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GE9X Sets Guinness World Record As World's Most Powerful Jet Engine

GE's latest jet engine, the GE9X, keeps piling on the superlatives. Already the world's largest commercial jet engine, it is also now the most powerful one, according to Guinness World Records™.

The records keeper announced today that the GE9X, which GE Aviation developed for Boeing's new 777X widebody jet, clocked in at 134,300 pounds of thrust during a test run. That's not too far off the 188,000 pounds of thrust commanded by the Soyuz rocket that helped Yuri Gagarin to become the first human to orbit the Earth.

"The GE9X engine incorporates the most advanced technologies that GE Aviation has developed during the last decade and is the culmination of our commercial engine portfolio renewal," said David Joyce, President and Chief Executive Officer of GE Aviation. "While we didn't set out to break the thrust Guinness World Records title, we are proud of the engine's performance, which is a testament to our talented employees and partners who design and build outstanding products for our customers."

The new record-breaking thrust occurred during an engineering test on Nov. 10, 2017, at GE's outdoor test facility in Peebles, Ohio. Guinness World Records acknowledged the feat on Friday at a ceremony at GE Aviation's Ohio headquarters as part of the company's 100-year celebration. Another GE engine, the GE90-115B developed for Boeing 777, set the previous record of 127,900 pounds of thrust in 2002.

Joyce unveiled the GE9X engine in June at the Paris Air Show. GE has received orders for more than 700 GE9X engines. That engine, whose front fan is a full 11 feet in diameter, uses the fourth generation of carbon-fiber composite fan blades originally developed for the GE90. It holds parts made from the latest materials like light and heat-resistant ceramic matrix composites, and components made by advanced manufacturing technologies like 3D printing.

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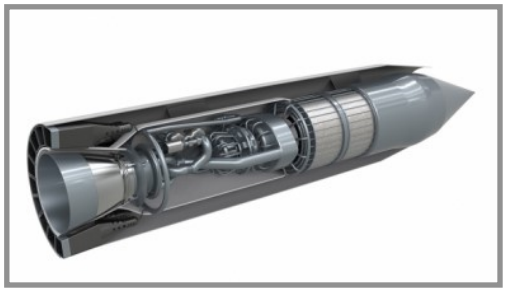
"The ceramics allowed us to go to 60:1 [pressure ratio] inside the GE9X," says Ted Ingling, the general manager for the GE9X engine program. "That's huge. As a result, the GE9X engine is not dramatically larger than engines in the GE90 family, even though it's much more efficient."

Ingling says the new technologies and materials help make the engine 10% more fuel-efficient than its predecessor. This is a big deal, given that fuel costs amount to as much as 20% of an airline's operating expenses on average. "The technologies I've worked on are out of this world," he says. "I never have a dull moment."

Source: *GE Reports by Tomas Kellner, Photo by San Chui*

RAF Embarks On Hypersonics Push

LONDON—The UK Royal Air Force (RAF) will explore the feasibility of fielding a locally designed hypersonic weapon within four years and separately invest £10 million ($12.4 million) to develop and test military applications for the hypersonic propulsion systems in development by U.K.-based Reaction Engines, senior officials announced July 17.



The announcement moves the UK into the exclusive club of nations vying to develop hypersonic weapons and aircraft, joining China, France, Japan, Russia and the U.S. Although the RAF's commitment stops short of a formal program of record, the moves are likely to provide a boost for weapons-maker MBDA UK and the national propulsion industry, including Rolls-Royce, as the RAF studies weapons and platform options for the Team Tempest next-generation fighter project.

The RAF's Rapid Capabilities Office is pursuing the possibility of fielding an air-launched weapon with Mach 5 speed by 2023, said Air Vice Marshal Simon Rochelle, Chief of Staff-Capability. "I have challenged my team—and we are working on this with some other people at this moment in time—to see whether or not we can generate a Mach 5 capability in four years," Rochelle said, speaking at the Air and Space Power Conference in London. Read More on this story here *Source: Aviation Week, Steve Trimble*

Universal Stainless Announces Low Alloy VAR Bar Base Price Increase

July 2, 2019 Universal Stainless & Alloy Products, Inc. announced a base price increase of 5% to 10% on all low alloy VAR quality bar products manufactured at its Bridgeville, Dunkirk and North Jackson facilities. The increase will be effective immediately for all new orders. Current material and energy surcharges will remain in effect.

Chris Zimmer, Executive Vice President and Chief Commercial Officer, commented, "We are committed to providing our customers high quality steel with industry leading delivery performance and lead times. Given the current inflationary environment in metals, this price adjustment is necessary to support our ongoing reinvestment into our facilities to better serve our customers."

Nucor, ArcelorMittal Increase Steel Prices

For Nucor, the price increase of $40/st. applies to hot-rolled coil, cold-rolled coil and hot-dipped galvanized steel effective immediately.

ArcelorMittal USA announced it would be charging new minimum base prices of $630/st. for hot-rolled coil and $800/st. for cold-rolled and coated coil products. The price increase was effective immediately.

The Value of Steel in the Automotive Industry

As the automotive market looks for innovative ways to meet future Corporate Average Fuel Economy (CAFE) requirements, which will nearly double the average light vehicle fuel economy to 54.5 mpg by 2025, the North American steel industry continues to invest in advanced materials and manufacturing technologies that have led to the introduction of a wide variety of new automotive steels. The steel industry is meeting this need through the development of new advanced high-strength steel (AHSS) grades, whose unique metallurgical properties and manufacturability enable the automotive industry to affordably meet increasingly stringent requirements.

Studies show that AHSS steel grades are growing faster in new automotive applications than aluminum and plastic—steel's main competitors. Each year, new car models are introduced using lighter-weight, higher-strength steel components that provide a cost-effective answer to the demand for increased safety and fuel economy.

Recent projects, such as FutureSteelVehicle, which introduced more than 20 AHSS grades, show that the latest steel grades, combined with innovative processing methods and design optimization techniques, enable steel to achieve a 39 percent mass reduction in many applications, virtually equivalent to mass reduction levels achieved by aluminum. There are several other examples of AHSS technologies, including the front lower control arm that is the same weight as the aluminum version at one-third less cost.

Mass reduction with AHSS not only conserves material but helps reduce greenhouse gas emissions over the full life cycle of the vehicle, including manufacturing, driving and recycling. Life cycle assessment data shows that steel, which makes up nearly 60 percent of the average North American vehicle, generates fewer manufacturing emissions than other automotive body materials. Vehicles using high-strength steels provide significant reduction in driving emissions, as well as total life cycle emissions.
If currently available AHSS were applied throughout the present U.S. automotive fleet, greenhouse gas emissions from automobiles would be reduced by approximately 12 percent—an amount greater than the emissions generated by the entire American steel industry today. This reduction in emissions is already underway as automotive designers around the world use increasing amounts of AHSS in their vehicles.

Read more here *Source: American Iron and Steel Institute*

U.S. Steel Sector Hits Capacity Utilization Rate of 81.1%

For the year as of July 20, the U.S. steel sector notched a capacity utilization rate of 81.1%, up from 77.0% for the same period in 2018, according to the U.S. steel production report released by the American Iron and Steel Institute (AISI).

Year-to-date production reached 54.2 million tons, up 5.0% from the 51.6 million tons produced during the same period in 2018.

Meanwhile, for the week ending July 20, U.S. steel production reached 1.9 million tons at a capacity utilization rate of 80.4%. The weekly production total marked a 1.8% from production during the same week in 2018, when production hit 1.8 million tons at a capacity utilization rate of 78.4%.

Production for the week ending July 20, 2019, was up 0.3% from the previous week, when the capacity utilization rate reached 80.2%, according to AISI.

By region, production for the week ending July 20, 2019, reached:

- Northeast: 205,000 tons
- Great Lakes: 685,000 tons
- Midwest: 204,000 tons
- Southern: 697,000 tons
- Western: 81,000 tons

Source: MetalMinor, Fouad Egbaria

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Surcharge Totals May, 2019 - October 2019

	May	June	July	Aug	Sept	Oct
15-5	0.5186	0.4846	0.4359	0.4521	*	*
15-7	0.7753	0.7310	0.6835	0.7056	*	*
17-4	0.5124	0.4804	0.4296	0.4432	*	*
17-7	0.6144	0.5658	0.5136	0.5483	*	*
201	0.5053	0.4716	0.4242	0.4434	*	*
301 7.0%	0.6081	0.5606	0.5079	0.5416	*	*
302/304/304L	0.6630	0.6110	0.5554	0.5945	*	*
304-8.5%	0.6859	0.6315	0.5755	0.6172	*	*
305	0.8506	0.7796	0.7195	0.7799	*	*
309	0.8829	0.8125	0.7462	0.8067	*	*
310	1.2214	1.1184	1.0416	1.1396	*	*
316/316L	0.9537	0.8932	0.8389	0.8798	*	*
316LS/316LVM	1.2400	1.1700	1.1700	*	*	*
317L	1.1268	1.0626	1.0032	1.0453	*	*
321	0.6992	0.6423	0.5878	0.6321	*	*
347	1.0089	0.9520	0.8976	0.9419	*	*
409/409 Mod	0.2301	0.2146	0.1798	0.1759	*	*
410/410S	0.2373	0.2218	0.1856	0.1818	*	*
430	0.2787	0.2641	0.2199	0.2163	*	*
434	0.3604	0.3463	0.3018	0.2949	*	*
439	0.2876	0.2732	0.2273	0.2237	*	*
440A	0.2787	0.2641	0.2199	0.2163	*	*
2205	0.9060	0.8699	0.8091	0.8206	*	*
263	6.6255	5.6357	5.1224	5.2572	5.2387	4.9046
276	4.8402	5.3238	5.5766	5.4513	5.2053	5.1636
A286	1.2554	1.4141	1.4935	1.4536	1.3368	1.2892
330	1.5145	1.7351	1.8334	1.7842	1.6226	1.5670
400	2.6933	3.1557	3.3232	3.2392	2.8939	2.8496
455	0.6900	0.6500	0.6400	*	*	*
465	0.8500	0.8100	0.8000	*	*	*
600	2.8836	3.3514	3.5278	3.4326	3.1096	3.0577
601	2.5331	2.9156	3.0716	2.9927	2.7267	2.6601
617	5.5608	5.2837	5.1310	5.1436	4.9959	4.7931
625	5.1199	5.5572	5.7679	5.6646	5.4098	5.3503
718	4.9881	5.3343	5.4896	5.4121	5.1871	5.1290
X-750	3.4651	3.9198	4.0928	4.0001	3.6859	3.6326
825	2.1033	2.3732	2.5047	2.4417	2.2649	2.2047
HX	3.0802	3.4023	3.5678	3.4849	3.2866	3.2225
188	7.2200	7.3400	6.7700	*	*	*
CCM	9.3200	9.7400	7.8300	*	*	*
L-605	8.2100	8.4700	7.7300	*	*	*

*Surcharge currently not available