CLASS

Consultative Committee for Length (CCL)

Working Group on the MRA (WG-MRA)

CCL Length Services Classification (DimVIM)

DimVIM : Multilingual CMC classification scheme

CCL Service Category	English Language Approved Terms	
	Instrument or Artifact	**Measurand(s)**
1 Radiations of the Mise en Pratique		
1.1 Laser Radiations		
1.1.1	frequency stabilized laser	vacuum wavelength; optical frequency
1.2 Lamp Radiations		
1.2.1	spectral lamp	vacuum wavelength
2 Linear Dimensions		
2.1 Length Instruments		
2.1.1	(laser, length) interferometer (system, optics, refractometer)	error of indicated displacement; wavelength compensation
2.1.2	EDM instrument	error of indicated distance
2.1.3	1-D measuring machine	error of indicated [size; displacement]
2.1.4	height measuring instrument	error of indicated [vertical size; displacement]
2.1.5	1-D displacement [transduscer, actuator] (LVDT, PZT,…)	error of indicated displacement
2.1.6	gauge block comparators	error of indicated displacement
2.1.7	dial-indicator tester	error of indicated displacement
2.2 End Standards		
2.2.1	gauge block	central length; variation in length; thermal expansivity; length difference of gauge block pairs
2.2.2	length bar (long gauge block)	central length; variation in length; thermal expansivity
2.2.3	[plane, thread] micrometer setting rod	length
2.2.4	step gauge	face spacing
2.2.5	gap gauge	face spacing
2.2.6	feeler (thickness) gauge	thickness
2.3 Line Standards		
2.3.1	precision line scale	line spacing
2.3.2	stage micrometer	line spacing
2.3.3	grid plate	grid point coordinates
2.3.4	1-D grating	pitch
2.3.5	2-D grating	pitch; orthogonality
2.3.6	linewidth standard	linewidth, spacewidth, pitch
2.3.7	(surveyor, engineer, pi) tape, (geodetic) wire	line spacing
2.3.8	surveyor leveling rod	line spacing
2.3.9	engineer or machinist scale, steel	line spacing
2.4 Diameter Standards		
2.4.1	external cylinder (plug, piston, pin, wire)	diameter
2.4.2	internal cylinder (ring)	diameter
2.4.3	sphere (ball)	diameter
2.5 Standards of 1D Dimensions		
2.5.1	standard of 1D point-to-point dimensions	sizes, distances

CCL Service Category	English Language Approved Terms: Instrument or Artifact	Measurand(s)
3 Angle		
3.1 Angle by Circle Dividers		
3.1.1	optical polygon	face angle; pyramid error; face flatness
3.1.2	index table	index angle
3.1.3	rotary table, rotary encoder scale	position angle
3.2 Small-Angle Generators		
3.2.1	sine (bar, table)	cylinder spacing; angle
3.3 Angle Instruments		
3.3.1	autocollimator	error of indicated angle; axes orthogonality
3.3.2	electronic level	error of indicated inclination angle
3.3.3	clinometer	error of indicated inclination angle
3.3.4	spirit (bubble) level	error of indicated inclination angle
3.3.5	theodolite	error of indicated angle; axes orthogonality
3.3.6	(bevel) protractor	error of indicated angle
3.3.7	squareness tester	error of indicated [squareness; straightness]
3.4 Angle Artifacts		
3.4.1	angle block	included angle; pyramid error; face flatness
3.4.2	90° (steel, granite, try) square	squareness
3.4.3	90° cylinder square	squareness
3.4.4	cone (taper) gauge	cone angle; diameter
3.5 Angle Prisms		
3.5.1	optical square (pentaprism)	deviation angle
3.5.2	retroreflection (cube-corner, cat-eye) prism	deviation angle
4 Form		
4.1 Flatness Standards		
4.1.1	optical flat	flatness
4.1.2	optical (parallel, wedge)	parallelism; wedge angle
4.1.3	surface plate	flatness
4.2 Roundness Standards		
4.2.1	external cylinder	roundness
4.2.2	internal cylinder	roundness
4.2.3	sphere (hemisphere)	roundness
4.2.4	magnification standard (eg flick standard)	roundness; amplitude & phase harmonic content
4.3 Straightness Standards		
4.3.1	straight edge	straightness
4.3.2	cylindrical straightness standard	straightness
4.3.3	straightness of guideway	straightness
4.4 Cylindricity Standards		
4.4.1	external cylinder	cylindricity
4.4.2	internal cylinder	cylindricity
4.5 Optical Standards		
4.5.1	lens, radius standards	focal length, radius of curvature

CCL Service Category	English Language Approved Terms: Instrument or Artifact	Measurand(s)
5 Complex Geometry		
5.1 Surface Texture Standards		
5.1.1	(groove) depth (step height) standard (eg ISO 5436-1 Type A)	step height; (groove) depth
5.1.2	tip-condition standard (eg ISO 5436-1 Type B)	radii, angle
5.1.3	spacing standard (eg ISO 5436-1 Type C)	[amplitude; wavelength] parameters
5.1.4	roughness standard (eg ISO 5436-1 Type D)	ISO roughness parameters
5.1.5	profile coordinate standard (eg ISO 5436-1 Type E)	profile coordinates
5.1.6	softgauge (reference software data set, eg ISO 5436-2 Type F1)	error in calculated [dimensions; parameters]
5.2 Screw Standards		
5.2.1	thread plug, plain	[simple] pitch diameter; pitch; flank angle
5.2.2	thread plug, tapered	[simple] pitch diameter; pitch; flank angle; taper angle
5.2.3	thread ring, plain	[simple] pitch diameter; pitch; flank angle
5.2.4	thread ring, tapered	[simple] pitch diameter; pitch; flank angle; taper angle
5.2.5	internal API screw thread gauge	API thread parameters
5.2.6	external API screw thread gauge	API thread parameters
5.3 Gear Standards		
5.3.1	Involute gear	profile slope [form, total] deviation, helix slope [form, total] deviation, single [cumulative] pitch deviation
5.3.2	bevel gear	pitch; involute; bevel angle
5.3.3	gear pitch master	total cumulative pitch deviation
5.3.4	gear lead master	[total cumulative, single] pitch deviation
5.3.5	gear involute master	involute profile [slope, form] deviation
5.4 CMM Artifacts		
5.4.1	ball (hole, bore) plate	[ball; hole] center coordinates
5.4.2	ball bar	ball spacing
5.4.3	large CMM artifact	interval distances
5.4.4	reference software	error in calculated [dimensions; parameters; features]
5.4.5	test circle for imaging probing systems	diameter; roundness
5.5 2-D, 3-D Instruments		
5.5.1	measuring projector	error of indicated [size; location; shape]
5.5.2	measuring microscope	error of indicated [size; location; shape]
5.5.3	CMM	error of indicated [size; location; shape]
5.5.4	laser tracking measuring system	error of indicated [size; location; shape]
5.5.5	motion (translation, angle) stage	error in prescribed [translation; angular] motion
5.5.6	profile instruments	error of indicated [form, shape, size, surface texture parameters]
5.5.7	(flatness, wavefront) interferometer	error of indicated [flatness; wavefront] deviation
5.5.8	form-measuring machine	error of indicated form [roundness, straightness,] deviation
5.6 Hardness		
5.6.1	hardness indenter [Rockwell, Vickers]	tip [size, shape]

CCL Service Category	English Language Approved Terms: Instrument or Artifact	Measurand(s)
6 Various Dimensional		
6.1 Hand Instruments		
6.1.1	external micrometer	error of indicated size
6.1.2	micrometer head	error of indicated displacement
6.1.3	depth micrometer	error of indicated depth
6.1.4	caliper	error of indicated size
6.1.5	depth gauge	error of indicated depth
6.1.6	internal two-point (bore) micrometer	error of indicated diameter
6.1.7	internal three-point (bore) micrometer	error of indicated diameter
6.1.8	dial gauge	error of indicated displacement
6.1.9	snap gauge (internal, external)	error of indicated size
6.2 Pressure Artifacts		
6.2.1	piston/cylinder assembly	3-D size, shape
6.3 Thermal Expansivity		
6.3.1	thermal expansion artifact	thermal expansion coefficient
6.4 Long Distance		
6.4.1	geodetic baseline	interval distances
6.5 Reference Materials		
6.5.1	standard particle	particle size; shape
6.5.2	[sieve, mesh] opening	aperture [size, shape]
6.6 Layer thickness		
6.6.1	layer thickness standard	layer thickness