

**GameId** – Unique game identifier  
**ReleaseSpeed** - Speed of the pitch at release  
**ZoneSpeed** - Speed of the pitch at zone  
**PitchVerticalApproachAngle** - Vertical approach angle of the pitch  
**ReleaseExtension** - Release extension (feet)  
**ReleaseHeight** - Release height (feet)  
**ReleaseSide** - Release side (feet)  
**ArmAngleBR** - Elevation angle of the pitching arm with respect to the torso at ball release  
**ArmSlotBR** - Elevation angle of the pitching arm (vector from wrist to shoulder) with respect to the horizontal at ball release (0 is straight out to the side)  
**StrideLength** - Absolute distance from stride leg foot plant to the rubber  
**StrideLengthPercentHeight** - Distance from stride leg foot plant to the rubber as a percent of the pitchers height  
**StrideWidth** - Distance (laterally - 1B/3B) from drive leg at peak knee height to stride leg foot plant (+ = stride leg towards arm side compared to drive leg, - = stride leg towards glove side compared to drive leg)  
**TimeToPlate** - Time from first move to when the ball crosses the front of home plate  
**PeakHipsVeloX** - Peak linear velocity of the hips towards the plate  
**PeakPitchHandVeloX** - Peak linear velocity of the pitching wrist towards the plate  
**DLHipRotMin** - Minimum drive leg hip rotation angle (maximum internal rotation angle)  
**HSSepMin** - Hip shoulder separation minimum angle (greatest counter rotation angle)  
**PARotMax** - Maximum pitching arm shoulder rotation angle  
**PAScapRetMin** - Minimum pitching arm shoulder horizontal abduction angle (maximum scap retraction)  
**SLKneeFlexFP** - Stride leg knee flexion angle at foot plant  
**PAElbowFlexBR** - Elbow flexion angle of the pitching arm at ball release  
**SLKneeFlexBR** - Stride leg knee flexion angle at ball release  
**TorsoFBBR** - Torso forward bend angle at ball release  
**TorsoSBBR** - Torso side bend angle at ball release  
**PeakMomDL** - Peak total momentum of drive leg  
**PeakMomSL** - Peak total momentum of stride leg  
**PeakMomTorso** - Peak total momentum of torso  
**PeakMomLFA** - Peak total momentum of lead forearm  
**PeakMomLUA** - Peak total momentum of lead upper arm  
**PeakMomPFA** - Peak total momentum of pitching forearm  
**PeakMomPUA** - Peak total momentum of pitching upper arm  
**PeakMomTotalBody** - Peak total momentum of total body  
**PeakMomTimeDL** - Time which peak total momentum of drive leg occurs  
**PeakMomTimeSL** - Time which peak total momentum of stride leg occurs  
**PeakMomTimeTorso** - Time which peak total momentum of torso occurs  
**PeakMomTimeLFA** - Time which peak total momentum of lead forearm occurs  
**PeakMomTimeLUA** - Time which peak total momentum of lead upper arm occurs  
**PeakMomTimePFA** - Time which peak total momentum of pitching forearm occurs  
**PeakMomTimePUA** - Time which peak total momentum of pitching upper arm occurs  
**PeakMomTimeTotalBody** - Time which peak total momentum of total body occurs  
**PeakPelvisRotVelo** - Peak pelvis rotational velocity  
**PeakPelvisRotVeloTime** - Time that peak pelvis rotational velocity occurs  
**PeakChestRotVelo** - Peak chest rotational velocity  
**PeakChestRotVeloTime** - Time that peak chest rotational velocity occurs  
**PeakElbowExtVelo** - Peak elbow extension velocity  
**PeakElbowExtVeloTime** - Time that peak elbow extension velocity occurs  
**PeakShoulderIRVelo** - Peak shoulder internal rotation velocity  
**PeakShoulderIRVeloTime** - Time that peak shoulder internal rotation velocity occurs  
**PelvisChestPeakTimeDiff** - Time difference between peak pelvis and peak chest rotational velocity  
**PeakSLKneeExtVelo** - Peak stride leg knee extension velocity that occurs after foot plant  
**ClosingSpeed** - Change in angle of hip shoulder separation from peak to ball release divided by the time to rotate  
**ClosingTime** - Time from peak hip shoulder separation to ball release  
**TimeFirstMove** - Time first move occurs  
**TimeHandSeparation** - Time hand separation occurs  
**TimePeakKneeLift** - Time peak knee lift occurs  
**TimeFootPlant** - Time foot plant occurs  
**TimeMER** - Time max external rotation occurs  
 All times are normalized so 0 seconds is ball release.