm
	1.31		D	A	1.4635	-0.1535	± 0.66 mm
47	0.65	Y586	D	B	0.7173	-0.0673	± 0.66 mm
	0.33		D	C	0.3436	-0.0136	± 0.66 mm
59	2.62	Y587	D	26-12	2.4165	0.2035	± 0.66 mm
97	0.82	Y588	D	26-13	0.8755	-0.0555	± 0.66 mm
	0.41		A	26-14	0.4346	-0.0246	± 0.66 mm
306	0.41	Y197	B	26-15	0.4454	-0.0354	± 0.66 mm
	1.04			20-16	1.0474	-0.0074	± 0.66 mm
35	0.52	Y540	M22520/5-103	26-20	0.5475	-0.0275	± 0.66 mm
2	0.41	Y216	D	26-12	0.4412	-0.0312	± 0.66 mm
1	0.82	Y212	D	26-12	0.8346	-0.0146	± 0.66 mm
13	1.65	Y539	M22520/5-102	16-12	1.6373	0.0127	± 0.66 mm
DMC-USA	2.08	Y50	M22520/5-100	45270	2.3457	-0.2657	± 0.66 mm
	0.65			26-14	0.6781	-0.0281	± 0.66 mm

DANIELS - USA / SP	Diámetro Exterior	Patrón (Standard)	Área (mm)^2	Error (mm)^2	Incertidumbre (Uncertainty)
CG22	2.304	0.09	0.08563	0.00437	± 0.67 mm
CG20	2.401	0.18	0.17264	0.00736	± 0.67 mm
CG16	3.174	0.226	0.22464	0.00136	± 0.67 mm
CG12	3.946	0.321	0.31242	0.00859	± 0.67 mm

A22520/3-1 PIGE DE CONTROLE (DANIELS G125)	N° Selector	Gaging	Color Code	Patrón (Standard)	Área (mm)^2	Error (mm)^2	Incertidumbre (Uncertainty)
M22520/1-01 (AF8)	4	GO	G	0.390	0.3136534746	0.076	± 0.67 mm
M22520/2-01 (AFM8)	8	NO-GO	R	0.440	0.9548558965	-0.515	± 0.67 mm