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FEA Not To Miss Software & Engineering Solutions And News, Gossip & Blog

Happy Holidays & New Year

DYNAmore

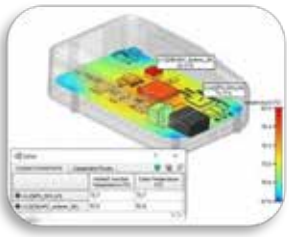
Altair

OZEN

JSOL

Oasys

Siemens



MSC.Software

Art's Blog

Cadfem

Ford

Mahindra

Airbus

Applus IDIADA

ANSYS

HOLO-Light

FEA Not To Miss Profile

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The FEANTM publication is no fee to receive.

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Our goal is to share information on companies with expertise and innovative products. Strengths that rely on smart work ethics in today's changing world.

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Table Of Contents

Articles - News

* Author or the person who brought the article to our attention

Website News

Announcements

Please note that the Table of Contents now includes a person's name, where available. This was done to give credit to the author, the person that brought it to our attention, or who posted the information on social media.

At our monthly meeting, the question was asked, "Who makes our magazine interesting?" We decided it was you! The readers, engineers, bloggers, professors, the people. Companies are an entity, and without the people, they would be an abandoned building.

December Choice Video - YouTube

An engineer's perspective - episode 8

Happiness is when you turn your passion into your profession! Become a simulation engineer. Simulation shows you the things in everyday life from different perspectives. Simulation is more than software!


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Rise


Ozen


Oasys


MSC Software


SIEMENS
Ingenuity for life

Marta Kempa, MBA - Marketing Coordinator, Oasys LS-DYNA
&
Seppi

Oasys LS-DYNA Not To Miss

Not To Miss on YouTube

Oasys LS-DYNA Newsletter – November 2020 **Oasys and LS-DYNA training courses 2021**

The Oasys LS-DYNA team is in the process of planning training courses for 2021.

We will continue to offer our core Arup-delivered online courses for free to our clients and potential new clients. To help us schedule according to demand, please register your interest in any desired training course on our website.

In addition to our core courses - we can provide advanced and client-specific training. Please reach out to dyna.support@arup.com for any requests you may have and we will be in touch to discuss
.

Dr. Markus Kellermeyer
Productmanager Learning on Demand, Professional Development at CADFEM

An engineer's perspective

episode 8

Happiness is when you turn your passion into your profession! Become a simulation engineer. Simulation shows you the things in everyday life from different perspectives. Simulation is more than software!

An engineer's perspective -

episode 3

Many years ago a transient fluid dynamics simulation the calculation took 3 days. Today, with the GPU technology, with Ansys Discovery it's possible to do CFD in real-time.

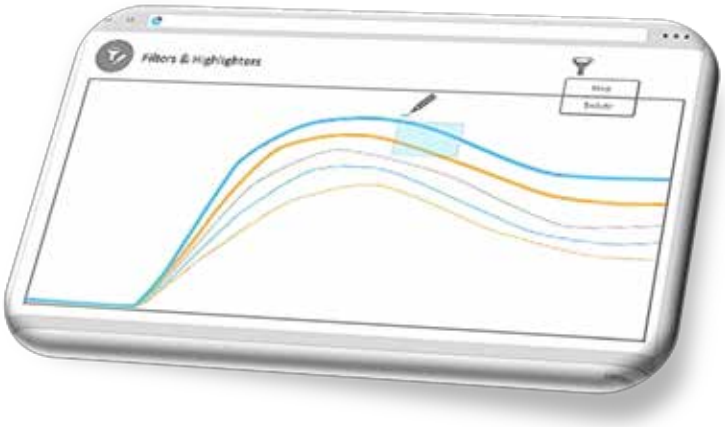
For Complete Information and Demo visit Simlytiks

Enhance the Experience of Exploring Data.

Simlytiks unites exploring, sharing and analyzing data into one application.

It's uses extensive visualization tools to hone in on specifics, trends, patterns or just the most important aspects of large or small datasets.

Because of this, Simlytiks creates stories from your data, so you can understand what is working and what needs improvement.



Extensive Visualization Tools

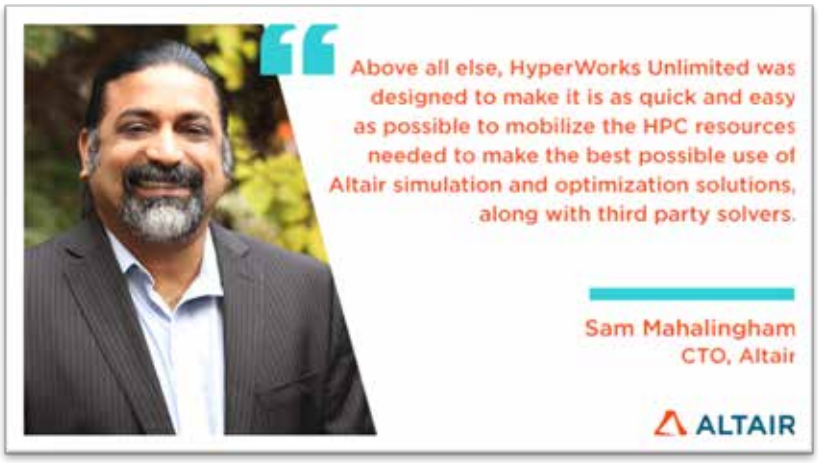
Clarify data with visualizations to answer questions that enhance, refine or reshape products, services, etc.

Exclude unwanted data or highlight important aspects with filters and highlighters.

Train, predict and identify data trends or patterns easily with A.I. and Machine Learning integration.

Visualizers, Pages and Layouts - Sharing and Reporting - Platform Integration

- Speed up your decision-making process by utilizing robust ways to investigate, perceive, record and narrate valuable data.
- Choose the most effective and advanced path for your important business endeavors.
- Create a better tomorrow by making better decisions today with Simlytiks®.



Adjusting Fast to the New Normal

By Sam Mahalingam

When its history is written, the struggle against COVID-19 will surely be remembered as an epic collaborative effort. Around half the world's population is currently in some form of lockdown. For most people, it means adjusting to a completely different way of life. And, for many of us, that includes working from home – or at least trying to.

The extent of the change is remarkable. Around 90 percent of Altair HyperWorks™ customers have already spoken to us about options for remote working. They certainly face some serious challenges. Trying to provide long-distance support to design teams handling complex projects can quickly overwhelm onsite VPN resources. Utilizing onsite servers for remote workers also risks compromising firewalls.

Fortunately, Altair is ideally placed to ensure that disruption can be kept to a minimum. Specifically, the Altair HyperWorks Unlimited™ Virtual Appliance offers fully managed, turnkey solutions that provide users with straightforward, secure remote access to the complete suite of Altair software. Fully supported by the necessary HPC infrastructure, remote workers need nothing more than a standard laptop or PC. What's more, these appliances can be deployed in hours with existing customers free to move their licenses from onsite servers to our hosted solutions.

These easily deployed appliances come loaded with Altair's industry leading HPC workload management and scheduling solutions, so HyperWorks Unlimited customers can take advantage of the same HPC optimization technology used by the world's most advanced supercomputing systems without all the complexity.

Altair PBS® Professional® ensures seamless job scheduling and workload management, while Altair Access provides a simple, powerful, and consistent interface for remote visualization and submitting and monitoring HPC jobs on remote clusters, clouds, and other resources.

Above all else, HyperWorks Unlimited was designed to make it is as quick and easy as possible to mobilize the HPC resources needed to make the best possible use of Altair simulation and optimization solutions, along with third party solvers. That means no upfront investment, no complex administration processes, no inflexible licensing models. The HyperWorks Unlimited solution may pre-date the COVID-19 pandemic, but it's been a key component of Altair's long-term strategy to make HPC easily accessible to our customers from wherever they are, while proving to be a perfect fit amid today's uniquely challenging global work environment.

HyperWorks Unlimited is available in both physical and virtual formats. The physical is typically suited to teams looking to avoid major capital expenditure or in-house IT administration, provides the benefits of a dedicated hosted Altair server. Any authorized user can access any HyperWorks software, as required, via a secure portal.

Our virtual appliances are public and cloud-based and combine HPC infrastructure, workload management tools, simulation/visualization software, and a unique business model with unlimited software licenses. They offer organizations all the scalability, flexibility, and computing resources needed to complement their own VPN infrastructures. Users access HyperWorks securely via a web portal and benefit from features including remote visualization and the ability to work collaboratively on a single model. It is worth noting that this remote visualization provides another layer of security to the design IP data as only pixels are transferred but not the actual data. This is critical to maintain the integrity and confidentiality of all design IP.

Pre- and post-processing can be performed in the cloud, eliminating the need for large data transfers. The licensing model is also extremely flexible, providing efficient management of workload peaks and the freedom to choose between a short term, stop-gap solution, or the economic advantages of a longer-term commitment.

Clearly, everyone's immediate priority is to save lives. However, when we emerge from the COVID-19 nightmare, the world will be a different place. Certainly, many of us will have a new perspective on our work-life balance. But the questions will go far deeper than the relative merits of working from home or office. As individuals and societies, COVID-19 has exposed serious vulnerabilities. The same is true for organizations. Going forward, we can expect to see greater emphasis on embedding resilience, adaptability and responsiveness into systems and infrastructures. As a result, we can also hope to be better prepared to face the challenges that lie beyond the current one

Auto Assemble for Regulation & Assessment

The Integrated System for Seat Design Integrated Simulation System for Seat Design Analysis J-SEATdesigner

- Unify management of the model and the associated data in the database
- Auto assemblies with positioning
- GUI specialized for assembly data creation
- Auto-setup-appropriate conditions based on user's selection
- Pre-simulations

Developers - J-SEATdesigner was co-developed by JSOL Corp. & ARUP, based on ARUP Software PRIMER

J-SEATdesigner Features

LS-DYNA preprocessor for seat design with data management and auto assembling

The recent automotive crash simulation is associated with a direct evaluation of the dummy injury criteria. Appropriate setups for a seat model and/or restraints are required to improve the accuracy of that evaluation

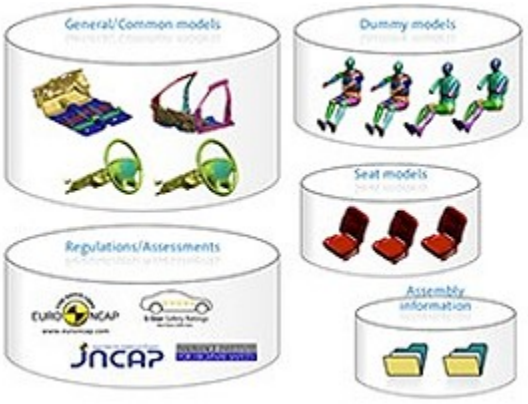
.J-SEATdesigner (JSD) manages various simulation cases with the model files in the database and auto assembles appropriate models based on the determined conditions. A wide range of regulations/assessments stored in the database can be loaded instead of the user input value. Measurement of H-points and pre-simulations including seating simulation are also available.

In the automotive crash simulation, the model becomes complicated and large to achieve a more accurate result. J-SEATdesigner is a powerful integrated system for seat design, supporting design engineers' challenges.

- Database management: Models and the assembly data
- Model auto assembling
- Assembly information creation
- Pre-simulation
- Developers
- Strong support by JSOL

Database management: Models and the assembly data

For automotive crash simulation, the dummy-boundary condition combinations that meet the assessments must be managed properly. J-SEATdesigner works in cooperation with an object-oriented relational database to manage the models and the associated data required for auto assembling. Users can access the database via the J-SEATdesigner GUI to read models and add/remove/rename/save auto-assembly data.

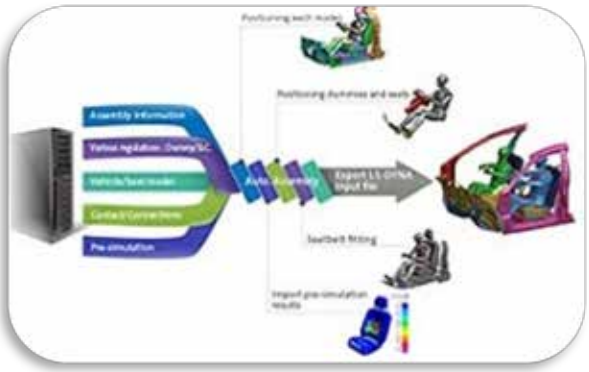


Database management system

Access database via the J-SEATdesigner GUI

Model auto assembling

Loading a pre-defined model Assembly information will automatically perform the procedures for assembling models: reading models from the database, positioning each model, defining contacts/connections, positioning dummies and seats, fitting seatbelts, and Import pre-simulation results (see "Functions" for details). The assembled model can be output in LS-DYNA input file format.



Model auto assembling

Assembly information creation

The assembly infromation for the auto-assembling model is created via the J-SEATdesigner GUI, which was developed based on the GUI of ARUP software PRIMER. The J-SEATdesigner GUI consists of the project management, tool kit, and DB management panels. This easy setting and user-friendly GUI supports the design and simulation engineers who need to deal with various vehicle models, regulations/assessments, and simulation cases.

H-point measurement simulation

Pre-simulation

An automobile crash simulation might require simulation results performed prior to the crash simulation: H-point measuring and seating simulations. The J-SEATdesigner GUI supports the performing of such pre-simulations. Users can import the results of a pre-simulation via the J-SEATdesigner GUI and then proceed to build a model efficiently.

H-point measurement simulation

Seating simulation

THUMS (FE human body model) positioning

. J-SEATdesigner requires the ARUP software PRIMER license issued by JSOL.
Strong support by JSOL

JSOL offers a powerful, wide range of support for the utilization and application of J-SEATdesigner.
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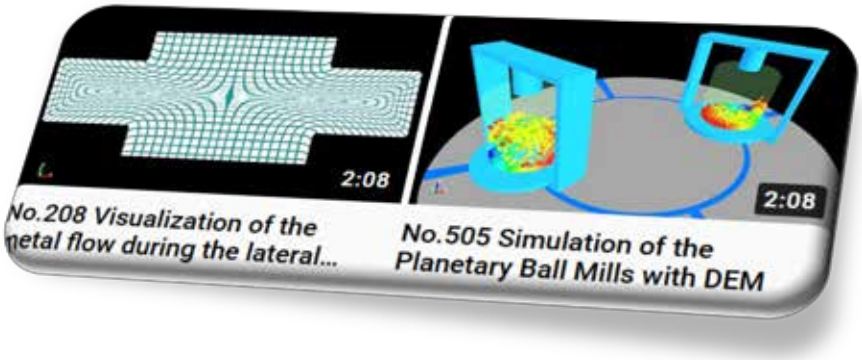
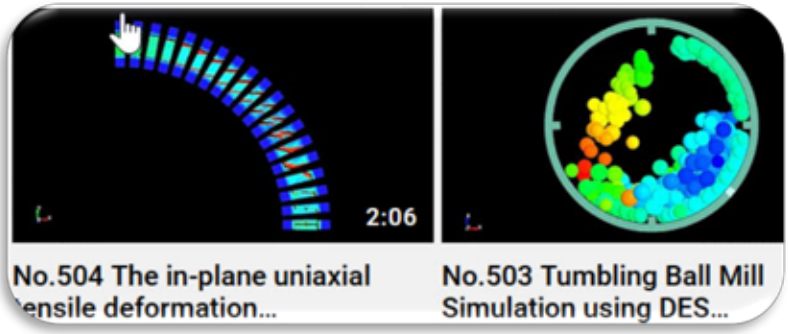
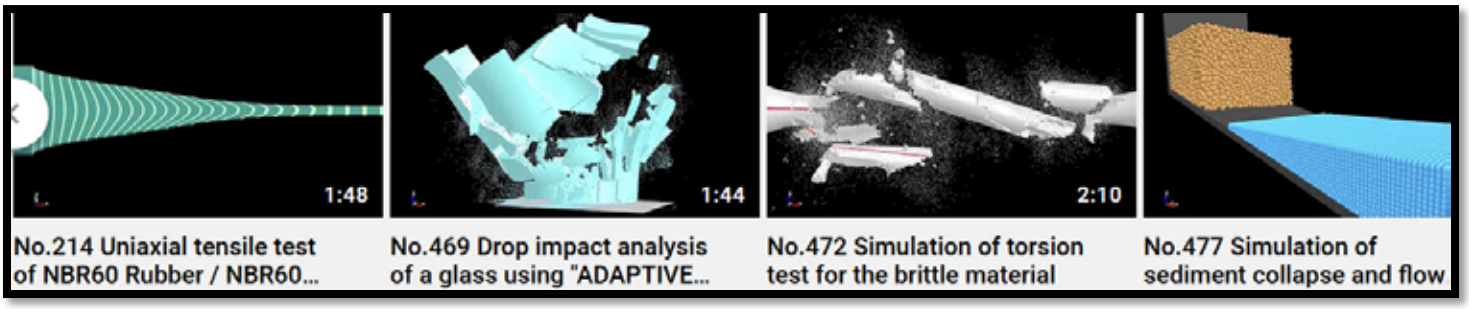
YouTube - LANCEMORE







Not To Miss on YouTube Channel

This video tutorial demonstrates the entire process of setting-up a Topology Optimization task in ANSA, using a motorbike's swingarm. A baseline problem is set-up using a Wizard tool, which is afterwards enhanced within the SOL200 Topology Task of the Task Manager. After the solution, the model is reduced to its optimized state.

BETA CAE Systems YouTube Video Channel

Ozen Engineering - Created a digital twin of the San Francisco's Golden Gate Bridge

How to Create a Digital Twin - (Author - Jaimie Gooch)
Picture -Credit: Scott Haefner, U.S. Geological Survey. Public domain.

When Joseph Strauss, Leon Moisseiff and Charles Alton Ellis designed San Francisco's Golden Gate Bridge in 1917, the engineers likely knew it would become a world-famous bridge. After all, when it opened in 1937, it was the longest and tallest suspension bridge in the world. They would have had no way of imagining that other engineers would one day create a digital twin of the bridge, but that's what engineers at Ozen Engineering have done with the help of Ansys software.

By the Numbers: The Golden Gate Bridge

- **8,980-ft.** long
- **746-ft.** high
- **90-ft.** wide
- **4,200 ft**. is the longest span
- **4 years** to construct
- **372-ft deep water** at the center of the channel
- **1.2 million rivets** hold the bridge's two towers together
- **> $35 million** in construction (about $562 million today)

Ozen Engineering is an Ansys certified elite channel partner. When the company wanted to create a demonstration of how to use reduced-order modeling (ROM) in Ansys Twin Builder, they didn't have to look far for an example. The Golden Gate Bridge is less than 50 miles north of the company's Sunnyvale, Calif., headquarters.

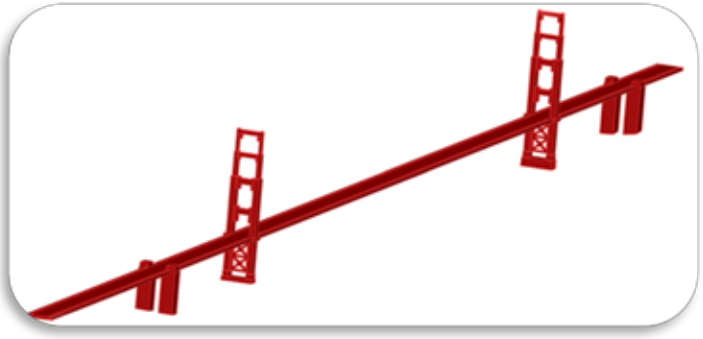
"We wanted something people could recognize and easily understand," says Vice President of Ozen Engineering Chris Cowan. "The Golden Gate Bridge is one of the most photographed bridges in the world. Everyone knows what it looks like."

Cowan, with Ozen application engineers Ahmed Elghandour and Anchong "Stephen" Liu, set out to create a model that would capture the wind pressure on the bridge, which would be used in Twin Builder to calculate forces on the bridge structures as the wind direction or velocity changed.

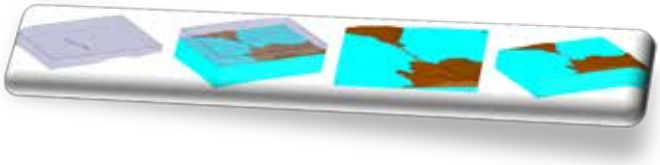
Five Steps to Create a Digital Twin of the Golden Gate Bridge

Whether creating a digital version of an iconic bridge or any other structure or system, the Ansys digital twin workflow is the same. You need a clean geometry to mesh and solve, then you create a reduced-order model (ROM) and analyze that ROM through Twin Builder.

1. Geometry

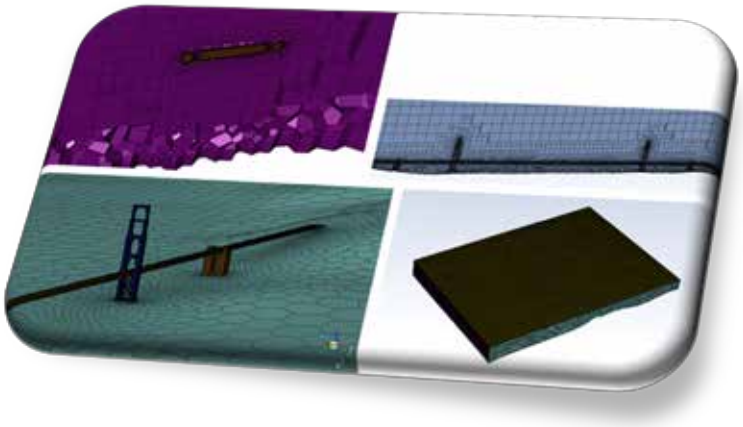


Ozen's first challenge was creating a geometry of not just the bridge, but the surrounding landscape. The company used an open geometry from the GrabCAD community and merged it with the area's topographical geometry that was obtained via an Ansys ACT tool called Topographic STL maker ACT. ACT is an easy-to-use development environment that uses XML and IronPython programming languages to enable non-expert users to create custom apps for advanced workflows.



"Part of problem was the geometry. It was not built for simulation," says Cowan. "The clean-up was a job for the Ansys SpaceClaim 3D modeler, and it worked well."

2. Meshing

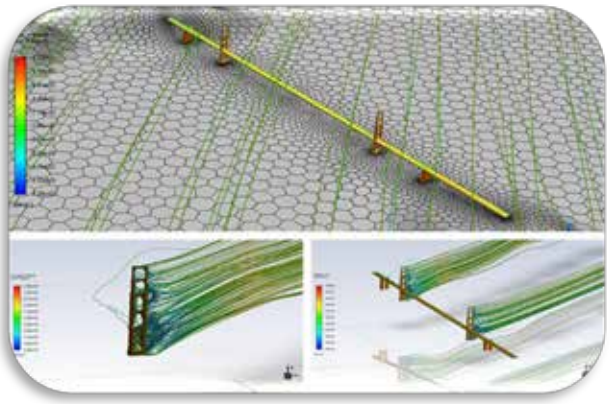


In addition to demonstrating how to create a digital twin, Ozen Engineering wanted to show off Ansys' Mosaic Meshing technology, which automatically connects different types of meshes with general polyhedral elements. The new Poly-Hexcore feature in Ansys Fluent uses this technology to fill the bulk region with octree hexes, maintain a high-quality, layered polyprism mesh in the boundary layer and conformally connecting the two meshes with general polyhedral elements.

"The size of the bridge requires a complex mesh in order to capture all the different scales in a simulation," Cowan says. "Thanks to Ansys Fluent meshing, that was straightforward and efficient."

Just how big of a mesh are we talking? The fluid model dimensions were 7,670 m x 6,150 m x 720 m^3, which required 4.8 million Poly-Hexcore elements and 14.5 million nodes.

3. Solving

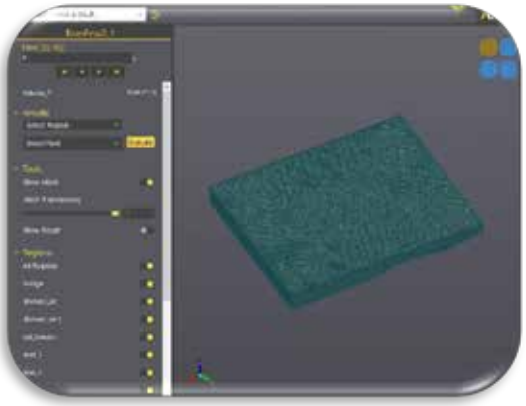


"Computational fluid dynamics (CFD) is a nonlinear problem by nature, and it could be complicated by solving it as simple laminar or more complex turbulent problem," says Elghandour. "The model we're using has a polyhedral hexcore mesh, which is one of newest technologies in meshing."

To show the accuracy and speed of solving Poly-Hexcore mesh, Ozen decided to solve a turbulent model (K-Epsilon, realizable).

4. Building a ROM for a digital Twin

The capabilities to set up a ROM are built into Fluent and can be generated in Ansys DesignXplorer, an integrated Ansys Workbench application for exploring, understanding and optimizing your design. Ozen Engineering set a maximum wind velocity range and multiple wind direction components, then created a study out of that to populate and build the ROM.



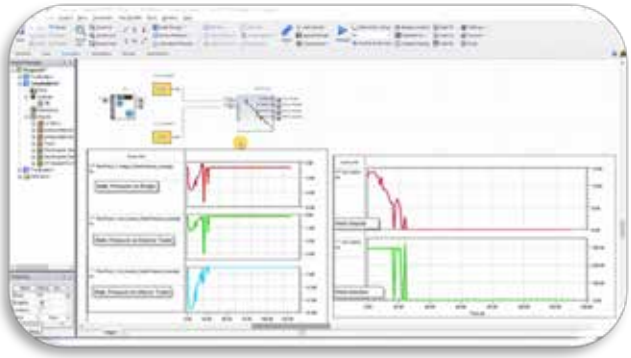
A functional mockup (FMU) was created for Twin Builder using a Design of Experiments (DOE) study based on wind vectors. "We studied wind direction along with the minimum and maximum range of typical velocity conditions," says Elghandour.

5. Implementing the ROM via Twin Builder

Once the simulations were completed, Ozen engineers extracted the ROM file for use in Twin Builder to predict results when different inputs are used.

Ozen Engineering created a data connector in Twin Builder that uses a Python script to reach out over HTTP to the National Oceanic and Atmospheric Administration website to obtain live, updated windspeed and direction data. That data is tied into the Twin Builder project to be evaluated through the ROM.

“You can pick any time step during the simulation and evaluate different results,” Liu says. “The script reads the past two-hours of data from a website and keeps capturing it for the next two hours, showing the results.”



Data is presented in a chart format, and the ROM viewer provides a visual display of the results data at various time steps. For example, pressure distribution on the bridge and towers can be visualized in near real time. Live data is sent every 15 seconds, but only changes every five minutes because the website data points are updated every five minutes.

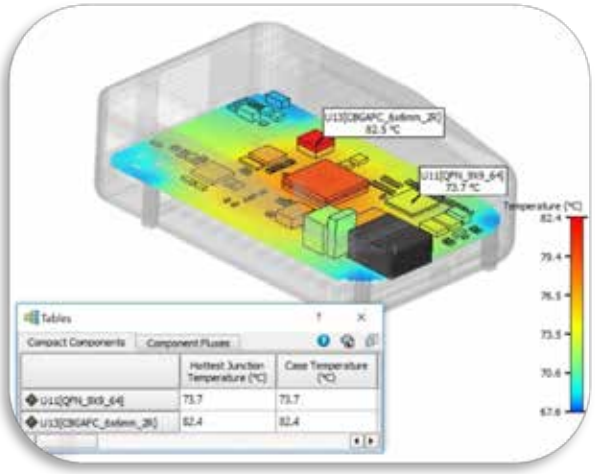
“The beauty of this digital twin is that it’s practical, but not in too much detail, so it’s easy to understand by most people,” says Elghandour. “At the same time, it’s a complicated CFD problem.”

“The team at Ozen Engineering recognizes the power that real-time simulation brings to predictive maintenance and operations planning,” says Cowan. “We continue to develop multiphysics digital twins combined with physical prototype hardware to demonstrate the versatile capabilities.”

The projects are intended to be portable, simple to understand and easy to validate using handheld equipment. Their inventory of prototypes includes:

- A wind tunnel fluid dynamics application that predicts lift on an airfoil.
- A bi-metallic strip thermal-electric-structural application that predicts deformation, electric potential, and Joule heating temperature as a function of driving current.
- A magnetostatic inductor coil application that predicts magnetic field distribution.

Ozen Engineering is also building advanced digital twin models for predictive maintenance of unmanned aerial vehicle (UAV) components through research grants funded by the US government. Download the "Digital Twins: Making the Vision Achievable" white paper for more information on creating digital twins.



Have You Seen the Improvements to Post-processing in Simcenter Flotherm?

By Kelly Cordell-Morris

Post-processing in Simcenter Flotherm isn't just about pretty pictures. Although it feels that way sometimes. Often engineers want hard numbers to determine whether the design is going to work out well or not.

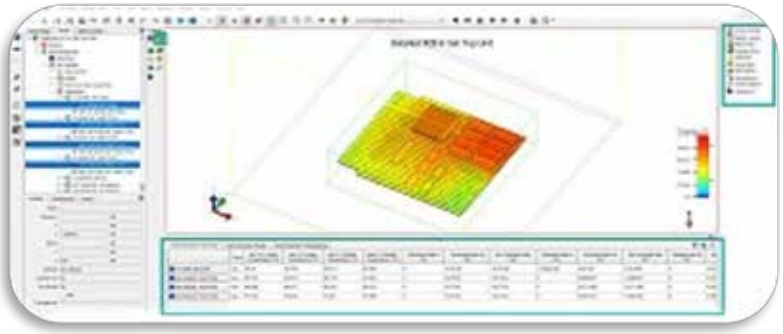
With Analyze mode on, all post processing features are active in your view

In Simcenter Flotherm 2019.2 post-processing had a revamp for all your needs, including the creation of pretty pictures. You might have missed it the first time around, so here's a recap of all that changed and some tips on how to use it to best advantage.

Simplicity and Speed

Simcenter Flotherm now has a results mode to access post-processing features. When you switch to results mode, you'll see a results tree on the right side of the software window.

Graphics are shown with results and tables just below with property sheets displayed under the tree. Everything is right at your fingertips with no multiple clicks.



We optimised plots for performance and they can now take advantage of multiple cores. This reduces the time to produce surface plots in particular. What could have taken an hour before now takes less than a second.

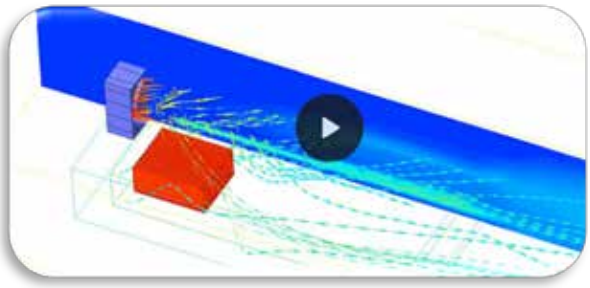
Plots associated with geometry and results

Plane plots have also been improved by allowing them to be associated with geometry. This comes in to its own during when using the command center.

Now you can set up the plot on the base case and it will follow the geometry as you move it in your different scenarios. For instance, place the plot and associate it with a fan in your model. As you move the fan location for each variation, the plane plot will move with it making results setup for a large command centre run a breeze.

You can also associate plane plots with results. For example, you can place the plot wherever the maximum temperature occurs.

Particle plots have had a similar treatment so you can associate them with geometry and have them move as your geometry moves.



Video can be viewed on website

Surface plot intelligence boost

Surface plots have got smarter. We now store each plot as an individual plot in the results tree so you can easily move between them. Switch them on and off as you need without having to recreate them each time.

Get the numerical data you need fast

Tables. This is where the real engineers go for results. Now you can select objects in the model tree and your relevant data instantly appears in the table display.

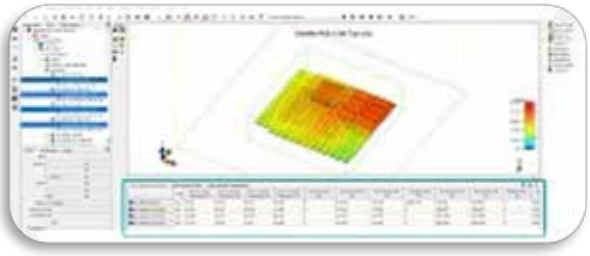
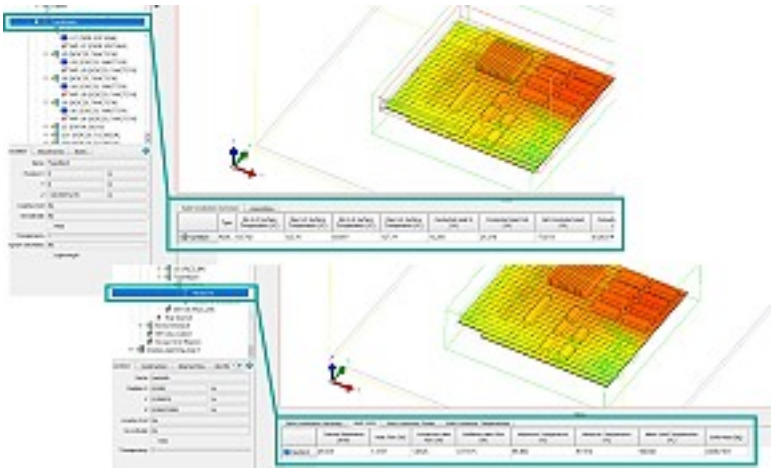


Table data appears below the graphics area as you select geometry in the project tree

We also have tables for source objects and perforated plates. You can also interrogate whole assemblies and heat sinks – no more excel calculations for you.

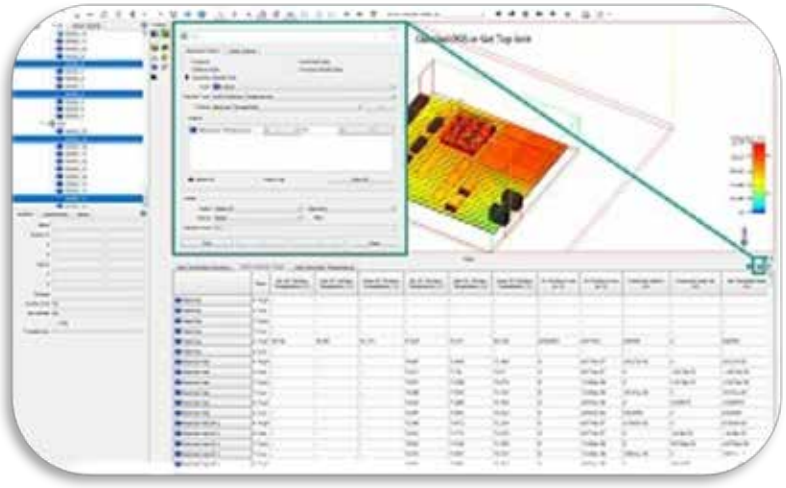


For each table you create, you can save it in the results tree for viewing later. You can display the table of results for each of your saved times steps and you can export just at one time step or for all time steps.

Now you can find summary data for assemblies and heatsinks without having to create your own spreadsheets.

Find and select functionality within tables

We know it can be a pain to find that one component when you have hundreds, or you just want to know which ones are above a certain temperature. We've made it possible for you to search within your table results with our powerful find and select functionality. You can search the entire project or just within selected assemblies.



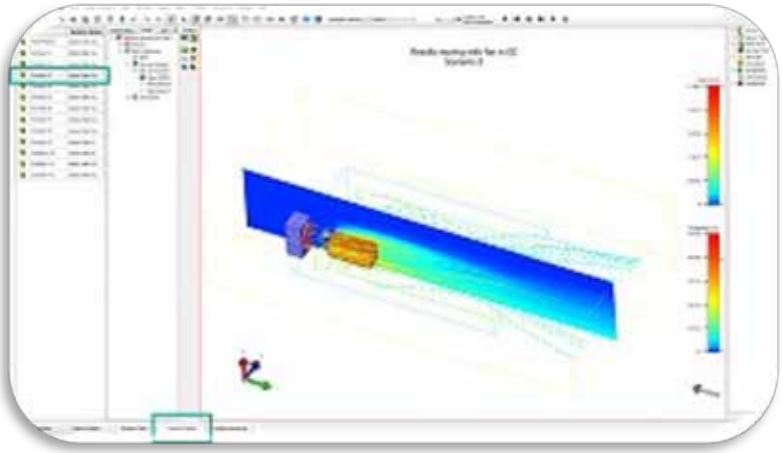
The geometry results data search option allows you to search for particular geometry types that meet certain criteria. For instance, you could search for all cuboids that have a maximum solid temperature above 70degC.

Find and select functionality is a powerful tool for searching within results.

You can now search for common results amongst all geometry

You can also search for common results. This allows you to search for results data that multiple objects types have in common. For example, any objects with a surface temperature above 70degC.

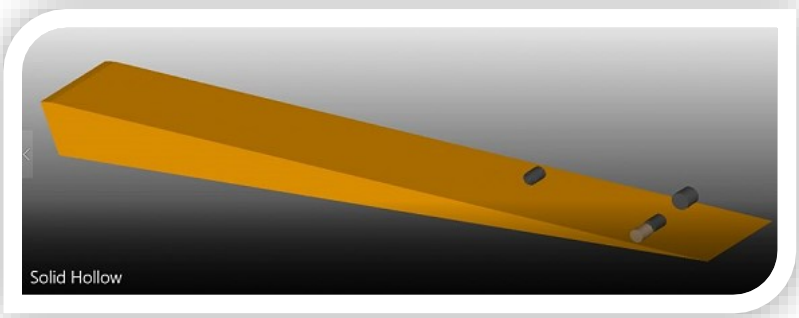
View results for each scenario within the main project



We've also implemented a scenario viewer tab so you can view the results for each scenario in command center without having to create a new project and load the results.

Scripting capabilities - All post processing is now scriptable and can be fully automated. Do you have to produce the same plots and tables for every model? Now you can easily produce a script and save yourself a ton of time. Generate all images, animations and tables you need for a report while you make yourself a coffee, or a margarita, I won't judge.

Share the script with colleagues, standardise your thermal design reporting, and let everyone enjoy some cocktail time. It could be the perfect emailable gift for secret santa while we can't be in the office together. They say something you made yourself is best, right?



Adams on a Roll

(Simulation Video available at Adams on a Roll)

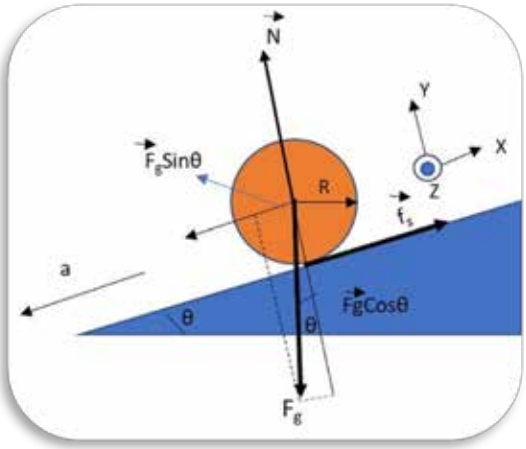
by Hemanth Kolera-Gokula

A group of hollow and solid cylinders once met at the top of a ramp. “Hey, solid cylinders,” said the hollow cylinder, “Want to race?”. So, it began – a battle for the ages, and an outcome so impressive that we recreated it using an Adams simulation.

As you can tell, the hollow cylinder did not do too well; it lost momentum early on in the descent and was left behind with the outcome never in doubt. Further confounding the issue was that the three solid cylinders were not identical.

They had different sizes, material properties, weights, and that seemingly did not seem to impact the rate of their downward trajectory. They all finished alongside each other. We know for a fact (because Galileo told us) that objects dropped down from a certain height descend at the same rate regardless of their mass. (Assuming no aerodynamic losses, of course).

Does this apply to rolling objects too?



Well, at the risk of bringing back a painful high school memory, let me indulge you in a dynamicist’s favorite vice- a free-body diagram.

Looking at the force components in the three dimensions, we have:

$f_s - F_g \sin\theta = -ma$, *along X*

$N - F_g \cos\theta = 0$, *along Y*

$I\alpha = \tau = Rf_s$, *rotational along Z*

Where I is the moment of inertia and α is the angular velocity

By manipulating these equations, we can gather that

$$a = \frac{gsin\theta}{1 + {}^{I}/_{MR^2}}$$

We also know that the rotational inertias are different

$I = MR^2/2$ for a solid cylinder and $I = MR^2$ for a hollow cylinder

Substituting this in the expression for acceleration, we get

$a_{solid-cylinder} = (0.67)gsin\theta$ and $a_{hollow-cylinder} = (0.5)gsin\theta$

This tells us that the cylinder's acceleration as it rolls down on an inclined ramp is independent of its mass, dimensions, or material density. It is only related to the inclined angle, gravitational acceleration, and a constant imposed by its rotational moment of inertia.

So as long as a cylinder is solid, heavier cylinders or lighter cylinders, shorter cylinders, or longer cylinders will navigate the ramp at the same rate. By extension, we have also learned that a hollow cylinder will always be slower than a solid cylinder, regardless of other factors.

So the next time if you think your neighborhood grocer shortchanged you on a can of beans you purchased, roll it down an inclined ramp and let physics do the rest.

Secret Film Studio - Lookout Mountain Hollywood Studio

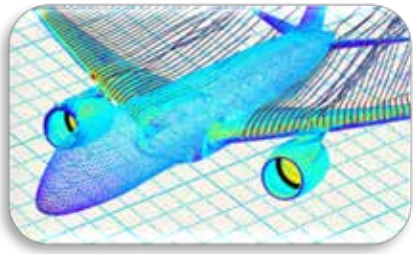
Intrepid photographers ventured as close as four miles to the nuclear blasts.

https://www.nnss.gov/docs/fact_sheets/DOENV_1142.pdf

Beginning with Trinity, the very first nuclear test in 1945, there was a need to capture nuclear testing with still and video to enhance the knowledge and understanding of the behavior of nuclear weapons. In an unassuming building located on Wonderland Avenue, five minutes from the famous Sunset Strip in Los Angeles, California, a secret film studio produced as many films as those of the major Hollywood studios, yet most of those films were unseen by the public.

YouTube - Damage and Destruction - Nuclear Test Film (Silent)

0800014 - Damage and Destruction - DASIAC - No date given - 17:00 - Black & White/Color, Silent, Sanitized - "Damage and Destruction" Video is a collage of scenes from the first several nuclear weapons testing operations which graphically show the destructive forces of nuclear weapons and the damages they can inflict. Specific military and civilian effects tests were conducted in these operations to gain experimental data on objects placed various distances from ground zero.



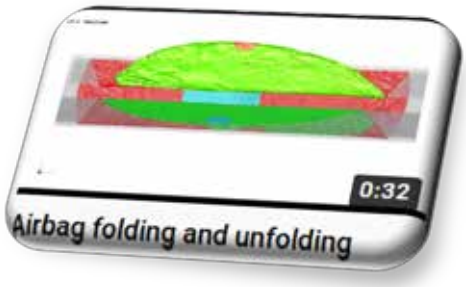
Cloud HPC SOFTWARE

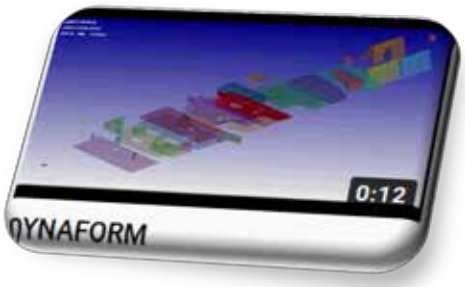
[For the complete list of supported software please visit On Demand Software](#) - Rescale supports 370+ enterprise HPC simulation applications, optimized for HPC in the cloud.

These applications enable enterprises to immediately begin using the cloud--through the same, familiar software experience offered by your Independent Software Vendor (ISV)..

Among the simulation applications available:

YouTube Videos - The following are previous but not to miss





New Features in LS-DYNA R12.0.0

Tobias Erhart

(DYNAmore GmbH)

Tobias Erhart (DYNAmore GmbH) LS-DYNA is one of the world's leading finite element software systems and is ideally suited for computer simulation of highly nonlinear physical problems in industry and research. Typical applications include crash simulation, metal forming, impact and drop tests, detonations, impact, penetration, fluid-structure interaction, as well as thermomechanical and electro-magnetically coupled problems.

The purpose of this event is, on the one hand, to inform existing users about new possibilities, and, on the other hand, to provide interested parties who have already gained experience with other software products with a summary of the possibilities offered by LS-DYNA.

Slides and further information can be found at:
Presentations - Documents/Materials that have been presented at infodays and workshops at DYNAmore

Prediction of Simulation Results

PDF document, 4171 kB

SCALE GmbH. Offers software solutions and IT services for process and data management and for FE methods development in the automotive industry.
Products

Dr. Heiner Müllerschön, Managing Director of SCALE
"In the fast-growing field of simulation and process management, it's important to us that we be able to more easily develop our software into standardized products. With AUDI, we have a strong partner who shares our vision and who is working with us to further develop our products. At the same time, we are now able to offer our solutions to other customers both within the Volkswagen group and beyond it."

CURT CHAN, "I see how the products we build fit into the word we live in."

As an engineer by trade, Curt Chan, senior product marketing manager, came to Ansys to take the next step in his career.

Hi, I'm Curt. Sr. Product Marketing Manager

How I'd Explain My Job to a Kindergartener - I create the pictures and videos of the toys we want your parents to "play" with at work.

Why I Choose Ansys - I started my career as an engineer, and now I get to bring products to life through marketing. As an engineer, I had a strong background in two-thirds of the product cycle trifecta — design and manufacturing — but I was missing simulation. So, when the Ansys recruiter called me, it seemed like the right time in my career to leap into the world of simulation. I used to design and make products, but now I get to bring those products to market, seeing how they fit into the world we live in. Ansys gave me the chance to be a part of the solution.

My Best Advice - As you evolve in your career, it is important to think about your next move. Ansys has done great things with the career framework, helping us as employees understand how to get to new levels and ultimately how to plan for them.

- Be open and willing to explore and understand different parts of the business.
- Set goals and create a plan. Create a circle of people around you who help push you to be better and help inspire them as well. There are ways to learn and grow in all phases.

Appreciating Different Perspectives - As Simon Sinek once said, "Mentorship is not a mentor-mentee relationship, it's a mentor-mentor relationship because you will always learn something, even if it's just different perspectives."

As a professional, I wanted to get better at communicating and not having anxiety, so I joined Toastmasters. I've learned how to be a better public speaker, have strong conversations with key stakeholders and relay important messages when they matter the most. Honestly, it has helped me a lot in my career.

What You Might Not Know - My family is from the Caribbean Islands, and we put ketchup and mustard on pizza. I'm 50/50 on it.

Marc Font
CAE Passive Safety Engineer en Applus+ IDIADA

Euro NCAP Crash & Safety Tests of Volkswagen ID.3 2020

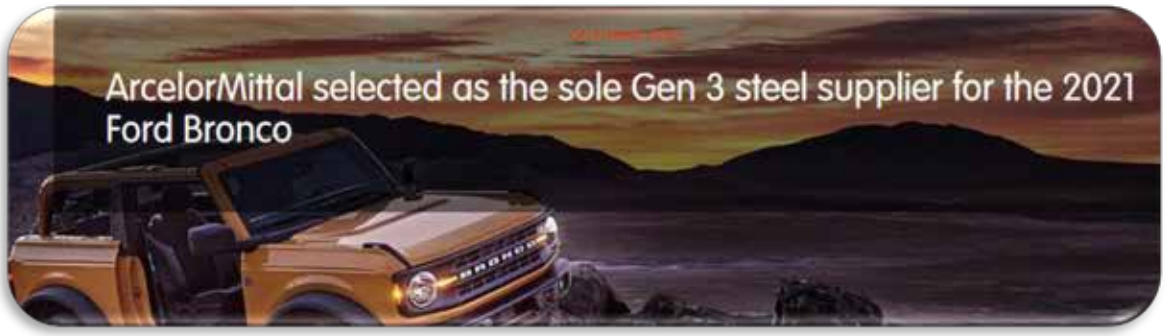
Euro NCAP performs a series of crash and safety tests on car models:

- a frontal impact test, 50% of the width of the car is striking an oncoming deformable barrier, also travelling at 50 km/h
- a frontal impact test, the car impacts a rigid full width barrier
- a side impact test, a mobile deformable barrier impacts the driver's door
- a pole test, the tested car is propelled sideways into a rigid pole
- a far-side impact test, the robustness of the centre airbag is evaluated by two dummies in the front.

A series of pedestrian tests are conducted with different impactors, adult and child head form, lower and upper leg form and whiplash tests are performed on a sled as well as AEB pedestrian and cyclist tests.

Active safety is tested based on the car's equipment: autonomous emergency braking car-to-car scenarios, occupant status monitoring (including seatbelt reminders), lane support and speed assistance technologies.

Applus IDIADA is a global partner to the automotive industry with over 30 years' experience supporting its clients in product development activities by providing design, engineering, testing and homologation services. IDIADA's success in product development is built on a unique blend of highly experienced engineers, state-of-the-art test and development facilities and the constant drive towards innovation.



After years of thorough research, perseverance and strong customer relationships, ArcelorMittal's Fortiform® 980 GI has been selected as the sole source of 3rd generation advanced high-strength steel (also referred to as HF steel) for the revitalized 2021 Ford Bronco in North America. This sporty vehicle will be the first automobile in the world to incorporate this grade of steel, which is made at AM/NS Calvert in Alabama.

Ford's main objectives were to create a lightweight and safe vehicle and the company enlisted ArcelorMittal to achieve these critical goals.

"Ford called us to see if we could develop this specific type of steel. We were actually already in the development phase so we discussed the opportunities as well as where they could utilize this material and for which vehicle, "said Michael Lizak, global technology coordinator for Ford at Automotive Product Applications R&D. "Ford's chief engineer gave us a goal to decrease the total vehicle weight reduction by 10%. In terms of safety, we selected a higher strength material which gives Ford a huge safety advantage."

So why is this steel the perfect solution for the Bronco? Ford places a huge priority on the ductility of steel and this grade comes from a family of high formability grades, meaning it has an excellent balance of both strength and ductility. In addition, the weldability was superior to the competition. After performing an inclusive weld study with Ford, it was clear that Fortiform® 980 GI could weld to it itself and to most other steels. Additionally, Ford's lightweighting strategy and safety requirements align perfectly with this solution. The high strength steel is a lower gage than the original DP800 and DP600 found in the earlier Bronco, which enables weight savings with complex shape through better formability.

ArcelorMittal's co-engineering capabilities, which fostered the close collaboration between ArcelorMittal R&D and Ford's design and welding experts played a pivotal role in this project.

“We had a product, that was engineered to have very good weldability desired by Ford,” said Jayanth Chintamani, director, automotive product research, ArcelorMittal R&D. “Ford conducts many tests before granting the product application ready status (AR). No other steel grade had been tested this much because this steel grade was so new and unique.”

Ford Bronco made of Gen 3 steel supplied by ArcelorMittal boasts a sporty look and can navigate difficult terrain (credit Ford)

ArcelorMittal R&D in East Chicago was charged with the product design.

“From a process perspective, because this was a coated product, we enlisted the coating experts on my team along with the product design experts,” added Jayanth. “We then made sure that the target-critical processing parameters during various stages of industrial manufacturing were met with support from process experts at R&D as well.”

The R&D team also worked closely with the joint venture (JV) partners at AM/NS Calvert as the steel is made on their upgraded line. “We brought this technology from ArcelorMittal R&D in East Chicago to the JV line in Calvert, Alabama,” added Jayanth. “By designing the product at R&D and bringing it to Calvert for manufacturing we are adding value to Calvert JV operations and ArcelorMittal at large.”

It has been 50 years since a new model of the Ford Bronco hit the roads, but the automotive community is already giving the off-roading vehicle high marks. The sleek aesthetics of the vehicle, coupled with its ability to navigate difficult terrain, has been a big draw. In fact, there are already 150,000 preorders, despite the poor economy. Although a crash analysis has only been simulated on a computer, experts believe the 2021 Bronco could receive an IHSS Safety Pick+.

The expected production date is scheduled for February 2021 and the new Broncos will be available in showrooms beginning in Q2 2021.

The 2021 Ford Bronco comes with the capabilities of removing the roof and doors for the full Bronco experience (credit Ford)

This specific patented steel product was created for applications like that of Ford Bronco's. However, additional future Ford vehicles, along with other OEMS, are in the preliminary phases of exploring how the world-class Fortiform® 980 GI can meet their stringent lightweighting and safety targets for the vehicles of tomorrow.

Jousef Murad • 1st
Engineer | YouTuber | AI | Host of the "Engineered-Mind" podcast

Ask your questions to HOLO-LIGHT, a company creating groundbreaking immersive AR software and technologies!

YouTube - **Augmented Reality is a valuable tool for engineers. It embraces the full power of digitization without loosing connection to the physical world.**

AR Engineering brings engineering to the next level: with ARES, the Augmented Reality Engineering Space, you can work interactively and intuitively on 3D content and receive live feedback from real environments. Level up your performance with ISAR by streaming entire AR applications including data-intense 3D objects via cloud or on premise.

Enabling the Global XR Economy - Founded in 2015, Holo-Light specializes in immersive software and technologies. In Augmented and Virtual Reality we see a huge driver for global digitization and a new way of experiencing and interacting with content

Multimatic Motorsports takes Mazda to outright victory at Mobil 1 Twelve Hours of Sebring

SEBRING, Florida (November 16th, 2020) – The Multimatic-run #55 Mazda RT24-P has taken outright victory at the 2020 Mobil 1 Twelve Hours of Sebring.

In a race filled with drama and chaos, the Mazdas ran a calm and considered strategy, supported by outstanding driving and perfect execution to enter the final 40 minute stint running 1-2, comfortably clear of the competition.

Only a final bit of bad luck, the uncontrollable factor that has played a significant role in the team's 2020 results, put paid to a totally dominant result. A random debris-induced puncture on the #77, with under 30 minutes to go, relegated it to P3 from a comfortable 25-second lead over its sister car. The final outcome being that the #55 crossed the line ten seconds clear of the #6 Penske, the #77 Mazda right under its rear wing, winning the toughest of the world's big three sports car endurance events.

Multimatic Motorsports opened the re-started 2020 IMSA WeatherTech SportsCar Championship with a strong 1-2 victory at Daytona over the fourth of July weekend and has now bookended the greatly condensed and challenging season with a similarly strong win in mid-November. Although the filling in that success sandwich didn't provide any other wins, it did demonstrate the outstanding pace and reliability of the Multimatic designed, engineered and run RT24-Ps.

There was a strong second place in the six hour Atlanta race but also a run of near misses created almost exclusively by an inordinate amount of misfortune; The outcome being the end of any hope of a Championship win coming out of Petit Le Mans, and by Sebring there was no real thought of a top three. However in another odd twist of fate the #55 win garnered it third place in the driver's and team's championship, by a single point; a bitter sweet result of the #77's misfortune.

Vice President of Multimatic SVO, Larry Holt said: "This is a truly spectacular result for Mazda and Multimatic Motorsports. Although only half the race length of Daytona or Le Mans, I consider Sebring to be way tougher in terms of an actual test of endurance. The place puts inputs into a car that you don't see anywhere else on a closed course race track and it truly tests the hardware, software and fleshware to the limit.

It is extremely hard to win and so this success will now be added to Multimatic Motorsports' all-time top three single race achievements. This result is a true testament to Charlie Cadieux's team, the engineering organisation behind the performance side and the driver squads who have fully proven themselves to be the best in the world. This team has raised the preparation bar to a new level and going into the race I had no thought that there would be issues with the cars, and there weren't.

"But the euphoria of the win has been seriously dampened by the spectacularly unlucky puncture that Oliver picked-up so, so late in the game that was just a cruel blow to him, Olivier and Tristan when they were so strongly in control of the race. It tempered the celebrations."

Multimatic's strategy for the Sebring 12 Hours has always been to avoid early race dramas, stay on the lead lap and be ready for the real racing in the last two hours. With a couple of exceptions, the #55 being delayed by a recalcitrant wheel nut retainer in the fifth hour and the #77 making heavy contact with Scot Dixon's #10 Cadillac not long after, the team executed with perfection while the competition succumbed to overzealous driving, mechanical failures and various other missteps.

The Mazdas really came into their own as the night fell in central Florida; the drivers keeping with the plan and quietly climbing up the order while still running the team's controlled pace. With 2.5 hours to go Pla had taken the lead in the #77 and Hunter-Reay was running strongly in second place in the #55 with no real threat from behind. Jarvis and Tincknell took over for the run to the flag, in what looked to be a mirror image of the Daytona 240 result, until Lady Luck had a different idea and switched the winners with a puncture for the #77.

Sebring rounds off the 2020 racing season for Multimatic Motorsports. A season with no precedent.

Ford Advancing Hands-Free Driver Assist Technology and Making it More Mainstream with F-150, Mustang Mach-E

- Coming first to 2021 F-150 and the all-electric Mustang Mach-E as part of available Ford Co-Pilot360™ Technology, Active Drive Assist allows for hands-free driving on prequalified sections of divided highways called Hands-Free Zones that make up over 100,000 miles of North American roads
- Ford developed available Active Drive Assist based on advanced computing of camera and radar sensing technologies to provide real-time hands-free driving opportunities and enable the addition of more such zones in the future
- Ford is advancing the technology with state-of-the-art innovations and promoting its more mainstream adoption by making it standard or a relatively affordable option for certain F-150 pickups and Mustang Mach-E all-electric SUVs; expected first year sales of 100,000 vehicles with the technology hardware
- The technology will become available in the third quarter of 2021 via Over-the-Air Update, demonstrating Ford's bumper-to-bumper OTA capability for complex innovations to help improve vehicles over time and keep customers at the forefront of technology

DEARBORN, Mich., Oct. 30, 2020 – Henry Ford helped millions of people lay hands on their first automobiles beginning more than 117 years ago. Today, his company is helping many more people take their hands off steering wheels by applying the same approach to democratizing technology to Ford's state-of-the-art Active Drive Assist hands-free driver assist innovation.

Ford developed Active Drive Assist based on advanced computing of camera and radar sensing technologies to provide real-time hands-free driving opportunities. The technology also enables expanded hands-free driving zones in the future based on system and customer patterns.

The advanced new driver assist feature will arrive first on 2021 F-150 and 2021 Mustang Mach-E, included as standard on certain models or as relatively affordable option on others, with both vehicles becoming available to customers in late 2020. Ford expects to sell more than 100,000 F-150 and Mustang Mach-E equipped with Active Drive Assist technology hardware in their first year of alone based on company sales and take-rate projections.

“As breakthroughs in new technology allow us to help reduce the stress of long highway drives, it’s important to make sure these capabilities can be enjoyed by the largest spread of people possible,” said Hau Thai-Tang, chief product platform and operations officer, Ford Motor Company. “Active Drive Assist can help improve the driving experience while ensuring people remain aware and fully in control, all for a price unmatched by our competitors – a commitment to affordable innovations that has driven us since Henry Ford put the world on wheels.”

High tech priced right

When Active Drive Assist is not equipped as standard, it will be priced competitively, including:

For F-150, Active Drive Assist will be available as a part of the Ford Co-Pilot 360 Active 2.0 package for $1,595. The Ford Co-Pilot 360 Active 2.0 package is standard on F-150 Limited and available as an option on Lariat, King Ranch and Platinum models.

For Mustang Mach-E, it will come standard on CA Route 1, Premium and First Edition variants. It’s an available package on the Select trim for $3,200 as part of the larger Comfort and Technology package, which includes features such as a 360-degree camera, heated front seats and heated steering wheel.

For customers purchasing F-150 and Mustang Mach-E at this year’s launch, the hardware enabling Active Drive Assist – including forward-facing camera and radar sensors – will be available through the Ford Co-Pilot360 Active 2.0 Prep Package, while customers choosing to purchase the software for $600 will receive it through an Over-the-Air Update in the third quarter of next year.

Over-the-Air Updates are quick and easy wireless upgrades that can help enhance quality, capability and improve the ownership experience over time while reducing dealer trips. This will be an early demonstration of the Ford system’s bumper-to-bumper update capability to wirelessly update nearly all vehicle computer models, enabling the addition of this type of complex innovations that require software upgrades to vehicle functions.

For example, early F-150 customers can purchase the prep package that includes the Active Drive Assist hardware and Active Park Assist 2.0 even more affordably for $895, which includes a $100 early adopter incentive. When Active Drive Assist is ready to launch with software updates, customers will then be able to purchase the software – plus a three-year service period – for $600 and receive it via Over-the-Air Update.

In the second half of 2021, new customers will be able to purchase the hardware and software together in the Ford Co-Pilot Active 2.0 package, without the need for an Over-the-Air Update to initiate the feature.

By offering innovative new technology on its most popular, mainstream nameplates, Ford expects to quickly expand the number of vehicles on the road equipped with hands-free driving technology based on company sales projections. This includes a high percentage of Mustang Mach-E vehicles that are expected to be equipped with the technology.

Ford plans to continue adding mapped areas to Active Drive Assist in the future, enabling hands-free driving on even more roads and highways. After a three-year service period, customers can choose to purchase this competitively priced connected service to continue enjoying Active Drive Assist and receive new improvements via Over-the-Air Update.

How it works

Available Active Drive Assist builds upon available Intelligent Adaptive Cruise Control with Stop-and-Go Lane Centering and Speed Sign Recognition. It allows you to operate your vehicle hands-free while the driver is monitored by a driver-facing camera to make sure you're keeping your eyes on the road, with the potential for more enhancements in the future. This feature is available on prequalified sections of divided highways called Hands-Free Zones that make up over 100,000 miles of North American roads.

An advanced driver-facing camera will track eye gaze and head position to ensure drivers are paying attention to the road while in Hands-Free Mode as well as when they're using hands-on Lane Centering Mode, which works on any road with lane lines. Drivers will be notified by visual prompts on their instrument cluster when they need to return their attention to the road or resume control of the vehicle.

As part of the available Ford Co-Pilot360 Active 2.0 package, customers will also receive Active Park Assist 2.0, the latest iteration of park-assist technologies to give drivers some peace of mind when parking their F-150 or Mustang Mach-E.

With Active Park Assist 2.0, simply holding a button will allow the vehicle to take control of parking in parallel and perpendicular spaces with ease. It also offers Park Out Assist with side-sensing capability so drivers can confidently navigate out of a parking spot when someone's parked too close.

*Active Drive Assist is a hands-free highway driving feature. The Active Drive Assist Prep Kit contains the hardware required for this feature. Software for the feature will be available for purchase at a later date.

*Active Drive Assist functionality expected 3rd quarter 2021CY. Separate payment for feature software required to activate full functionality at that time.

About Ford Motor Company

Ford Motor Company (NYSE: F) is a global company based in Dearborn, Michigan. The company designs, manufactures, markets and services a full line of Ford cars, trucks, SUVs, electrified vehicles and Lincoln luxury vehicles, provides financial services through Ford Motor Credit Company and is pursuing leadership positions in electrification; mobility solutions, including self-driving services; and connected services. Ford employs approximately 187,000 people worldwide. For more information regarding Ford, its products and Ford Motor Credit Company, please visit corporate.ford.com.

New Airbus H160M - next generation military helicopter
This is the all new Airbus H160 military helicopter: H160M.

https://www.youtube.com/watch?v=EkDWfKB4Oyg

The H160M Guepard is a new medium-lift helicopter being developed by Airbus Helicopters for the French Armed Forces, under the Joint Light Helicopter (Hélicoptère Interarmées Léger – HIL) programme.

The helicopter can be armed with MBDA's Sea Venom (ANL) anti-ship missiles (ASMs) to perform anti-ship warfare missions. The over-the-horizon missile can engage targets within the range of 20km.

The Airbus H160 was preferred for the HIL programme in 2017 and was originally scheduled to be launched in 2022. The launching of the new helicopter in 2021, ahead of its original schedule, would, however, enable delivery of the first H160Ms to the French Armed Forces from 2026.

French Air Force Unveils H160M Guépard (Cheetah) Light Attack Helicopter to Succeed Fennec

On October 29, 2020, Brigadier General Olivier Fabre, commander of the Air Support and Projection Brigade (BAAP) of the Air Forces Command (CFA), visited Air Base 107 at Villacoublay to discover the future helicopter of the French Air and Space Force (Armée de l'Air et de l'Espace Française): the Cheetah, also known as Joint Light Helicopter program (Hélicoptère Interarmées Léger: HIL). A full-scale mock-up of the H160M, named Guépard and developed by manufacturers Airbus and Safran, sat proudly in one of the hangars of the 3/67 "Parisis" helicopter squadron. An initial version, it constitutes the basis of what will be the future light joint helicopter. This large-scale project is led by the Directorate General of Armaments (DGA) and by the Armed Forces Staff (EMA).

NASA Takes a Cue From Silicon Valley to Hatch Artificial Intelligence Technologies

Could the same computer algorithms that teach autonomous cars to drive safely help identify nearby asteroids or discover life in the universe?

NASA scientists are trying to figure that out by partnering with pioneers in artificial intelligence (AI) — companies such as Intel, IBM and Google — to apply advanced computer algorithms to problems in space science.

Machine learning is a type of AI. It describes the most widely used algorithms and other tools that allow computers to learn from data in order to make predictions and categorize objects much faster and more accurately than a human being can. Consequently, machine learning is widely used to help technology companies recognize faces in photos or predict what movies people would enjoy. But some scientists see applications far beyond Earth.

Giada Arney, an astrobiologist at NASA's Goddard Space Flight Center in Greenbelt, Maryland, hopes machine learning can help her and her colleagues find a needle of life in a haystack of data that will be collected by future telescopes and observatories such as NASA's James Webb Space Telescope.

"These technologies are very important, especially for big data sets and especially in the exoplanet field," Arney says. "Because the data we're going to get from future observations is going to be sparse and noisy. It's going to be really hard to understand. So using these kinds of tools has so much potential to help us."

To help scientists like Arney build cutting-edge research tools, NASA's Frontier Development Lab, or FDL, brings together technology and space innovators for eight weeks every summer to brainstorm and develop computer code. The four-year-old program is a partnership between the SETI Institute and NASA's Ames Research Center, both based in Silicon Valley where startup-hatching incubators that bring talented people together to accelerate the development of breakthrough technologies are abundant.

In NASA's version, FDL pairs science and computer engineering early-career doctoral students with experts from the space agency, academia, and some of the world's biggest technology companies. Partner companies contribute various combinations of hardware, algorithms, super-compute resources, funding, facilities and subject-matter experts. All of the AI techniques developed at FDL will be publicly available, with some already helping identify asteroids, find planets, and predict extreme solar radiation events.

"FDL feels like some really good musicians with different instruments getting together for a jam session in the garage, finding something really cool, and saying, 'Hey we've got a band here,'" says Shawn Domagal-Goldman, a NASA Goddard astrobiologist who, together with Arney, mentored an FDL team in 2018. Their team developed a machine learning technique for scientists who aim to study the atmospheres of exoplanets, or planets beyond our solar system.

These Goddard scientists hope to one day use advanced machine learning techniques to quickly interpret data revealing the chemistry of exoplanets based on the wavelengths of light emitted or absorbed by molecules in their atmospheres. Since thousands of exoplanets have been discovered so far, making quick decisions about which ones have the most promising chemistry associated with habitability could help winnow down the candidates to only a few that deserve further, and costly, investigation.

To this end, the FDL team Arney and Domagal-Goldman helped advise, with technical support from Google Cloud, deployed a technique known as a "neural network." This technology can solve super complicated problems in a process analogous to the workings of the brain. In a neural network, billions of "neurons," which are nerve cells in the brain that help us form memories and make decisions, connect with billions of others to process and transmit information. University of Oxford computer science graduate student, Adam Cobb, along with Michael D. Himes, a physics graduate student from the University of Central Florida, led a study to test the capability of a "Bayesian" neural network against a widely used machine learning technique known as a "random forest." Another researcher team not associated with FDL had already used this latter method to analyze the atmosphere of WASP-12b, an exoplanet discovered in 2008, based on mountains of data collected by NASA's Hubble Space Telescope. Could the Bayesian neural network do better, the team wondered?

"We found out right away that the neural network had better accuracy than random forest in identifying the abundance of various molecules in WASP-12b's atmosphere," Cobb says.

But besides better accuracy, the Bayesian technique offered something equally as critical: it could tell the scientists how certain it was about its prediction. “In places where the data weren’t good enough to give a really accurate result, this model was better at knowing that it wasn’t sure of the answer, which is really important if we are to trust these predictions,” Domagal-Goldman says.

While the technique developed by this team is still in development, other FDL technologies have already been adopted in the real world. By 2017, FDL participants developed a machine learning program that could quickly create 3D models of nearby asteroids, accurately estimating their shapes, sizes, and spin rates. This information is critical to NASA’s efforts to detect and deflect threatening asteroids from Earth.

Traditionally, astronomers use simple computer software to develop 3D models. The software analyzes many radar measurements of a moving asteroid and then helps scientists infer its physical properties based on changes in the radar signal.

“An adept astronomer with standard compute resources, could shape a single asteroid in one to three months,” says Bill Diamond, SETI’s president and chief executive officer. “So the question for the research team was: Can we speed it up

A 3D model of asteroid Eros. Credits: NASA's Scientific Visualization Studio

The answer was yes. The team, which included students from France, South Africa and the United States, plus mentors from academia and from technology company Nvidia, developed an algorithm that could render an asteroid in as little as four days. Today, the technique is used by astronomers at the Arecibo Observatory in Puerto Rico to do nearly real-time shape modeling of asteroids.

The asteroid modeling, along with exoplanetary atmosphere analysis, are a couple of FDL examples that show the promise in applying sophisticated algorithms to the volumes of data collected by NASA's more than 100 missions.

As NASA heliophysicist Madhulika (Lika) Guhathakurta notes, the space agency gathers about 2 gigabytes of data (and growing) every 15 seconds from its fleet of spacecraft. "But we analyze only a fraction of that data, because we have limited people, time and resources. That is why we need to utilize these tools more," she says.

An image of the Sun captured by NASA's Solar Dynamics Observatory on Oct. 27, 2014. It shows a large active region (bottom right) erupting in a flare. Credits: NASA/GSFC/SDO

A lead on missions focused on understanding and predicting the Sun's effects on Earth, technology and astronauts in space, Guhathakurta has been with FDL for the last three years and has been a key architect in shaping this program. She supported a team in 2018 that resolved a problem with a malfunctioning sensor on NASA's Solar Dynamics Observatory (SDO), a spacecraft that studies the Sun's influence on Earth and near-Earth space.

Back in 2014, just four years after the mission launched, a sensor stopped returning data related to extreme ultraviolet (EUV) radiation levels — information that correlates with a ballooning of the Earth's outer atmosphere and thus affects the longevity of satellites, including the International Space Station. So computer science doctoral students from Stanford University and University of Amsterdam, among others, with mentors from organizations including IBM, Lockheed Martin, and SETI, developed a technique that could, essentially, fill in the missing data from the broken sensor.

Their computer program could do this by analyzing data from other SDO instruments, along with old data collected by the broken sensor during the four years it was working, to infer what EUV radiation levels that sensor would have detected based on what the other SDO instruments were observing at any given time. “We generated, basically, a virtual sensor,” Guhathakurta says.

The potential of this type of this instrument is not lost on anyone. SETI head, Diamond, imagines a future where these virtual tools are incorporated on spacecraft, a practice that would allow for lighter, less complex and therefore cheaper missions. Domagal-Goldman and Arney envisage future exoplanet missions where AI technologies embedded on spacecraft are smart enough to make real-time science decisions, saving the many hours necessary to communicate with scientists on Earth.

“AI methods will help us free up processing power from our own brains by doing a lot of the initial legwork on difficult tasks,” Arney says. “But these methods won’t replace humans any time soon, because we’ll still need to check the results.”

Banner image: Our solar system features eight planets, seen in this artist’s diagram. This representation is intentionally fanciful, as the planets are depicted far closer together than they really are. Credit: NASA/JPL. Download image here.

By Lonnie Shekhtman -- NASA's Goddard Space Flight Center, Greenbelt, Md.

Mahindra's tractor plant at Zaheerabad in Telangana to be Hub for New K2 Tractor Series

Mahindra & Mahindra Ltd.'s Farm Equipment Sector (FES), a part of the USD 19.4 billion Mahindra Group, today announced that it will manufacture a new tractor series called the 'K2', exclusively at the company's tractor manufacturing facility at Zaheerabad in the state of Telangana.

- New K2 series is Mahindra's most ambitious light-weight tractor program
- With 4 platforms, Mahindra will introduce 37 models in various horsepower (HP) ratings, for both the domestic & international markets
- K2 will bring incremental investments of Rs 100 crore into Mahindra's Zaheerabad facility and double employment in the tractor plant by 2024

Mumbai, November 17, 2020: Mahindra & Mahindra Ltd.'s Farm Equipment Sector (FES), a part of the USD 19.4 billion Mahindra Group, today announced that it will manufacture a new tractor series called the 'K2', exclusively at the company's tractor manufacturing facility at Zaheerabad in the state of Telangana.

Developed through close collaboration between the engineering teams from Mitsubishi Mahindra Agricultural Machinery of Japan and Mahindra Research Valley, India, the K2 series aims to create a light-weight tractor program for both domestic and international markets. The new series will enable Mahindra to introduce products across four new tractor platforms, in the Sub Compact, Compact, Small Utility and Large Utility tractor categories, covering 37 models across various HP points. The new series will cater to domestic as well as International markets including USA, Japan, and South East Asia.

Shri KT Rama Rao, Hon'ble Minister for IT, Industries, MA & UD, Government of Telangana said, "Government of Telangana is very grateful to Mahindra for their new investment in Telangana. K2 tractors have been designed in collaboration with Mitsubishi, and their manufacturing in Mahindra's plant in Zaheerabad would be a matter of great achievement for the entire country.

One of the most remarkable features of Telangana‘s investment landscape over the last six years is a series of repeat investments by our existing investors. The new investment by Mahindra is one such example. This goes on to show that existing investors find the policy is working on the ground, and the going to be good, leading them to invest continuously”.

Rajesh Jejurikar, Executive Director, Automotive & Farm Equipment Sector, M&M mentioned “As the world’s largest tractor manufacturer by volume, Mahindra is on an exciting path to developing the K2 series, one of our most ambitious tractor programs. This project is focused on diversity and scalability, to meet the varied expectations and different regional requirements of customers and markets across the world. Our Zaheerabad facility which has always received tremendous support from the Government of Telangana is very well equipped to meet this challenge and we hope to substantially improve employment opportunities through this project”.

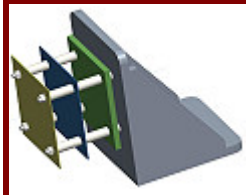
Established in 2012, Zaheerabad is Mahindra’s youngest and largest tractor manufacturing plant in terms of capacity. The facility also manufactures the company’s next-generation range of Yuvo and Jivo tractors, including the recently launched Plus Series of tractors.

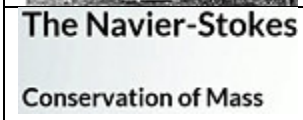
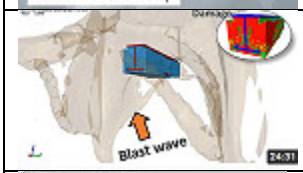
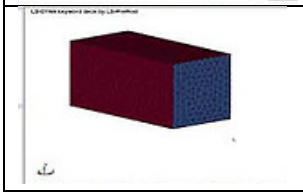
Currently, Mahindra is the only tractor manufacturer in the state of Telangana and has invested close to Rs. 1,087 crores at its facility in Zaheerabad. The Farm Equipment manufacturing unit employs over 1,500 workers, with a capacity of over 1,00,000 tractors per year on a 2-shift basis.

The Zaheerabad plant is technologically advanced, with the flexibility to roll-out over 330 different tractor variants ranging from 30 to 100 HP. The plant has adopted the TPM (Total Productive Maintenance) Philosophy and Culture since inception, with around 65% of Zaheerabad’s tractor production being exported globally.

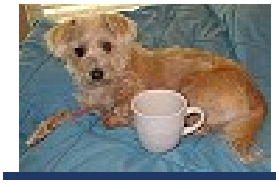
The plant also produces Mahindra’s Rice Transplanters and Tractor Mounted Combine Harvesters. Besides manufacturing farm equipment, Mahindra’s Automotive Division also manufactures a wide range of cargo and passenger vehicles at the Zaheerabad plant giving Mahindra a significant presence in the state.

About Mahindra - The Mahindra Group is a USD 19.4 billion federation of companies that enables people to rise through innovative mobility solutions, driving rural prosperity, enhancing urban living, nurturing new businesses and fostering communities. It enjoys a leadership position in utility vehicles, information technology, financial services and vacation ownership in India and is the world’s largest tractor company by volume. It also enjoys a strong presence in renewable energy, agribusiness, logistics and real estate development. Headquartered in India, Mahindra employs over 2,56,000 people across 100 countries. - Learn more about Mahindra on www.mahindra.com / Twitter and Facebook: @MahindraRise

	11-30 M. Dahlgren - Belt Modelling in LS-DYNA®
	11-23 - **M. Lilja** - Incremental Damage Model for Fatigue Life Assessment in Complete Machinery Simulation
	11-16 - **X. Zhu** - A Dedicated Forming Package LS-FORM for Stamping Simulation with LS-DYNA
	11-09 - **T. Legaud** - Use of Prepreg Carbon and Aluminum in Satellite Shielding Submitted to High Velocity Impacts
	11-02 - **T. Fokylidis** - Performing DOE Studies in Occupant Protection Using BETA CAE Tools

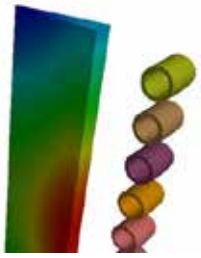
	11/30 - **T. Erhart** - DYNAmore Express: LS-DYNA R12.0 New Features
	11/23 - **Peter Debney** - Footfall Analysis with Oasys GSA 10.1 - ... it is increasingly important to know how your structure will respond to use.
	11/16 - **J. Murad** - Navier-Stokes Equations - simple Control Volume (CV). Short Intro - classical mechanics
	11/09 - **BETA CAE** - New Airbag folding tool for LS-DYNA model setup
	11/02 - **Ameen Topa** - LS-DYNA TUTORIAL 20: TNT Blast on Composite Beam
	**Previous** - **Kaizenat** - Tutorial on LS-DYNA ICFD Flow Analysis
	**Previous**- **Oasys** PRIMER Introduction and Demonstration of Automotive Tools

	11/30/2020 - Rescale - Platform Updates and Software Release Notes – November 2020
	11/23/2020 - ESI - Chaitanya Kancharla - Return to Your Office with Confidence: Validation of the Safety of Workspaces
	11/16/2020 - Emily Engle - Autodesk - Vortic Turns WWII-Era Pocket Watches Into Wristwatches
	11/16/2020 - Curt Chan - Yuki Okada, & Ethan Thompson Halloween Cauldron. Ansys Discovery
	11/09/2020 - Ozen Engineering - Created a digital twin of the San Francisco's Golden Gate Bridge (Author - Jaimie Gooch)
	11/02/2020 - Keith Hanna - MSC.Software - Turbocharging CFD with Katana



11/30/2020 If you haven't signed up for the FEANTM magazine - click on the side bar SIGN UP. Now on to learn the below Digital Twin

Digital Twin 2020
JSOL | Introduction to JSOL's Simulation Technology in Composite Materials

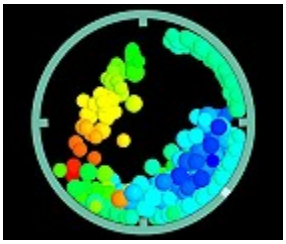


11/23/2020 - this week's coffee flavor - Inductive Chocolate! HEY, anything chocolate has to taste good. SO, let's grab our to-go cups, and head on over to YouTube.

LS-DYNA Multiphysics
LS-DYNA EM : 2D axisymmetric Inductive heating example

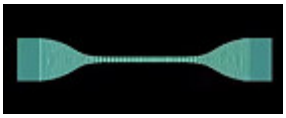
11/16/2020 - **Marc Font** Coffee Day! SO, I thought I would share (NO, not sharing my coffee) the video he brought to my attention.

Euro NCAP Crash & Safety Tests of Volkswagen - A series of... tests are conducted with different impactors...



11/09/2020 - I enjoy watching the below video. Why, you ask? Well, I'm not an engineer (whoever yelled, "WE KNOW!" you don't get coffee today!) Anyway, as I was saying, I enjoy watching it, while I drink coffee. Okay, I used to enjoy watching clothes go around and around in the clothes dryer window!

LancemoreJP - No.503 Tumbling Ball Mill Simulation using DES Elements



11/02/2020 - I have run rubber tensile tests on our to go rubber cups. It was obvious to any engineer that we should stay with styrofoam to go cups. SO, off you all go with our coffee to LancemoreJP for the real test!

LancemoreJP No.214 Uniaxial tensile test of NBR60 Rubber / NBR60

11/30/2020 - For Thanksgiving, we gave the birds extra for lunch. They then invited all their relatives! I should have put out more bowls of feed for the family they invited! There started to be so many friends and guests they asked that I had to go out and put out more bowls since they all didn't fit around the bowls I had out to feed them.

11/23/2020 - Hi, to all the FEA Information Information Magazine readers that didn't know I was out here chatting away and that we have a new publication.

SO first - this is my ranch area. I will start this week off with a new cloud picture - Who yelled, "OH NO, she's posting another darn sky picture!" NOW, as I was saying #1 sky picture since it was beautiful, and then an old photo #2 me vs. Don.

#1 Last sky picture that I will post - I kind of promise, but not fully promise. Okay, there will probably be a few more.

#2 Below is just a favorite I like - we have wife photo vs. husband photo of what makes a sunset picture. WHY does my husband want his tractor in his photo? NO, we will not take a vote. He'd probably win, and this is MY blog! He can have his own blog called TractorRMe!

11/16/2020 - SO who out there is a Ham Radio person? This old picture was my Uncle who loved his radio. Does anyone recognize the radio? If so can you let me know what it was? Someone said it is possibly the old Heathkit Apache. ANYWAY, welcome to walk down memory lane. I was SOOO shocked when my Uncle could speak to someone in Australia if the cloud cover, etc. was conducive. I thought it was magic! I wanted call letters!

11/09/2020 -I created a pdf explaining how I got rid of tumbleweeds. It was too many pictures to post. I have to find a better way - Bagging them will take hours. I don't see tumbleweed bagging as a hobby. Next week I'm going to dry them out and crush them into tiny twigs! PDF - KILL TUMBLEWEEDS!

11/02/2020 - Below is Dad Bobcat -Mom is orange and the two kid bobcats still act silly (in earlier posts) Now, keeping in mind I try to teach them "my space, your space" he is walking past my back porch. He has never jumped up on it. It is difficult to relax with my Molly on the porch with Dad Bobcat walking past the porch! Don clapped his hands and yelled at Bobcat, "Go away!" Bobcat just looked like he said, "Sorry, didn't see you." And, he slowly turned and walked back up into the pasture and then past the porch. NOW, if I yelled that to the bobcat? Bobcat would give me a look like "OH, go drink coffee!" I'd stand and put Molly in the house. I would then glare at him MY SPACE! He would just keep walking like "yeah yeah, your space, I understand. See you later."

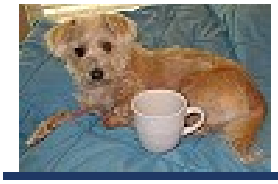
10/26/2020 - Now, keep in mind Tiki on the blue blanket is sleeping on the floor. He has to be safe. Tiki is missing one eye, the other is 90% blind, and he doesn't hear. Yes, it makes it difficult, BUT he has learned to follow carpet runners, so he finds his way. I was hoping Molly would be friendlier to him since he is blind. He does try to follow her. Molly then jumps up on something and watches him! YES, I lectured her on being nice to him - She looked at me with an expression as if saying, "WHATEVER! NOT GOING TO HAPPEN!"

10/26/2020 - Now, keep in mind Tiki on the blue blanket is sleeping on the floor. He has to be safe. Tiki is missing one eye, the other is 90% blind, and he doesn't hear. Yes, it makes it difficult, BUT he has learned to follow carpet runners, so he finds his way. I was hoping Molly (on the pink blanket) would be friendlier to him since he's now blind. He does try to follow her but Molly jumps up on something and watches him! YES, I lectured her on being nice to him - She looked at me with an expression as if saying, "NOT GOING TO HAPPEN!"

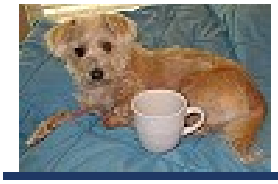
10/19/2020 - The below picture is my favorite time - right before sunset. An hour before sunset, I always take my last cup of coffee (yes, it is decaf) and ride my tractor around the ranch. I also feed the horses their dinner. Muck out three paddocks just to do it - it's nice tonight and not hot. Then I watch as the sun goes down, AND then I hear my ferals, "Mom, go inside the house, it's our time." Oh, WAIT - I also hear my neighbor's rooster crowing! WHAT! He crows in the mornings, in the afternoon, and now at sunset? I have to google and ask why a rooster does more than only announce the sun is coming up.

10/12/2020 - My space is NO space! Now, let's see - my tractor is the small green tractor. Don's is the large orange tractor. I love my tractor because it is small enough for me to handle. Now, I go outside and my tractor is not in its place. I walk down to the barn (since obviously I can't ride my tractor) AND for once it is not my ferals lousing up my space, their space. NOPE it is DON!!! Using my tractor!

10/05/2020 - Gotta love my boys! I am out here in the heat, smoke in the air, mucking out their horse shit! Are they helping? Are they standing here saying, "Mom, we love you, thanks for shoveling horse shit in this horrible weather" Nope - they took off to graze as I opened the gate



Recommended By
Marnie King Arthur's Carrot Cake
Corrado Tuminelli - Nov 1st Complete PDF of Italian Cuisine
Noi Sims THAI PAD KRA PAO GAI
Molly Zhao - Pork and Cabbage Chinese Dumplings
Anna Danilova - Russian Shuba Salad



Tony DeVarco
HPC, Manufacturing Segment Manager at Hewlett Packard Enterprise

On weekends you will find me with my camera gathering pixels and creating art in my studio. This past weekend, I visited the Center for Photographic Art-2020 International Juried Exhibition. My piece "Flight of Fortuna" is on display. It was one of 45 selected from nearly 2500 images submitted from around the world.

Here is my wife, Bonnie, taking a closer look at the work. CPA is located in Carmel-by-the-Sea, CA. The show is up until December 20, 2020

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