

| Formula | Category | Measure information | 2d/3d | version |
|--------------------|----------|---|-----------|---------|
| Arithmetic Formula | | Arithmetic formula measure associated to a formula string | 2d and 3d | 1-0-0-0 |
| Logic Formula | | Logical formula measure used during shape filtering | 2d and 3d | 1-0-0-0 |

| Geometry | Category | Measure information | 2d/3d | version |
|--------------------------------------|-------------|---|-----------|---------|
| Area2d | Basic | Shape 2d area measurement (measure based on polygonal approximation) | 2d | 1-0-0-0 |
| Area3d | Basic | Shape 3d surface area measurement (measure based on polyhedral approximation) | 3d | 1-2-0-0 |
| ImageRatio | Basic | Measure allowing to compute the ratio between the shapes areas and the image area | 2d and 3d | 1-2-0-0 |
| NbPixels2d | Basic | Number of pixels in shape 2d measurement | 2d | 1-0-0-0 |
| NbPixels3d | Basic | Number of voxels in shape 3d measurement | 3d | 1-2-0-0 |
| Perimeter2d | Basic | Shape 2d perimeter measurement (measure based on polygonal approximation) | 2d and 3d | 1-2-0-0 |
| Volume3d | Basic | Shape 3d volume measurement (measure based on polyhedral approximation) | 3d | 1-2-0-0 |
| TouchImageBorders | Basic | measure allowing to check wether shape touch at least a border of image | 2d and 3d | 1-7-0-0 |
| ImageBordersContact2d | Basic | Measure allowing to check wether a shape has contact with image borders | 2d | 1-7-0-0 |
| ImageBordersContact3d | Basic | Measure allowing to check wether a shape has contact with image borders | 3d | 1-7-0-0 |
| BoundingBoxCenterX | BoundingBox | Measure allowing to compute the position of the centroid of the envelope along the x axis | 2d and 3d | 1-2-0-0 |
| BoundingBoxCenterY | BoundingBox | Measure allowing to compute the position of the centroid of the envelope along the y axis | 2d and 3d | 1-2-0-0 |
| BoundingBoxCenterZ | BoundingBox | Measure allowing to compute the position of the centroid of the envelope along the z axis | 3d | 1-2-0-0 |
| BoundingBoxMaxX | BoundingBox | Measure allowing to get the shape maximum x coordinate | 2d and 3d | 1-2-0-0 |
| BoundingBoxMaxY | BoundingBox | Measure allowing to get the shape maximum y coordinate | 2d and 3d | 1-2-0-0 |
| BoundingBoxMaxZ | BoundingBox | Measure allowing to get the shape maximum z coordinate | 3d | 1-2-0-0 |
| BoundingBoxMinX | BoundingBox | Measure allowing to get the shape minimum x coordinate | 2d and 3d | 1-2-0-0 |
| BoundingBoxMinY | BoundingBox | Measure allowing to get the shape minimum y coordinate | 2d and 3d | 1-2-0-0 |
| BoundingBoxMinZ | BoundingBox | Measure allowing to get the shape minimum z coordinate | 3d | 1-2-0-0 |
| BoundingBoxSizeX | BoundingBox | Measure allowing to compute the size of the shape envelope along the x axis | 2d and 3d | 1-2-0-0 |
| BoundingBoxSizeY | BoundingBox | Measure allowing to compute the size of the shape envelope along the y axis | 2d and 3d | 1-2-0-0 |
| BoundingBoxSizeZ | BoundingBox | Measure allowing to compute the size of the shape envelope along the z axis | 3d | 1-2-0-0 |
| ConvexHullArea2d | ConvexHull | Measure allowing to compute the area of the 2d convex hull for shape | 2d | 1-0-0-0 |
| ConvexHullArea3d | ConvexHull | Measure allowing to compute the area of the surface of the 3d convex hull for shape | 3d | 1-2-0-0 |
| ConvexHullPerimeter2d | ConvexHull | Measure allowing to compute the perimeter of the 2d convex hull for shape | 2d | 1-0-0-0 |
| ConvexHullVolume3d | ConvexHull | Measure allowing to compute the volume of the 3d convex hull for shape | 3d | 1-2-0-0 |
| LeastSquareBallCenterX | Fitting | x coordinates for center of least square ball associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareBallCenterY | Fitting | y coordinates for center of least square ball associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareBallCenterZ | Fitting | z coordinates for center of least square ball associated to shape tops | 3d | 1-6-0-0 |
| LeastSquareBallRadius | Fitting | radius of least square ball associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareCircle2d | Fitting | least square circle associated to shape tops | 2d | 1-6-0-0 |
| LeastSquareEllipse2d | Fitting | least square ellipse associated to shape tops | 2d | 1-6-0-0 |
| LeastSquareEllipsoid3d | Fitting | least square ellipsoid associated to shape tops | 3d | 1-6-0-0 |
| LeastSquareEllipsoidCenterX | Fitting | x coordinates for center of least square ellipsoid associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareEllipsoidCenterY | Fitting | y coordinates for center of least square ellipsoid associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareEllipsoidCenterZ | Fitting | z coordinates for center of least square ellipsoid associated to shape tops | 3d | 1-6-0-0 |
| LeastSquareEllipsoidMajorRadius | Fitting | major radius of least square ellipsoid associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareEllipsoidMediumRadius | Fitting | medium radius of least square ellipsoid associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareEllipsoidMinorRadius | Fitting | minor radius of least square ellipsoid associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareHyperPlanDistanceToOrigin | Fitting | distance to origin for least square hyper plan (line 2d or plan 3d) associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareHyperPlanNormalX | Fitting | x component of normal for least square hyper plan (line 2d or plan 3d) associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareHyperPlanNormalY | Fitting | y component of normal for least square hyper plan (line 2d or plan 3d) associated to shape tops | 2d and 3d | 1-6-0-0 |
| LeastSquareHyperPlanNormalZ | Fitting | z component of normal for least square hyper plan (line 2d or plan 3d) associated to shape tops | 3d | 1-6-0-0 |
| LeastSquareLine2d | Fitting | least square line 2d associated to shape tops | 2d | 1-6-0-0 |
| LeastSquarePlan3d | Fitting | least square plan 3d associated to shape tops | 3d | 1-6-0-0 |
| LeastSquareSphere3d | Fitting | least square sphere 3d associated to shape tops | 3d | 1-6-0-0 |
| MaxInscribedBallCenterX | Fitting | x coordinates for center of ball of maximum radius enclosed by shape | 2d | 1-6-0-0 |
| MaxInscribedBallCenterY | Fitting | y coordinates for center of ball of maximum radius enclosed by shape | 2d | 1-6-0-0 |
| MaxInscribedBallRadius | Fitting | radius of ball of maximum radius enclosed by shape | 2d | 1-6-0-0 |
| MaxInscribedCircle2d | Fitting | circle of maximum radius enclosed by shape | 2d and 3d | 1-6-0-0 |
| MinEnclosingBallCenterX | Fitting | x coordinates for center of ball of minimum radius enclosing shape | 2d and 3d | 1-6-0-0 |
| MinEnclosingBallCenterY | Fitting | y coordinates for center of ball of minimum radius enclosing shape | 2d and 3d | 1-6-0-0 |
| MinEnclosingBallCenterZ | Fitting | z coordinates for center of ball of minimum radius enclosing shape | 3d | 1-6-0-0 |
| MinEnclosingBallRadius | Fitting | radius of ball of minimum radius enclosing shape | 2d and 3d | 1-6-0-0 |
| MinEnclosingCircle2d | Fitting | circle of minimum radius enclosing shape | 2d and 3d | 1-6-0-0 |
| MinEnclosingSphere3d | Fitting | sphere of minimum radius enclosing shape | 2d and 3d | 1-6-0-0 |
| Aspect Ratio | FormFactor | Measure the aspect ratio of a 2d/3d shape (measure based on polygonal/polyhedral approximation) | 2d and 3d | 1-2-0-0 |
| Circularity2d | FormFactor | Compute the circularity of a shape | 2d | 1-0-0-0 |
| Convexity | FormFactor | Measure the convexity of a shape | 2d and 3d | 1-2-0-0 |
| EquivalentRay | FormFactor | Compute ray of equivalent 2d circle or 3d sphere (circle with same area or sphere with same volume) | 2d and 3d | 1-2-0-0 |
| Extent | FormFactor | Measure the extent of an object into its bounding box | 2d and 3d | 1-2-0-0 |
| FeretDiameter2d | FormFactor | Compute, for a given orientation, Feret diameter on 2d shape (measure based on polygonal approximation) | 2d | 1-0-0-0 |

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| FeretDiameter3d | FormFactor | Compute, for a given orientation, Feret diameter on 3d shape (measure based on polyhedral approximation) | 3d | 1-2-0-0 |
| MaxFeretDiameter | FormFactor | Compute the maximal Feret diameter over a uniformly distributed range of orientations (measure based on polygonal/polyhedral approximation) | 2d and 3d | 1-2-0-0 |
| MeanFeretDiameter | FormFactor | Compute the mean of Feret diameters over a uniformly distributed range of orientations (measure based on polygonal/polyhedral approximation) | 2d and 3d | 1-2-0-0 |
| MinFeretDiameter | FormFactor | Compute the minimal Feret diameter over a uniformly distributed range of orientations (measure based on polygonal/polyhedral approximation) | 2d and 3d | 1-2-0-0 |
| RelativeSize | FormFactor | Measure allowing to get the number of shapes equivalent to the shape with minimum area | 2d and 3d | 1-2-0-0 |
| Sphericity3d | FormFactor | Compute the sphericity of a 3d shape | 3d | 1-2-0-0 |
| Eccentricity2d | Inertia | Measure eccentricity of the ellipse that has the same second moments as 2d shape | 2d | 1-2-0-0 |
| Barycenter2d | Inertia | Measure allowing to compute the barycenter for 2d shape | 2d | 1-0-0-0 |
| Barycenter3d | Inertia | Measure allowing to compute the barycenter for 3d shape | 3d | 1-2-0-0 |
| BarycenterX | Inertia | Measure allowing to compute the x-component of the barycenter for a shape | 2d and 3d | 1-4-0-0 |
| BarycenterY | Inertia | Measure allowing to compute the y-component of the barycenter for a shape | 2d and 3d | 1-4-0-0 |
| BarycenterZ | Inertia | Measure allowing to compute the z-component of the barycenter for 3d shape | 3d | 1-4-0-0 |
| Inertia2d | Inertia | Measure allowing to compute the second order moment for 2d shape | 2d | 1-0-0-0 |
| Inertia3d | Inertia | Measure allowing to compute the second order moment for 3d shape | 3d | 1-2-0-0 |
| InertiaLambdaInter | Inertia | Measure allowing to compute the intermediary eigen value from the second order moment matrix computed from the Inertia measurement for shape | 3d | 1-2-0-0 |
| InertiaLambdaMax | Inertia | Measure allowing to compute the maximum eigen value from the second order moment matrix computed from the Inertia measurement for shape | 2d and 3d | 1-2-0-0 |
| InertiaLambdaMin | Inertia | Measure allowing to compute the minimum eigen value from the second order moment matrix computed from the Inertia measurement for shape | 2d and 3d | 1-2-0-0 |
| InertiaOrientation2d | Inertia | Measure allowing to compute the shape orientation from the second order moment matrix computed from the Inertia2d measurement for 2d shape | 2d | 1-0-0-0 |
| InertiaOrientationAlpha | Inertia | Measure allowing to compute the alpha component of the shape orientation from the second order moment matrix computed from the Inertia measurement for 3d shape | 3d | 1-2-0-0 |
| InertiaOrientationBeta | Inertia | Measure allowing to compute the beta component of the shape orientation from the second order moment matrix computed from the Inertia measurement for 3d shape | 3d | 1-2-0-0 |
| InertiaOrientationChi | Inertia | Measure allowing to compute the chi component of the shape orientation from the second order moment matrix computed from the Inertia measurement for 3d shape | 3d | 1-2-0-0 |
| Flatness2d | Metrology | computation of distance from shape tops to considered line | 2d and 3d | 1-6-0-0 |
| Flatness3d | Metrology | computation of distance from shape tops to considered plan | 2d and 3d | 1-6-0-0 |
| FlatnessPeak | Metrology | out of flatness highest peak given measure reference hyper plan | 2d and 3d | 1-6-0-0 |
| FlatnessTotal | Metrology | out of flatness expressed as difference between highest peak and lowest valley given measure reference hyper plan | 2d and 3d | 1-6-0-0 |
| FlatnessValley | Metrology | out of flatness lowest valley given measure reference hyper plan | 2d and 3d | 1-6-0-0 |
| Roundness2d | Metrology | computation of distance from shape tops to considered circle | 2d and 3d | 1-6-0-0 |
| Roundness3d | Metrology | computation of distance from shape tops to considered sphere | 2d and 3d | 1-6-0-0 |
| RoundnessPeak | Metrology | out of roundness highest peak given measure reference ball | 2d and 3d | 1-6-0-0 |
| RoundnessTotal | Metrology | out of roundness expressed as difference between highest peak and lowest valley given measure reference ball | 2d and 3d | 1-6-0-0 |
| RoundnessValley | Metrology | out of roundness lowest valley given measure reference ball | 2d and 3d | 1-6-0-0 |
| DistanceToNearestNeighbor | Neighborhood | computation of distance to nearest neighbor for each shape | 2d and 3d | 1-6-0-0 |
| LengthOfContact | Neighborhood | measure allowing to compute length of contact between shapes | 2d | 1-6-0-0 |
| NbNeighbors | Neighborhood | measure allowing to compute number of neighbors of shapes given a distance threshold | 2d and 3d | 1-6-0-0 |
| NearestNeighbors | Neighborhood | measure allowing to retrieve shapes at a given distance of measured shape | 2d and 3d | 1-6-0-0 |
| SurfaceOfContact | Neighborhood | measure allowing to compute surface of contact between shapes | 3d | 1-6-0-0 |
| OBBCenterX | OrientedBoundingBox | Measure allowing to compute the position of the centroid of the minimal oriented bounding box along the x axis | 2d and 3d | 1-2-0-0 |
| OBBCenterY | OrientedBoundingBox | Measure allowing to compute the position of the centroid of the minimal oriented bounding box along the y axis | 2d and 3d | 1-2-0-0 |
| OBBCenterZ | OrientedBoundingBox | Measure allowing to compute the position of the centroid of the minimal oriented bounding box along the z axis | 3d | 1-2-0-0 |
| OBBLength | OrientedBoundingBox | Measure allowing to get the length of the minimal oriented bounding box of a shape | 2d and 3d | 1-2-0-0 |
| OBBWidth | OrientedBoundingBox | Measure allowing to get the width of the minimal oriented bounding box of a shape | 2d and 3d | 1-2-0-0 |
| OBBHeight | OrientedBoundingBox | Measure allowing to get the height of the minimal oriented bounding box of a shape | 3d | 1-2-0-0 |
| OBBOrientation2d | OrientedBoundingBox | Measure allowing to get the orientation of the minimal oriented bounding box of a 2d shape | 2d | 1-0-0-0 |
| OBBOrientationAlpha | OrientedBoundingBox | Measure allowing to get the alpha component of the orientation of the minimal oriented bounding box of a 3d shape | 3d | 1-2-0-0 |
| OBBOrientationBeta | OrientedBoundingBox | Measure allowing to get the beta component of the orientation of the minimal oriented bounding box of a 3d shape | 3d | 1-2-0-0 |
| OBBOrientationChi | OrientedBoundingBox | Measure allowing to get the chi component of the orientation of the minimal oriented bounding box of a 3d shape | 3d | 1-2-0-0 |
| OrientedExtent | FormFactor | Measure the extent of an object into its oriented bounding box | 2d and 3d | 1-2-0-0 |
| NbHoles | Porosity | Compute number of holes associated to shape | 2d and 3d | 1-2-0-0 |
| Roughness2d | FormFactor | Compute roughness associated to 2d shapes | 2d | 1-6-0-0 |
| Skeleton2dDiameterLength | Skeleton | Length of the longest shortest path between any two skeleton 2d vertices | 2d | 1-4-0-0 |
| Skeleton2dDiameterMeanCurvature | Skeleton | Mean curvature of the longest shortest path between any two skeleton 2d vertices | 2d | 1-4-0-0 |
| Skeleton2dDiameterTortuosity | Skeleton | Tortuosity of the longest shortest path between any two skeleton 2d vertices | 2d | 1-4-0-0 |
| Skeleton2dLength | Skeleton | Length of graph associated to skeleton 2d | 2d | 1-4-0-0 |
| Skeleton2dMaxThickness | Skeleton | Maximum thickness of shape 2d defined using branches of its skeleton | 2d | 1-4-0-0 |
| Skeleton2dMeanEdgeLength | Skeleton | Mean edge length for graph associated to skeleton 2d | 2d | 1-4-0-0 |
| Skeleton2dMeanThickness | Skeleton | Mean thickness of shape 2d defined using branches of its skeleton | 2d | 1-4-0-0 |
| Skeleton2dMinThickness | Skeleton | Minimum thickness of shape 2d defined using branches of its skeleton | 2d | 1-4-0-0 |
| Skeleton2dNbVertex | Skeleton | Number of vertex in graph associated to skeleton 2d | 2d | 1-4-0-0 |
| Porosity | Porosity | Material porosity measurement : fraction of the volume of voids over the total volume | 2d and 3d | 1-2-0-0 |

| Intensity | Category | Measure information | 2d/3d | version |
|--------------------------|-----------|--|-----------|---------|
| Histogram | Histogram | Measure of intensity histogram for shape | 2d and 3d | 1-2-0-0 |
| HistogramMostPopulatedGL | Histogram | Compute the intensity of the most populated class | 2d and 3d | 1-2-0-0 |
| HistogramPopulationMax | Histogram | Compute the population of the most populated class | 2d and 3d | 1-2-0-0 |
| HistogramQuantile | Histogram | Gives the quantile of the intensity histogram | 2d and 3d | 1-2-0-0 |
| GreyBarycenter | Inertia | Measure allowing to compute the barycenter ponderated by the gray level of each pixel for shape | 2d and 3d | 1-2-0-0 |
| GreyBarycenterX | Inertia | Measure allowing to compute the x-component of the barycenter ponderated by the gray level of each pixel for shape | 2d and 3d | 1-4-0-0 |
| GreyBarycenterY | Inertia | Measure allowing to compute the y-component of the barycenter ponderated by the gray level of each pixel for shape | 2d and 3d | 1-4-0-0 |
| GreyBarycenterZ | Inertia | Measure allowing to compute the z-component of the barycenter ponderated by the gray level of each pixel for shape | 3d | 1-4-0-0 |
| GreyInertia | Inertia | Measure allowing to compute the second order moment ponderated by the gray level of each pixel for shape | 2d and 3d | 1-2-0-0 |
| GreyInertiaLambdaInter | Inertia | Measure allowing to compute the intermediary eigen value from the second order moment matrix computed from the GreyInertia measurement for shape | 3d | 1-2-0-0 |
| GreyInertiaLambdaMax | Inertia | Measure allowing to compute the maximum eigen value from the second order moment matrix computed from the GreyInertia measurement for shape | 2d and 3d | 1-2-0-0 |

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| GreyInertiaLambdaMin | Inertia | Measure allowing to compute the minimum eigen value from the second order moment matrix computed from the GreyInertia measurement for shape | 2d and 3d | 1-2-0-0 |
| GreyInertiaOrientation2d | Inertia | Measure allowing to compute the shape orientation from the second order moment matrix computed from the GreyInertia2d measurement for 2d shape | 2d | 1-0-0-0 |
| GreyInertiaOrientationAlpha | Inertia | Measure allowing to compute the alpha component of the shape orientation from the second order moment matrix computed from the GreyInertia measurement for 3d shape | 3d | 1-2-0-0 |
| GreyInertiaOrientationBeta | Inertia | Measure allowing to compute the beta component of the shape orientation from the second order moment matrix computed from the GreyInertia measurement for 3d shape | 3d | 1-2-0-0 |
| GreyInertiaOrientationChi | Inertia | Measure allowing to compute the chi component of the shape orientation from the second order moment matrix computed from the GreyInertia measurement for 3d shape | 3d | 1-2-0-0 |
| GreyMoments | Inertia | Measure allowing to compute the zeroth to the third moment ponderated by the gray level of each pixel for shape | 2d and 3d | 1-5-0-0 |
| Entropy | Statistics | Measure allowing to compute entropy of intensities for shape | 2d and 3d | 1-5-0-0 |
| Energy | Statistics | Measure allowing to compute energy of intensities for shape | 2d and 3d | 1-5-0-0 |
| LocalHistogram | Statistics | Measure allowing to compute the local histogram of intensities for shape | 2d and 3d | 1-5-0-0 |
| Kurtosis | Statistics | Measure allowing to compute kurtosis of intensities for shape | 2d and 3d | 1-2-0-0 |
| Max | Statistics | Measure allowing to compute maximum of intensities for shape | 2d and 3d | 1-2-0-0 |
| MaxAbs | Statistics | Measure allowing to compute maximum of the absolute values of the intensities for shape | 2d and 3d | 1-2-0-0 |
| Mean | Statistics | Allowing to compute mean of intensities for shape | 2d and 3d | 1-2-0-0 |
| MeanAbs | Statistics | Measure allowing to compute mean of absolute values of intensities for shape | 2d and 3d | 1-7-0-0 |
| Median | Statistics | Measure allowing to compute median of intensities for shape | 2d and 3d | 1-2-0-0 |
| Min | Statistics | Measure allowing to compute minimum of intensities for shape | 2d and 3d | 1-2-0-0 |
| MinAbs | Statistics | Measure allowing to compute minimum of the absolute values of the intensities for shape | 2d and 3d | 1-2-0-0 |
| Skewness | Statistics | Measure allowing to compute skewness of intensities for shape | 2d and 3d | 1-2-0-0 |
| StdDev | Statistics | Measure allowing to compute standard deviation of intensities for shape | 2d and 3d | 1-2-0-0 |
| Sum | Statistics | Measure allowing to compute sum of intensities for shape | 2d and 3d | 1-2-0-0 |
| SumAbs | Statistics | Measure allowing to compute sum of absolute values of intensities for shape | 2d and 3d | 1-7-0-0 |
| SumSquare | Statistics | Measure allowing to compute sum of squares of intensities for shape | 2d and 3d | 1-2-0-0 |
| Variance | Statistics | Measure allowing to compute variance of intensities for shape | 2d and 3d | 1-2-0-0 |