



ATHLETICS

TIMEKEEPING

2021
PRESS INFORMATION

Ω
OMEGA

“OMEGA has unparalleled experience in sports timekeeping. In 1932, OMEGA pocket watch chronographs were already considered the most reliable instruments available for measuring world-class performance at sporting events.”



OMEGA pocket watch from 1932

There's no question that time-keeping is one of the key components contributing to the excitement of athletics competition. Without the ability to measure times and distances that separate the winner from the runners-up, competition as we know it would be impossible. Without timing there would be no world or Olympic Games records.

OMEGA has unparalleled experience in sports timekeeping. In 1932, OMEGA pocket watch chronographs were already considered the most reliable instruments available for measuring world-class performance at sporting events. The brand's reputation was such that the International Olympic Committee (IOC) asked it to supply all sports timing devices for use at the Olympic Games to be held that year in Los Angeles.

Since then, OMEGA has continued to develop and deliver state-of-the-art sports timing and measurement technology used not only at the Olympic Games but at other leading athletic events as well.

HISTORY OF OMEGA AND ATHLETICS TIMEKEEPING

0.20

Racend Omega Timer from 1948



1932 was a defining year in the history of sports measurement. For the very first time, a single private company was entrusted with keeping time across all events at the Olympic Games. That honour went to OMEGA, who supplied one timekeeper and 30 high precision chronographs which had all been certified as chronometers by the Observatory at Neuchâtel. In this first occasion as Official Timekeeper of the Olympic Games, OMEGA was able to capture results to the nearest 10th of a second. The brand's expertise was highly appreciated by the officials in Los Angeles and was also invaluable when it came to confirming 17 new World Records. The event was also notable for having the first Olympic Village, as well as the first medal podiums at an Olympic Games.

It was in 1948 that OMEGA first used the cellular photoelectric "eye", initially at the Olympic Winter Games in St. Moritz but then again for the athletics events in London that summer. At the London 1948 Olympic Games, the British Race Finish Recording Co. Ltd developed the first slit photofinish camera, with its continuous image and a recorded speed which could be modulated according to the needs of the sport being practiced, from sprints to rowing to cycling. It worked in tandem with OMEGA timing equipment. It was at this Olympic Games that machines began to out-perform human beings for accuracy.

“Official times were now recorded to the nearest hundredth of a second.”

0.30

Photoelectric Cell from 1948



At subsequent Olympic Games and other leading sporting events, OMEGA and Race Finish Recording worked together with a revised version of the photofinish camera, the Racend Omega Timer. It could, for the first time, show fractions of a second below the images of athletes crossing the finish line.

This marked the beginning of the era of quartz and electronics. The Omega Timer, mobile and independent of the electrical network, allowed the results to be printed out on a roll of paper, winning OMEGA the prestigious 'Croix du Mérite Olympique' in 1952. Official times were now recorded to the nearest hundredth of a second.

As television was refined and a worldwide audience started to enjoy athletics competitions from the comfort of their own homes, OMEGA introduced the Omegascope in 1961. It allowed the introduction of the concept of real time in televised sports reporting by superimposing luminous numbers on the bottom of the screen; it revolutionized timekeeping and left no margin for error because it was openly on display for millions of TV viewers.

In 1968, "integrated timing", which provided statistical analysis with results being fed to judges, coaches and the media, was introduced. The same year saw the birth of the photoprinter which also contributed to the rapid and wide distribution of results.

0.40

Significantly, it was also the first year that the electronic times were accepted as official. This was motivated in part by the fact that the television broadcasters wanted the images on the screen to be of athletes and not of judges. Modern sports timekeeping had come of age.

At the same time, loudspeakers were being introduced behind each lane in track events so that the athletes would hear the start signal at the same second. In a 100-metre sprint, where a hundredth of a second can mean the difference between gold- and silver-medal performances, every effort was made to make sure that nothing would give one runner an unfair advantage over the others.

At the Los Angeles 1984 Olympic Games, OMEGA introduced colour photofinish images whose paper prints signed by the athletes became instant collectors' items. False start detectors were also introduced in the same year.

"In 1968, "integrated timing", which provided statistical analysis with results being fed to judges, coaches and the media, was introduced."



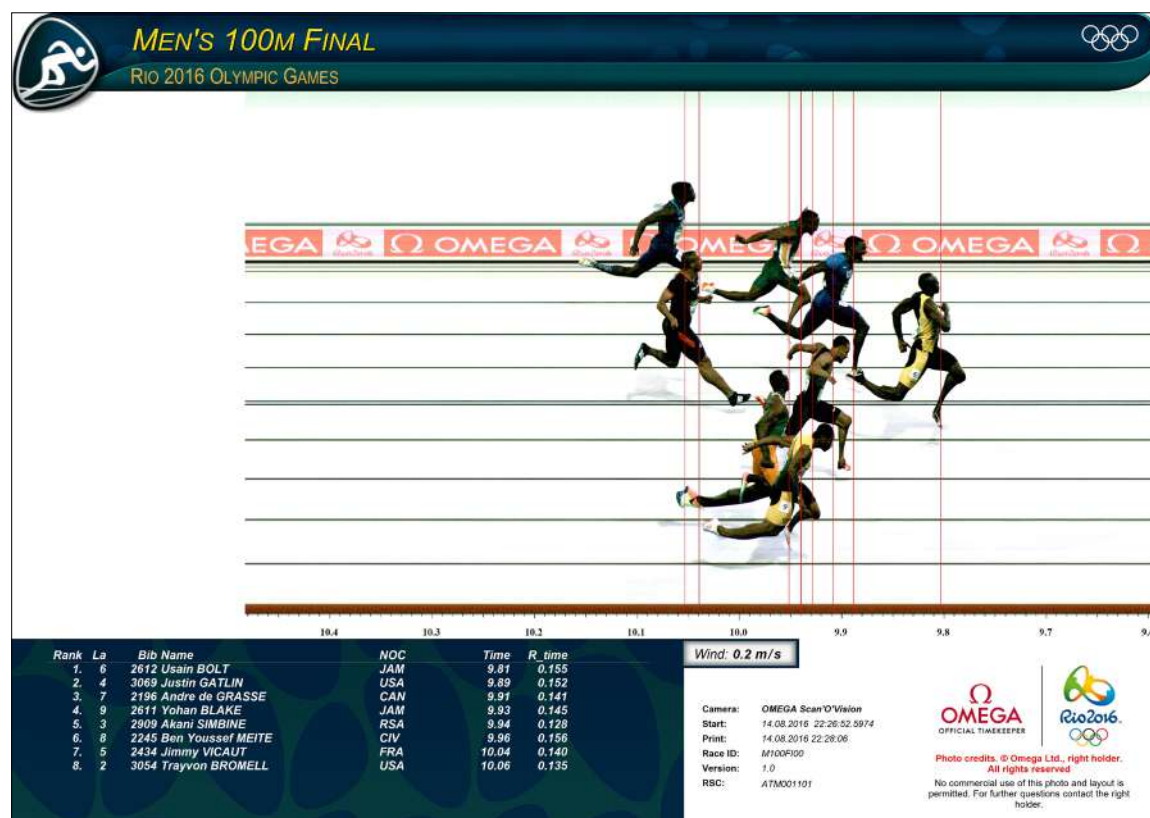
Along with timekeeping and the distribution of results, data-handling became another important part of OMEGA's contribution at athletics events in the mid-1990's. Acceleration and running speed were measured which gave further in-depth information during events.

In 2000, OMEGA's on-screen graphics made it possible in some sports for TV viewers at home to see a "virtual record line" that indicated how close the competitors were to world records.

0.50

OMEGA continues to add new improvements to the world of timekeeping. For more than eight decades the brand has worked proudly at the service of the best athletes in the world, to deliver the timekeeping performance they deserve.

Photo-finish image



OMEGA'S TIMEKEEPING EQUIPMENT

The equipment used for world-class timekeeping requires cautious and precise installation, particularly at starting point of a competition and at the finish line. Logically, we'll start at the beginning.

OMEGA'S START PISTOL

One of the most enduring images from any major athletics event is the starting pistol, reminiscent of the revolvers so popular in movies set in the Old West. At the Olympic Winter Games Vancouver 2010, this was replaced by a streamlined, futuristic device composed of a flash gun and a sound generation box and the technology is now used at the athletics events where OMEGA is contracted as timekeeper.

When the starter presses its trigger, three things happen simultaneously: a sound is "played", a light flash is emitted and a start pulse is given to the timing device. By pressing the trigger a second time within two seconds, the false start will be audibly signaled. The sounds can be changed and downloaded by computer.

As was the case with traditional powder pistols, the sound is reproduced by speakers near each competitor, guaranteeing that they will hear the signal at the same time. At some venues, the audio signals can also be put on the public address system.



STARTING BLOCKS AND FALSE START DETECTION SYSTEM

In modern athletic timekeeping, the starting blocks feature built-in sensors which are a key component in OMEGA's advanced false start detection technology. Each set of starting blocks is outfitted with a loudspeaker linked to the starter's electronic flash gun, so that all contestants hear the start signal at precisely the same time.

At the start of each race, the sensors in the false start detection system measure each runner's reaction time, defined as the interval between the sound of the starter's pistol and the athlete's response. Each runner's response to the sound of the start gun (pressure exerted by the athlete's foot against the blocks) is detected by the sensors built into the starting blocks and measured by the OMEGA timing device. If the time measured is less than the time in which a person can possibly react to the sound of the starter's gun, the runner has "jumped the gun" and the timekeeper signals a false start.



The rules of the IAAF (International Association of Athletics Federations) fix the minimum time of physiological reaction at 100 milliseconds (a tenth of a second). Any reaction which takes place below this limit is considered to be premature and places the runner in a false start situation.



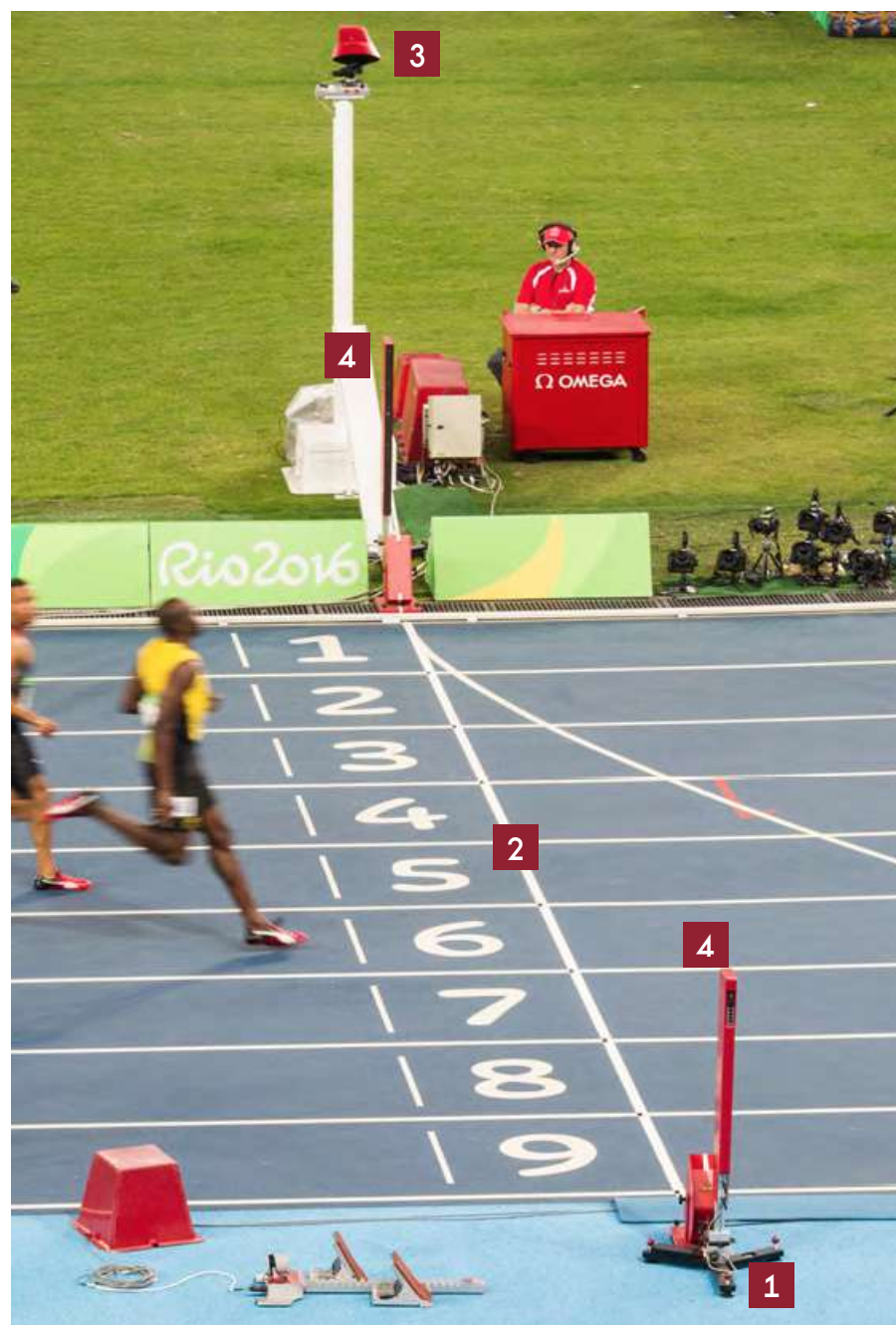
0.70

Sensors in the starting blocks measure the athletes' force against the footrest 4,000 times per second. In the event of a false start, the detection system will instantly send the force measurements to an on-site computer and create a "force curve" so the starter can visually analyse the reaction – this is possible because of advanced software and enhanced communication technology between the starting blocks and the false start detection system.

Ω OMEGA	
Attempt 1	
Start: 22:26:52.596378	
Lane 1	-
Lane 2	+0.135s
Lane 3	+0.128s
Lane 4	+0.152s
Lane 5	+0.140s
Lane 6	+0.155s
Lane 7	+0.141s
Lane 8	+0.156s
Lane 9	+0.145s

Additionally, a camera called "Photo Start" records all lanes at the 100m and 110m starting positions. This enables the Official Starters to review the start of each race, frame by frame, in order to spot any movement from the top of an athlete's body which may not be detected by the false start system.

THE FINISH LINE ELEMENTS



1

The visual field of the photofinish camera

The best contrast is obtained with a white background. As the camera only perceives the finish line as a vertical line, a non-reflective white strip is applied along the finish line and further to fully cover the visual field of the camera. It is completed by a 50 mm wide white post placed behind the photocells.

0.80

2

The finish line

It is 50 mm wide as per IAAF specifications. The OMEGA Scan'O'Vision MYRIA lines up on the first 8 mm. The lane's positions are easily identified on the photofinish picture thanks to the black tape markers set between each lane division. Lanes 4 & 5 are specially identified with two black tape markers indicating the centre of the picture.

3

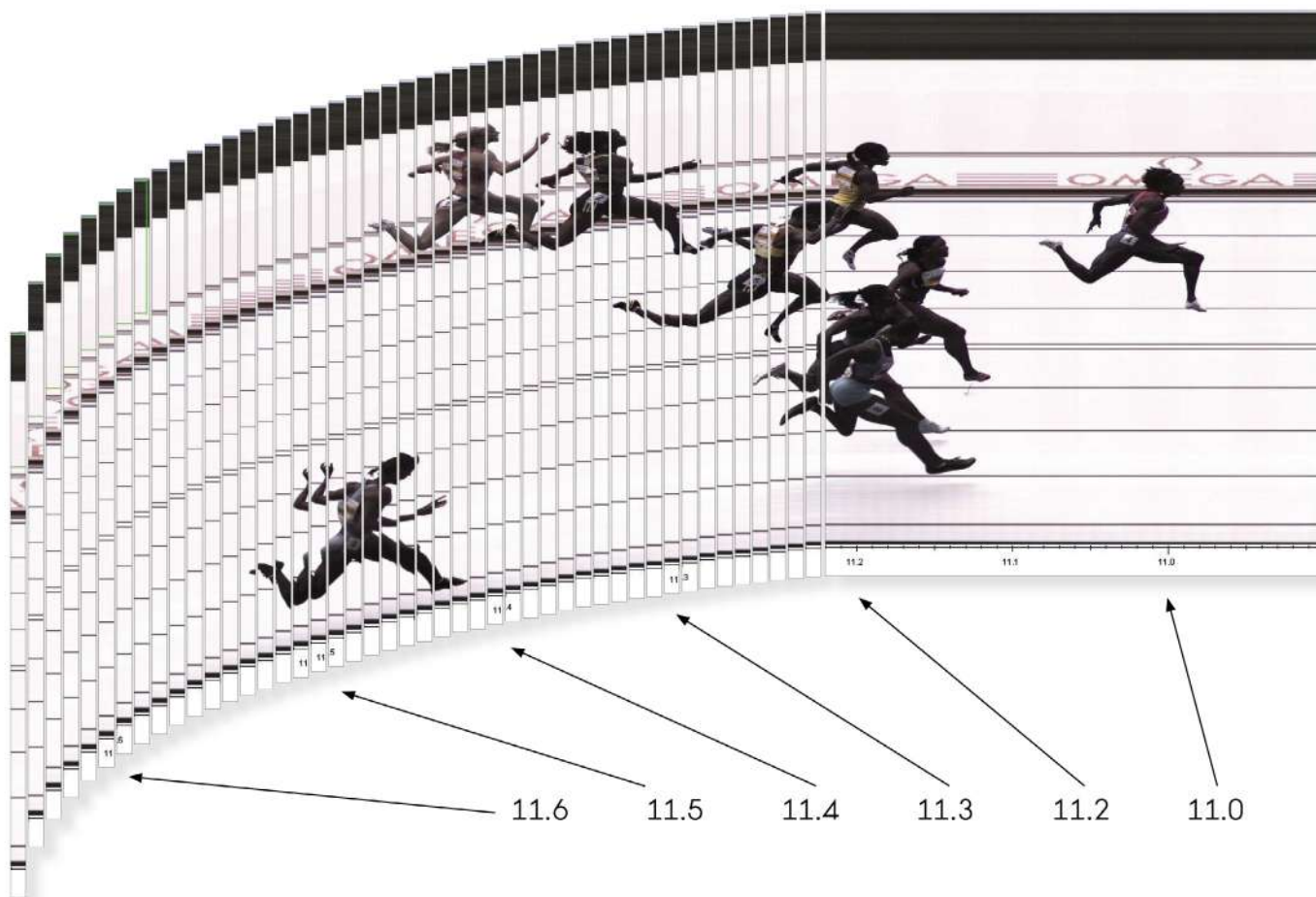
The "infield" OMEGA Scan'O'Vision MYRIA

It is installed on the track, on a post raised between 2 and 4 meters away from the track side with an ideal angle of 20° ($+0^\circ -5^\circ$). The photofinish picture from this camera is used to judge the competitors who might be hidden in the picture from the main camera. The zones are restricted areas, access is not permitted to anyone including photographers and judges to prevent disturbance of the timing equipment.

4

The photoelectric cells

Nowadays, OMEGA uses the latest generation of this vital equipment. Instead of two photocells, there are now four, all integrated into one unit, and positioned on the finish line of the Athletics events. With four photocells in operation, more body patterns are able to be detected as they cross the line. This means even more accuracy at the moment that matters.



0.90

OMEGA SCAN'O'VISION MYRIA

Perhaps the most widely known sports timekeeping device used in athletics is the photofinish camera, the equipment set up at the finish line of sprints, hurdles and other races. The OMEGA Scan'O'Vision MYRIA is a combination of a time detector and a chronograph. Photofinish images are produced using a high-tech image-capture device that records up to 10,000 digital images per second! An improved light sensibility means

that images are of higher quality than with previous versions of the photofinish camera and thanks to its compact size it takes less time to assemble and disassemble.



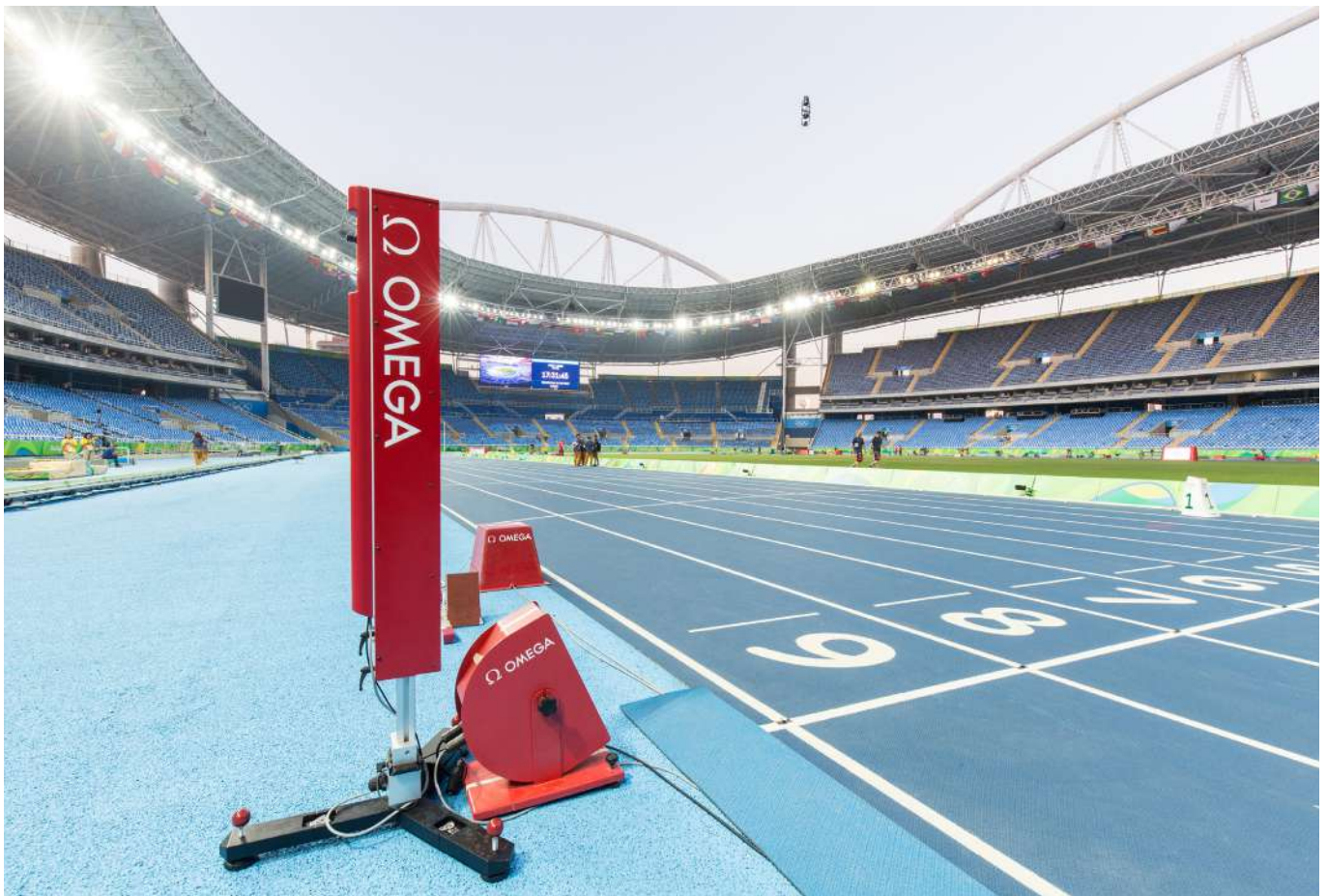
Each runner's image is captured by this device as he or she crosses the finish line, and each appears in the final "photograph". On this photofinish image, the time that separates the runners as they cross the finish line is represented by the space between them and it is this photograph that the judges will use to determine the champion of each race.

PHOTOELECTRIC CELL TECHNOLOGY

OMEGA first used photoelectric cells in 1948, the same year that the Race Finish Recording Company's photofinish camera was introduced. The photoelectric cells have been an important part of "stopping the clock" ever since.

Nowadays, the preferred timing reference is the photofinish image so the camera is always positioned first. Accordingly, the timing provided by the photocells is corrected to the timing provided by the photofinish cameras.

In a sprint or a run, the winner is the first competitor whose torso crosses the finish line. The photoelectric cells determine precisely when some part of an athlete's body crosses the line but the photofinish image will be the conclusive proof of the result.



"The photoelectric cells determine precisely when some part of an athlete's body crosses the line but the photofinish image will be the conclusive proof of the result."

According to the IAAF Competition Rules, sprint and jump performances for which the measured wind-speed exceeds $+2.0$ m/s are deemed illegal, and cannot be ratified for record purposes.



For this purpose, OMEGA provides a three-sided concentration clock which, when it is hooked up to a wind gauge, displays the wind speed. It can be connected to a photofinish camera and the wind speed can be automatically measured and displayed, without the assistance of a field operator.

MEASURING HEIGHT AND DISTANCE

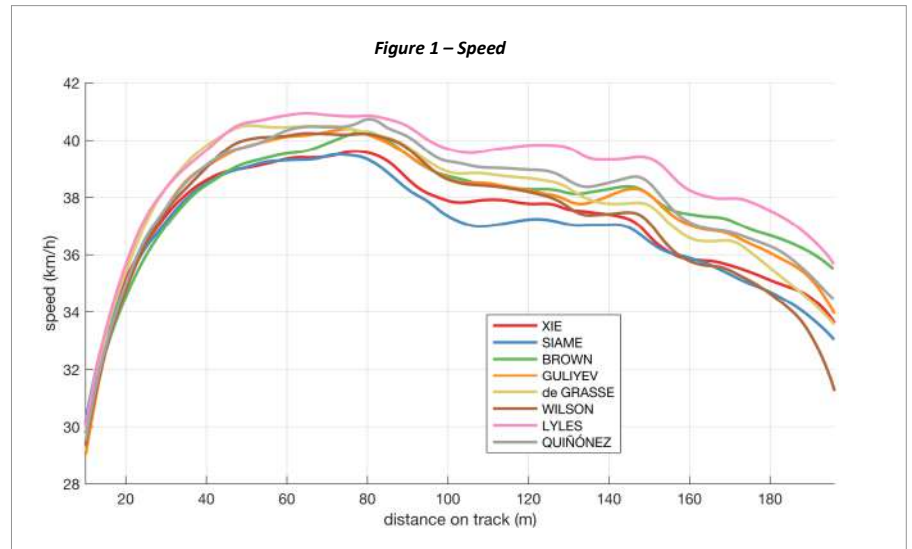
Less visible but no less important to the athletes and the outcomes are the various measuring devices that OMEGA's timekeepers use in the field events. One of the most spectacular performances in the history of the modern Olympic Games was Bob Beamon's record-breaking long jump at the Olympic Games held in Mexico City in 1968. Beamon jumped so much farther than anyone expected that officials were forced to use their back-up system—steel tapes—to measure the distance he'd flown. Bob Beamon's world record stood for 23 years, but by the time Mike Powell broke it in 1991, steel tapes were a thing of the past.

Today, in field events where distance travelled must be measured as precisely as possible, OMEGA uses Video or laser technology. Video Distance Measurement (VDM) has been successfully integrated for many years in long and triple jump events. From this season, the next event to be covered by this Video technology is the Shot Put. All other events, such as discus, hammer throw and javelin-throwing competitions all rely on OMEGA's laser technology to measure their performances with superb precision and reliability. For the athletes, precise timing and measurement provides the basis for the decisions that divide gold, silver and bronze. These decisions bring drama, thrills and excitement to the competitions.



Official Timekeeper OMEGA is on track for a new phase of sports timekeeping

Official Timekeeper OMEGA is on track for a new phase of sports timekeeping. Bringing more transparency to the field, the world's best sprinters, hurdlers, middle-distance runners and long-distance runners will have their speed and split times measured in real time during competitions, made possible by a chip in the start number worn on their chest.



The high-tech chip, which weighs only 16 grams and is the size of a credit card, is fixed to the inside of the start numbers worn by athletes on their chests. This sends the athletes' split times and current speed to the systems used by the big stadium screens and TV commentators in real time – while the race is still going on – via receivers installed in the stadium.

This means you will be able to see how the 100m Olympic champion in Tokyo developed their sprint either during the race or immediately after they have crossed the finish line. Statistics such as 10m split times for sprinters and lap times for every longer-distance competitor are nothing new, but experts had to wait a long time after the race had finished for timekeeping specialists to analyse the videos and provide an exact breakdown of this data. When Usain Bolt made his outstanding new world records of 9.58 seconds in the 100m and 19.19 seconds in the 200m at the World Championships in Berlin in 2009, the only times that were available in real time were his reaction times at the start and end of the race.

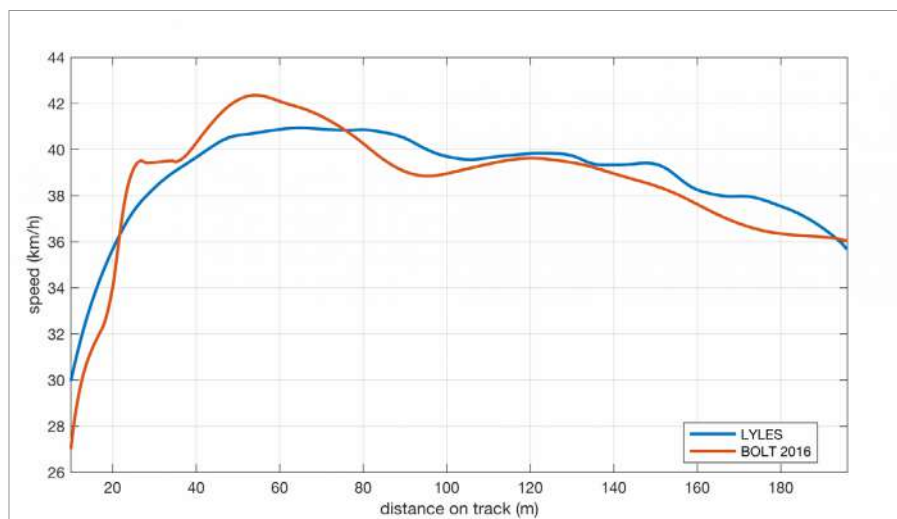
With this new system, spectators can see all of the important metrics either during or immediately after the race, and not only for the winner: all of the athletes have a chip in their start numbers, so you can see performance data for every runner.

OMEGA has called the new system the RTTS (Real-Time Tracking System), which makes every runner's performance transparent. Using the system's data, you could rank the times of eight 100m finalists at 20m, 50m, 70m or 90m as well as at the finish line. Those who are interested can then find out instantly who performed best at the start of the race, who accelerated most quickly, who reached their highest speed earliest and who was able to hold their top speed for the longest amount of time.

“Trainers, coaches and the athletes themselves can use it to further develop the athlete's capability.”

Spectators and commentators are not the only ones interested in this data. Trainers, coaches and the athletes themselves can use it to further develop the athlete's capability.

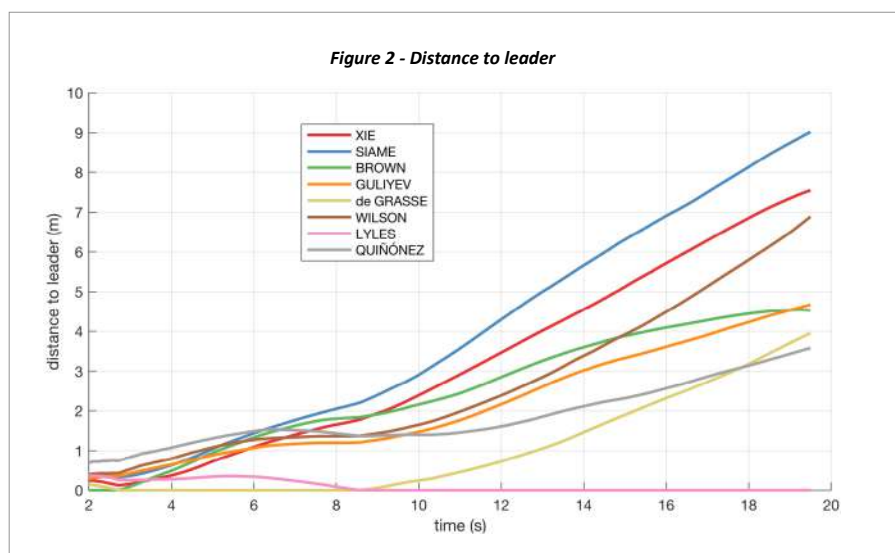
Want an example? Take Usain Bolt's 200m sprint to Olympic gold in 2016 in Rio (19.78 seconds). The analysis of his sprint broken down into 20m sections, which came out long after the race had finished, showed that the Jamaican runner had already reached his top speed between 40m and 60m. The long-legged Bolt – supposedly the reason why he does not do as well when having to run around the corner of the track – needed just 1.37 seconds to cover these 20m. Not only did he quickly offset his weakness straight off the starting blocks, but he also put all of his fellow competitors under so much pressure at the beginning of the race that they cramped up. As was to be expected, his second fastest 20m split time was recorded coming out of the corner between 100m and 120m, which he covered in 1.46 seconds. His adversaries had already been beaten by this stage. When we compare this to the 200m race won by America's 200m champion Noah Lyles at Athletissima Lausanne in 2019 (19.50 seconds), we can see that he ran his race completely differently. At the Pontaise stadium, Lyles only reached his top speed of just over 40km/h between 60m and 80m, but, compared with his fellow competitors, he decelerated the least before reaching the finish line– he decelerated even less than Bolt did during his victorious race in Rio.



It is details like these that OMEGA is now able to deliver using its RTTS technology either during a race or immediately after the athletes have crossed the finish line. The analyses can be displayed as graphs and superimposed onto the big screen in the stadium or onto viewers' TV screens.

RTTS technology is also an interesting development for the 400m hurdles. This discipline is currently experiencing a real explosion in performance thanks to young, energetic athletes such as Abderrahman Samba (QAT), Karsten Warholm (NOR), Rai Benjamin (USA) and Kyron McMaster (BVI). The graph showing the athletes' speed development over the course of the 400m hurdles race now details exactly how much speed each athlete loses when jumping each of the 91cm high hurdles and how much speed they can recover in the 35m in between.

Real-time tracking is also revolutionary for track and field sports. The performance of each athlete will become much more transparent for all those interested.



“The performance of each athlete will become much more transparent for all those interested.”

How does it work?

The chip in the start number worn by athletes on their chests weighs 16 grams and is 66 millimetres long, 48 millimetres wide and 5 millimetres thick. The chips are rechargeable.

In the stadium, there are 16 receivers with external antennas on the outside of the track and 4 on the inside that receive and transmit the chips' data.

The data from each athlete's chip is then recorded throughout the entire race.

Up to 40 chips can be used at the same time in a race.

In the example shown, the live rankings are presented, and would continue to go up and down depending on the athlete's live positions. The arrows at the bottom show the distance covered so far, in comparison to the distance remaining. OMEGA can also capture other information, such as an athlete's distance from the

leader, or the time difference between them. In this example, we see each athlete's speed in metres per second. There are numerous possibilities that are submitted to the TV director who will decide what they want to display.



COMMUNICATING THE RESULTS OF ATHLETICS COMPETITIONS

OMEGA's timekeeping professionals do more than measure the performances of the athletes. Their services also include the display of results to competitors and the public at the venues, data handling and the provision of On Venue Results (OVR), and the delivery of official results for distribution by the print, broadcast and network media to audiences around the world.

ON VENUE RESULTS (OVR)

On Venue Results (OVR) refers to the official results of competitions at a specific venue and, indirectly, to all of the OMEGA timing equipment and systems installed at a venue. OVR thus refers to the hardware, software and systems that allow the Official Timekeeper to time competitions and measure performances during events. The data are processed and presented in the form of official results which are distributed to a wide variety of audiences, ranging from the athletes and their support teams to officials, media and spectators to remote audiences served by print, broadcast and network media. OVR was conceived and developed as a complete sports timekeeping



solution for a competition held at a single venue: OVR includes everything necessary to deliver the official results from a given sporting event.

RTTS BEST TIME

Thanks to OMEGA's innovative RTTS system, the Official Timekeeper can now display live rankings and top speeds

for those watching in the venues. That data is presented on the brand's new scoreboards, giving spectators a live understanding of what is happening during a race. Seeing where each athlete is positioned and understanding their performance will help to add even more excitement to every fast-paced event.

1.60

10.3	
Top Speed at 60m	
6	31.6 km/h
LIVE DISTANCE 24.2	
1	WARHOLM K. Leader
2	VAILLANT L. +5.0m
3	KENDZIERA D. +5.7m

DATA HANDLING

In addition to operating all of the sports time-keeping and measurement systems, OMEGA distributes real-time data from ongoing competitions and final results to a broad range of audiences. Using a variety of output and display systems, OMEGA's data handling experts deliver Internet pages, screen frames and frames for scoreboards, TV graphics, print-outs, media alerts and data feeds to the INFO and CIS (Commentator Information System) systems and to the RTDS (Real Time Display System).

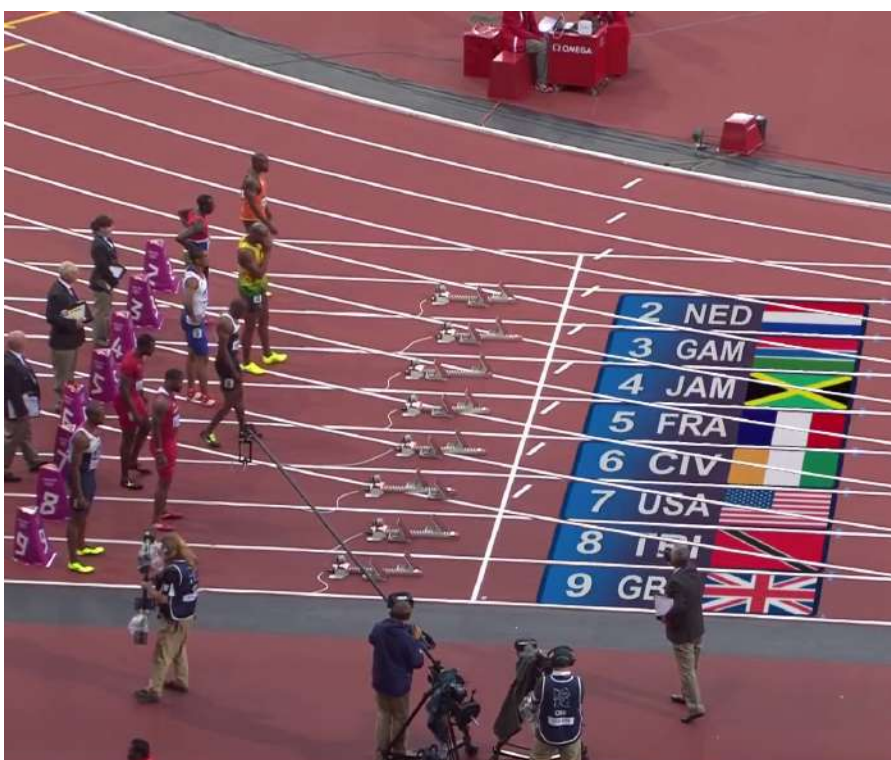


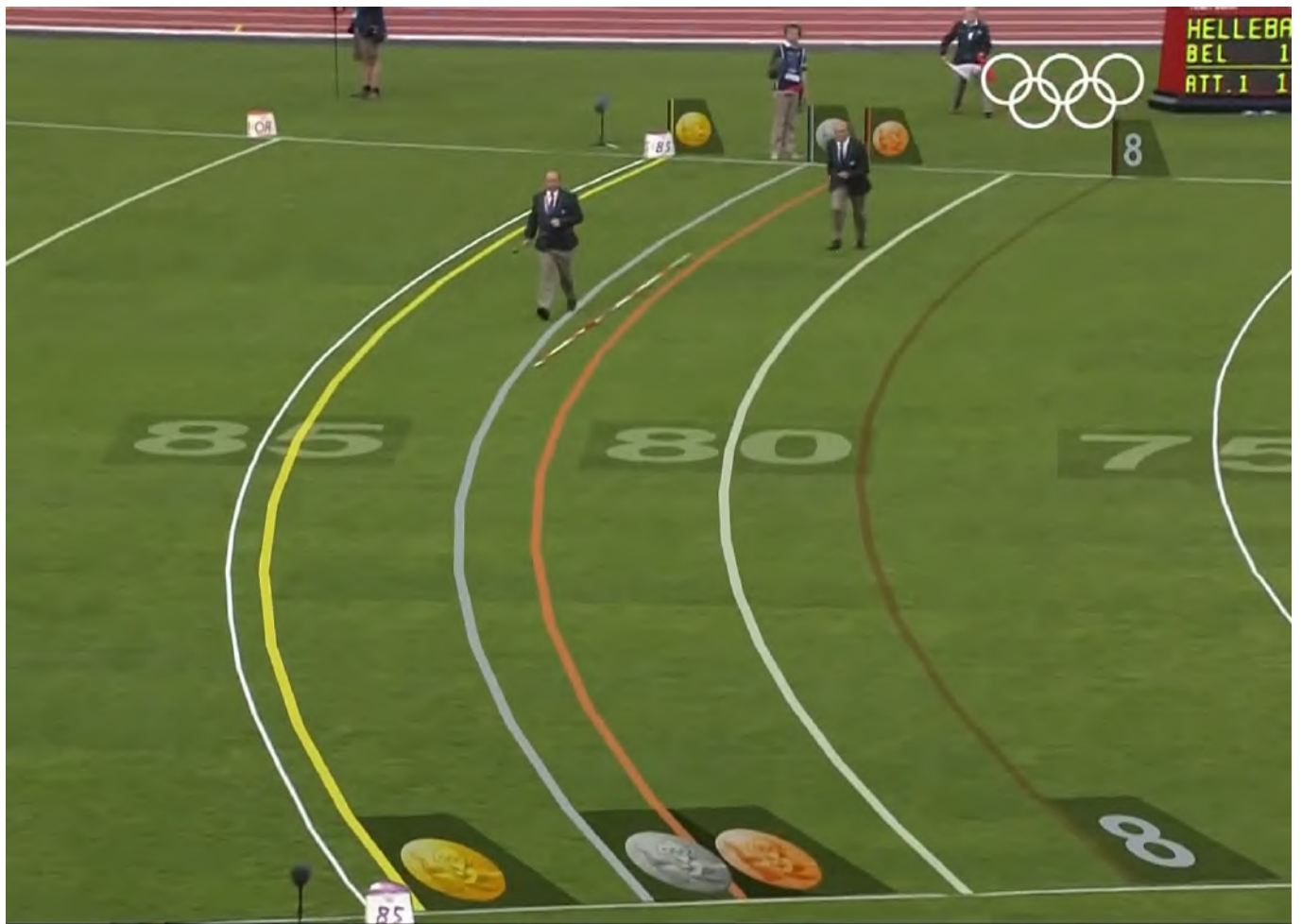
VIRTUAL TV SERVICES

OMEGA provides a range of refined virtual television services at some events. Virtual graphics adapted specifically for the needs of athletics allow a broad array of information to be provided on-screen. For example, the names of the competitors can be superimposed over the individual lanes (Including, if desired, details like flags and times to be placed within the image to make it more explanatory to TV viewers) along with their finishing positions.



Three-dimensional animations make it possible to have virtual introductions to the tracks used in marathon and other events.





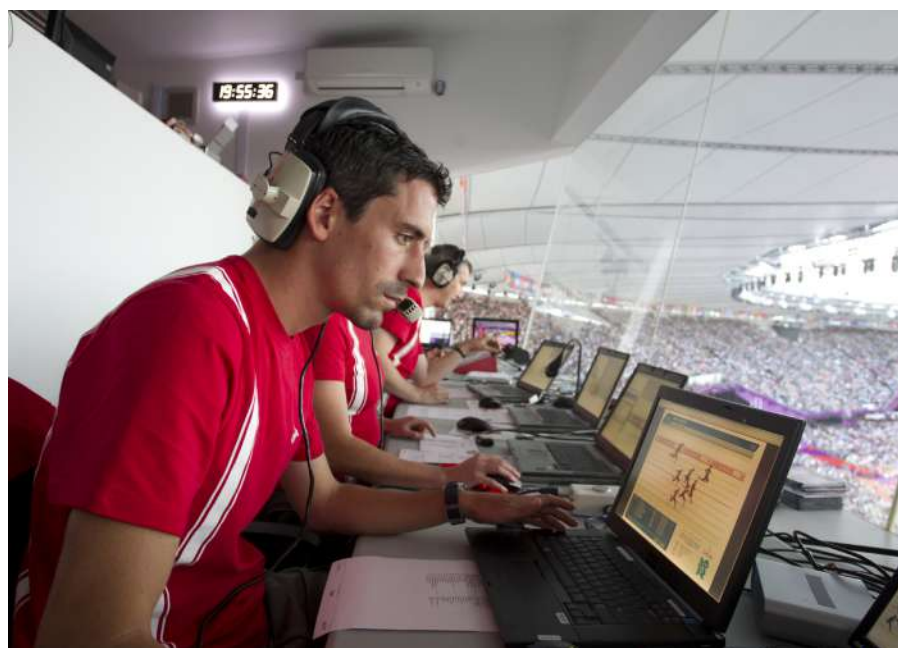
INFORMING THE WORLD

Athletes, their support teams, competitions officials, on-site spectators, journalists and remote audiences all consume information prepared and delivered by OMEGA. On-site displays for competitors and the public provide real-time results, which are also delivered through a variety of channels to off-site audiences served by TV and radio broadcasters, Internet and print media.

Dedicated systems are used to feed information to the Commentator Information System used by broadcasters to source comment during competitions, in printed form to officials and over computer networks to the international sports federations, to print and electronic media journalists in broadcast centers, to the intranet and the Internet.

MEDIA INFORMATION SYSTEM (MIS)

The Media Information System (MIS) is a database used by journalists and the media prior to, during and after competitions. The MIS contains the official results and information provided by OMEGA along with supplemental information from a variety of sources. Broadcast journalists use the MIS to interpret, enhance and/ or comment on a given competition during the event, in real time. Therefore, viewers who follow a competition on TV often have more information than people in attendance at the venue. Journalists also make use of the MIS to add intermediate times, athletes' biographies and career performance records, competition start lists, results for qualifying heats and medal round competitions, individual and team rankings and medal counts.



OMEGA has always been committed to athletics timing and continuously develops the technology it uses to deliver flawless results. OMEGA is responsible for timing some of the most important athletic competitions in the world including the Diamond League Meetings and, of course, the Olympic Games.

At these and other international athletics competitions, no one knows with certainty which nations' athletes will be standing on the medal podiums but they can be sure of one thing: their championship, often record-breaking, results will have been timed and measured by OMEGA.

OMEGA'S ATHLETICS FAMILY

NOAH LYLES

One of the brightest young sprinters in track and field, Noah Lyles is certainly a star to watch. OMEGA is very familiar with the US athlete's incredible talent. As Official Timekeeper of the Summer Youth Olympic Games, as well as the IAAF Diamond League, the brand has recorded many of his very first sporting wins. Noah is already a double World Championships gold medallist with a very promising career ahead.



DALILAH MUHAMMAD

Keep an eye on her if you can! New Yorker Dalilah Muhammad is the fastest female 400 m hurdler on Earth, having won the Olympic Games and World Championship titles - and broken the world record in her sport. Her historic gold medal came at Rio 2016, followed by the current world record time of 52.16 seconds, which she set in 2019 at the World Championships in Doha.

ARMAND "MONDO" DUPLANTIS

A pole-vaulter since the age of three, Armand Duplantis has already made competition history and is the current world record holder in his sport, thanks to his jump of 6.18m in 2020. With a long (and high) career ahead, fans will be hoping that the young Swede can continue his incredible rise, following his many successful achievements at the World and European Championships and Diamond League.



SPEEDMASTER RACING

This distinctive watch is linked to the Speedmaster's motor racing heritage and features a unique minute-track design that first appeared in 1968. Today, the style has been reborn for new sporting adventures. Built with a 44.25 mm case and bracelet in stainless steel, the timepiece includes the Speedmaster's famous tachymeter scale with orange wording and Liquidmetal™ numbers. On the dial, you'll find many orange touches as well as bevelled 18K white gold arrowhead indexes. The watch is driven by the OMEGA Co-Axial Master Chronometer 9900, certified at the industry's highest standard of precision and magnetic resistance.



SPEEDMASTER RACING

The Speedmaster is a watch loved for its space history and iconic design. This model takes that classic look and gives it a sporting spin thanks to the racing minute-track surrounding the dial. The model features a 44.25 mm stainless steel case on a black leather strap and a black ceramic bezel ring that includes the famous tachymeter scale in Liquidmetal™. On the black dial, the hour and minute hands are rhodium plated, while the arrowhead indexes are 18K white gold with white Super-LumiNova. For an injection of power, the watch is driven by the OMEGA Co-Axial Master Chronometer 9900, certified at the industry's highest standard of precision and magnetic resistance.



The image features an Omega Speedmaster 38 mm chronograph watch with a stainless steel bracelet, positioned diagonally on a surface of reddish-brown gravel. To the left, a close-up of the watch's case back is visible, showing the embossed 'OMEGA' logo and 'SPEEDMASTER' text. The watch has a white dial with three subdials at 6, 9, and 12 o'clock, a central seconds hand with a rose-gold tip, and a tachymeter scale on the white ceramic bezel.

SPEEDMASTER 38 MM

The refined Speedmaster 38 mm collection has retained the famous look and heritage of the Speedmaster, but has updated it with pure and elegant details. This watch is all about simplicity, materials and colour. It combines a luscious mother-of-pearl dial with a central seconds hand in rose and beautiful oval subdials. Notably, the tachymeter scale is presented on a white ceramic bezel, which works in perfect contrast to the stainless steel bracelet. Inside, the Speedmaster 38 mm is driven by the OMEGA Calibre 3330 and you'll find OMEGA's iconic Seahorse medallion on the caseback.



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OMEGA is a company of the swatch group, the largest manufacturer
and distributor of watches and jewellery in the world.