

VIP CUSTOMER NEWSLETTER

OPTIMAL SOLUTION

MACHINE GREATNESS 2020 VIRTUAL

WE CORDIALLY INVITE YOU TO A VIRTUAL TRADE SHOW.

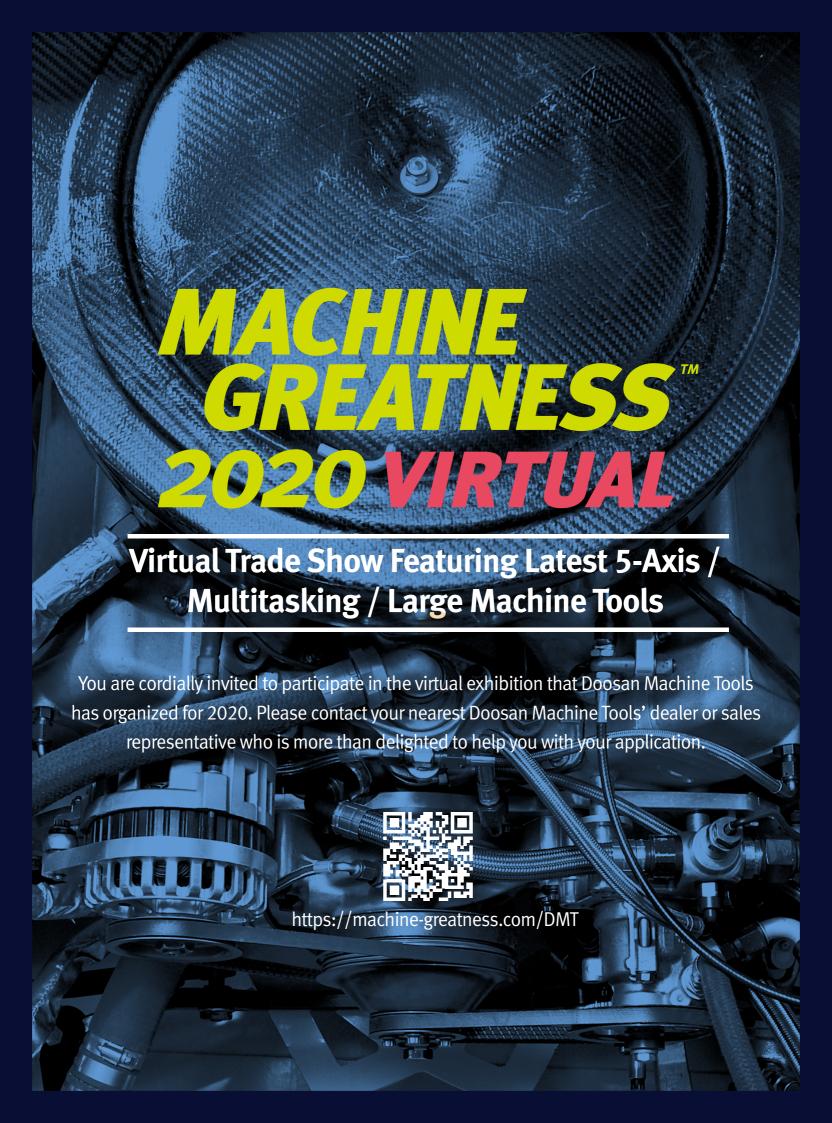
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MACHINE GREATNESS



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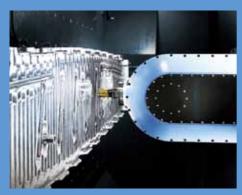
Multitasking Machining

Multitasking machine tools optimized for the processing of complex parts, including milling, turning and gear processing.



5-axis Machinin

Equipped with a table turning function, the best solution for the processing of medium to large workpieces.



Large Parts Processing

From molding to the 5-axis machining of large workpieces.



Automation Solutions

Top-tier automation solutions available only on Doosan machine tools!

Please join us at the 'Machine Greatness 2020 Virtual Trade Show' and enjoy the innovative 'untact' marketing approach that we have prepared for the new business environment. The show features, among other machine tools, a total of eighteen new products that we have launched this year, including the PUMA SMX5100l/LS turning center series optimized for the multitasking machining of large parts; the DBM 2030, a multipurpose double-column machining center; and the DVF 6500 (with RPS), a premium 5-axis automation solution.

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KNOW YOUR DOOSAN

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Customer Story

Titan of CNC

f https://www.facebook.com/doosanmachinetools/

www.instagram.com/doosan_machinetools

 $^{{\}tt You} {\color{red} \fbox{\small 100}} \ www.youtube.com/c/Doosan Machine Tools Corporation$



Industry Trends

'Online Trade Shows' Are Booming as an Innovative Customer Marketing Channel in the Untact Era

Realistic Contents Based on Internet + Virtual Reality

Share Product Demo Information and Technology Values on top
of Product Introduction Videos

The 'physical distancing' caused by the COVID-19 pandemic has led to the emergence of a new 'untact' culture. This new contactless culture has enabled 'untact work' via teleworking and video conferencing, courtesy of the integration of various ICT and IoT technologies including 'untact marketing activities' based on webinars and new product video presentations. 'The online trade show platform' is one of the more prominent aspects of the untact culture in the ongoing COVID-19 era. The platform can create a LAN Cable Trade Show or 'Virtual Trade Show' to provide customers with various visualized contents on products, technical services, and brand news in order to help them gather accurate and reliable information and make rational purchase decisions.









Online trade shows based on 'Internet + Virtual Reality (VR)' provide a product experience that surpasses mere VR technology-based product viewing. The 'VR Dynamic Video Interaction Technology' in particular enables visitors to move through exhibition halls and observe products on a 360-degree screen, and even to enlarge the high-definition images of the machine tools that interest them.

Since the products are exhibited in the form of 3D photos and videos, visitors feel as though they are actually at a trade show. Furthermore, they can obtain detailed information with just a few clicks, and in that sense, they can actually receive more information on items of interest at a virtual event than they would at a conventional trade show. Meanwhile, online chatting enables them to communicate with the product exhibitors in real time.

The online trade show platform offers advantages for exhibitors and visitors alike. Exhibitors can make great cost savings on booth installation and product transportation costs, as well as being able to prepare more diverse content tailored to specific customer needs. For their part, users can save on travel costs to and from an actual trade show while gaining access to the online trade show anytime, anywhere with a laptop or mobile phone run by Windows, Android, or iOS.

That is why the online trade show platform is emerging as the safest and most innovative marketing strategy in the 'untact' era. Once an online trade show platform is established, companies can promote their online marketing activities preemptively - not only domestically but also internationally - by immediately providing the contents required by customers across the globe, including real-time product promotion events

The online platform has also begun to be applied to culture and the arts. As the COVID-19 pandemic drags on, people in various industries such as automobiles, bioHealth, architecture and interiors, and consumer goods have started adopting it as a means of overcoming the limitations of their offline marketing efforts. It is the automotive industry that has applied the platform most impressively: global automakers introduce the features and specifications of their latest models through online showrooms and digital platforms like YouTube while enabling visitors to consult with their experts about their vehicles and purchase options in real time.

By contrast, hardly any machine tool manufacturers at home or abroad use an online trade show platform as an effective marketing tool, although a few global leaders in Europe, Japan, and Korea share technical information and provide educational services through webinars and YouTube-based new product launches as part of their non-face-to-face marketing initiatives. Notably, Doosan Machine Tools has made various meaningful digital marketing efforts.

Interestingly, the machining sector achieved 'evolution in technology solutions' ahead of 'evolution in marketing means' due to the spread of the COVID-19 pandemic and the emergence of the untact culture. Restrictions on face-to-face activities have increased the need for 'digitalization and automation' to minimize operators' intervention in engineering and production processes; while the machine tools industry has had to develop its ability to supply machine tools, software, and machine tools-centered automation solutions.

Therefore, an online trade show by a machine tools manufacturer should ideally focus on presenting solutions to various processing difficulties rather than presenting customers with just a digital exhibition space, while introducing new products and technologies that can facilitate digitalization/automation as well as solve imminent problems at production sites. Only those with such content competitiveness will be able to tap into the new marketing channel offered by the 'Online Trade Show Platform', but many machine tools manufacturers have yet to become more receptive to the idea of online trade shows.

The fact remains that the consumers of the machine tools industry will accelerate their digitalization and automation while collecting information through various untact means and calling on machine tools manufacturers to set up safer and closer communication channels. Therefore, only those machine tools manufacturers with 'an online marketing platform customized to solve customers' processing difficulties and purchasing needs' will be able to grow into industry leaders in the 'Living with Coronavirus' era.



Virtual Trade Show

Doosan Machine Tools Virtual Trade Show

Online Show for '5-axis/Multitasking/ Large Machine Tools Solutions'

Amid the postponement or cancellation of major machine tools trade shows at home and abroad due to the prolonged COVID-19 crisis, Doosan Machine Tools has set up a 'virtual trade show' to showcase its latest technical information and new machine tools that its global customers may need in such challenging times.

The Doosan Machine Tools Virtual Trade Show, features real-time communication with customers and the online introduction of its latest products, software technologies, and machining solutions.



"In keeping with the rapid advances in the manufacturing industry, we present various innovative products and technologies in a 'virtual exhibition hall' that use the most sophisticated visual content technologies in order to communicate with an even larger global audience in real time."

Multitasking.5-axis.Precision Machining

Lynx 2600SY
PUMA SMX2600ST
PUMA SM5100LS
DVF 8000T
DHF 8000ST (COMING SOON)
NHP 5500F (COMING SOON)

Automation Solutions

PUMA ST20GSII –BAR FEEDER
PUMA TW2600M-GANTRY LOADER
DNM 5700-AWC(AUTO WORKPIECE CHANGER)
DVF 6500- MULTI LEVEL RPS
NHP 5000-MULTI LEVEL RPS

Large Workpiece Machining

VCF 1100LSR (COMING SOON) DBM 2030 HFP 1540

Multipurpose High-Productive Machining

VX 6500G (COMING SOON) VCF 5500L XC 4000DA-2SP SVM 4100 (COMING SOON) "We have prepared a virtual trade show in keeping with the recent paradigm shift toward 'untact' marketing efforts," declared Jae-seop Kim, president of Doosan Machine Tools. "By presenting innovative products and technologies that are designed to lead the development of the manufacturing industry through diverse videos and contents, we expect to get in touch with an even larger number of customers in the special space of 'a virtual exhibition hall.'

The 'Machine Greatness 2020 Virtual Trade Show', which is expected to serve as a model for innovative 'untact' marketing channels amid the unprecedented business environment, introduces Doosan Machine Tools' 18 types of latest or best-selling machine tools, such as the PUMA SMX5100l/LS, a new turning center series optimized for the complex machining of large workpieces; the DBM 2030, a multipurpose double-column machining center; and the DVF 6500 (with RPS), an automation solution for 5-axis machines.

Doosan Machine Tools has set up an exhibition platform designed to give visitors to the virtual trade show the feeling they have visited an actual exhibition venue, by ensuring that visitors can move to their desired space more freely and focus on the models that interest them. Additionally, visitors can spend more time at new machines or view the detailed machine tools information and the product video and catalog viewing features, among others. Most notably, visitors can use the interactive features for one-on-one inquiries in order to answer their specific questions in greater detail than would be possible at an offline trade show due to the large crowd.

Please note that the Machine Greatness 2020 Virtual Trade Show is only open to pre-registered visitors.

How to Join the Virtual Trade Show

- To participate in the invitation-only online event, please contact your Doosan Machine Tools dealership or sales representative in your area. https://machine-greatness.com/DMT/

Major Features of the Trade Show

- Exhibition of 18 types of machine tools
- Presentation of new models
- Smart Technology Zone
- Brand Zone
- Participation in events

The COVID-19 pandemic has brought added significance to the terms 'online', 'data' and 'digital'. Doosan Machine Tools will boost customer satisfaction through digital marketing and service strategies based on brand new ways of getting in touch with its customers at home and abroad.



How to Join the Virtual Trade Show

Follow These Steps



Click or drag to move to the next space.



Use the mouse scroll to zoom in or



Click the icon to check the model information.



Follow the arrows to move to other spaces.

Highlight Zones



Live Stage

New product presentations are held every day.



Exhibition Zone

Meet Doosan Machine Tools' latest models



Lounge

Take part in surveys and events for a chance to receive surprise gifts.



'PUMA SMX5100L/LS' with **Powerful Spindles and Spacious Processing Area**

- Multitasking from milling & turning to drilling & chamfering to tapping & gear machining.
- Optimized for large complex-shaped workpieces in the oil and gas, aviation, shipbuilding, and general industrial machinery industries.

Along with the increase in demand for complex shaped parts, demand for flexible production is on the rise for the realization of reduced costs, faster delivery, and mass customization. Thus multitasking machine tools serve not only as process-intensive tools but as flexible manufacturing ones too. To meet such needs, Doosan Machine Tools has recently launched the PUMA SMX5100L/LS, a multitasking turning center, which is featured at the 'Machine Greatness 2020 Virtual Trade Show' as one of the key exhibition items.





Model Max Turn Diameter mm Max Turn Length mm Chuck inch mm Max Spindle Speed r/min Max Spindle Motor Power kW Travel Distance (X / Y / Z) mm PUMA SMX5100L/LS 830 3050 15 {18} 2400 37 / 30 910 / 520 / 3215

* { } Optional

Reflecting Doosan Machine Tools' outstanding technological prowess in multitasking machine tools, the first and second spindles, along with the upper milling spindle, realize simultaneous, multi-process, multitasking operations. The magazine, with a capacity of up to 120 tools, can use a whole host of tools to support diverse multitasking processes from milling and turning to drilling, chamfering, tapping and gear machining. The model's one chucking feature also helps achieve high productivity by minimizing operator intervention through the reduction of setting and processing time and the utilization of precision control functions. The model also maintains excellent precision even during protracted operations by minimizing the thermal displacement of the spindles and feed shafts.

The PUMA SMX5100L/LS has a wide processing area that enables the processing of large parts up to 3 meters in length. The multitasking turning center is popular for the high-precision processing of large workpieces in not only the automotive and general machinery industries but also in the oil and gas, aviation, shipbuilding, and medical equipment industries.

At the 'Machine Greatness 2020 Virtual Trade Show,' Doosan Machine Tools elaborates on the specifications of the PUMA SMX5100L/LS and its various technical features, complex machining solutions, and outstanding precision control functions.









From Molds to the 5-Axis Machining of Large Workpieces The 'DBM 2030' Multi-purpose Machining Center

- The highest specifications in its class for excellent performance with various shapes and high-precision mold processing.
- Wide-ranging processing performance optimized for the machining of large parts in aviation, shipbuilding, and offshore engineering.

Large workpieces, such as molds for large parts processing of aircraft and ships and display panels, require a high level of surface roughness and precision as well as a large processing area. Multipurpose machine tools are the key to the competitive high-precision processing of workpieces of various shapes and sizes. Doosan Machine Tools introduce the 'DBM 2030' model, which is optimized to meet such needs, at the 'Machine Greatness 2020 Virtual Trade Show.'





O DBM 2030

Model	Max Spindle r/min	Max Spindle Motor Power kW	Travel Distance (X / Y /Z) mm	Table Size mm	Effective column spacing mm
DBM 2030	6000 {8000}	55/37	3250/2500[+700] / 1100 {800}	1500 x 3000	2000

* { } Optional

The 'DBM 2030' is a multi-purpose five-sided double-column machining center that can process various workpieces, ranging from the high-speed processing of large and heavy components to the high-quality, precision processing of molds and workpieces that require a long cycle time. Boasting the highest specifications in its class, the 'DBM 2030' is designed to minimize the impact of vibration that can occur during 5-sided machining even under heavy cutting loads in both the horizontal and vertical directions, and to maintain high machining accuracy thanks to its M-type casting structure. The model also enables stable and precise processing over an extended period of time due to the minimized thermal displacement of its spindles and mainframe structure. Operational convenience has also been enhanced with a screen configuration reflecting ergonomic usability in a 5-sided machining support system for large workpieces, feed axis setting, and magazine tool setting, among others.

The DBM 2030 realizes remarkable productivity improvements in large parts and mold processing, making it particularly popular for the processing of large parts ranging from gears and shafts to bearings, blisk and impellers, as well as the high-precision, high-speed cutting of molds in the aviation, shipbuilding, offshore, and plant industries.

At the 'Machine Greatness 2020 Virtual Trade Show,' Doosan Machine Tools plans to introduce the outstanding features and advantages of the DBM 2030 as an 'expert tool for processing large workpieces.' Through machine tool demonstrations, we showcases the machine's constant processing precision and high-speed contour control capability, which does not deteriorate even under prolonged machining loads of up to 35,000 kg.







Integration of a Simultaneous 5-axis Machining Center and an Optimal Pallet Automation System

- The 'DVF 6500 with RPS' is equipped with an unmanned automation system to reduce fixed costs.
- Higher profitability through improved production flexibility, shortened production time, and increased mass production.

If you could get your machine tools to work by themselves 24/7, including overnight on weekdays and during weekends and holidays, without any intervention by the operators, you would be able to boost your profitability by improving your productivity and reducing your labor costs. To address such customer needs, Doosan Machine Tools has launched the 'DVF 6500' model equipped with RPS,' an optimal pallet automation system. This innovative machine tool offering automation solutions according to each customer's particular needs is introduced in detail at the 'Machine Greatness 2020 Virtual Trade Show.'



교사 65500 with **APS**



O DVF 6500 with RPS

Model	Max Spindle Speed r/min	Max Spindle Motor Power kW	Travel Distance (X / Y /Z) mm	Table Size mm	Tool Number No.
DVF 6500 with RPS	12000 {18000}*	HEIDENHAIN, SIEMENS : 30{30}* Fanuc : 22{22}*	750 / 785 / 600	Ø650 x 600	40 {60, 90, 120}*

* { } Optional

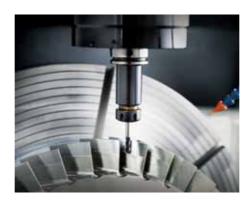
The 'DVF 6500' model is one of the DVF series launched by Doosan Machine Tools as part of its 5-axis machine tool lineup. This 5-axis vertical machining center boasts a stable structure and a compact size, while its high-speed built-in spindle delivers high-performance cutting capability; and its 2-axis tilting table (installed as a standard feature) plays a key role in realizing high productivity. Most notably, the DVF 6500 model is equipped with a rotary table capable of turning to flexibly process workpieces of diverse and complex shapes. The model even realizes unmanned machining through the adoption of a pallet automation system.

The Rotary Pallet System (RPS) installed in the DVF 6500 model automatically exchanges pallets so that the workpieces loaded on to each pallet are supplied to the machine tool in a timely manner. Designed to increase spatial efficiency by accommodating up to 21 pallets, the RPS

dramatically increases unattended time compared to the existing 6-pallet system. At the 'Machine Greatness 2020 Virtual Trade Show,' Doosan Machine Tools demonstrates how the DVF 6500 model realizes unmanned machining with its compact space layout and rotary pallet system, which can feed a large number of workpieces, along with expert explanations.

If you are from a production site with multiple day/night shifts, an SME suffering from employees' aging and labor shortages, or a machine processing company still reeling from the burden of labor costs due to the implementation of the 52-hour work week system, be sure to take a good look at the 'DVF 6500 with RPS', a machine that enables you to reduce your labor and fixed costs, improve your productivity and production flexibility, and materialize a machining environment based on 'unmanned automation.'









'PUMA ST20GSII' Optimized for the Mass Production of **Small Precision Parts**

- Swiss-type turning center optimized for the mass processing of medical, semiconductor, IT, and electronic parts.
- Productivity improvement achieved by increasing rigidity and applying a chip breaking solution as a standard feature.

In line with the development of the IT industry, the demand for products with advanced specifications and sophisticated functions is on the rise, driving up the need for the stable mass production of small and precision parts. As such, Doosan Machine Tools has launched its new Swiss-type turning center, the 'PUMA ST20GSII', which is optimized for the mass production of small parts with complex shapes. The PUMA ST20GSII model can continuously produce high-precision parts thanks to its significantly enhanced rigidity, which is further elaborated at the 'Machine Greatness 2020 Virtual Trade Show.'





O PUMA ST35GS

Model	Max Turning Diameter	Max Turning Length mm	Max Spindle Motor Power kW	Rapid Traverse Speed m/min	Max Tool No.
PUMA ST20GSII	Ø20	200	3.7	32	23

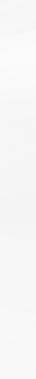
* { } Optional

The Swiss Turn PUMA ST GSII series offers significantly improved operational quality compared to the first-generation Swiss turn, with its spindle power more than doubled, among other improvements. Thanks to the application of an optimized cooling system, mechanical errors (displacement) due to temperature changes during automatic operation have been minimized. The new model supports various processing methods such as internal/external turning, R processing groove, cutting, and drilling, and features the CBS (chip breaking solution) function, which crushes chips through the repetitive travel of the axis, as a standard feature, thereby improving the customers' working environment and reducing the processing time.

With the launch of the PUMA ST20GSII, Doosan Machine Tools has secured a full lineup of PUMA ST GSII series that can process parts of various sizes ranging from 10mm to 20mm, 26mm,

32mm, 35mm and 38mm in diameter. We strive to provide optimized solutions so customers can choose our machine tools tailored to their particular industrial needs in a more flexible way.

At the virtual trade show, Doosan Machine Tools is pleased to introduce the PUMA ST20GS II, which offers improved operational convenience as well as superior mechanical performance thanks to the adoption of the cross tool holder as a standard feature and the expansion of the Z-axis travel distance. If you are required to process large numbers of precision parts of various sizes and complex shapes for the medical, semiconductor and electronics industries, the latest model deserves a close look for its optimized features and technological edges optimized for the mass production of small-sized parts.















Doosan Machine Tools on Social Media!

'Machine Tools' and 'Software' Attract Keen Interest in 2020

Doosan Machine Tools is participating in multiple SNS channels such as Facebook, Instagram, and YouTube to broaden its contact points with customers and communicate with them in real time. Through such channels, we have tried to communicate with our customers on a range of issues such as the introduction of new products, outstanding processing examples, and various events. The following are some of the articles that have drawn particular interest from our customers:

'COVER ALL ANGLES' about 5-Axis Machining Center Lineup

In the video entitled 'COVER ALL ANGLES,' we introduced Doosan Machine Tools' outstanding 5-axis machining center lineup optimized for aviation and medical parts and precision machining in particular. We highlighted the unrivaled competitive edges of Doosan Machine Tools' 5-axis machining centers in high performance, high added-value, and high productivity.



Why Doosan 5-AXIS?

Here's Doosan Machine Tools' 5-axis machining center lineup, which is designed to improve both value and productivity for our customers.



PUMA 700LM II Equipped with the World's First Exclusive Automatic Tool Changer Long Boring Bar

The 'PUMA 700LM II with Long Boring Bar ATC' video introduced the PUMA 700LM II equipped with the exclusive long boring bar ATC for the first time in the world. It was a great opportunity to share with our customers the importance of the ATC long boring bar in terms of securing efficiency and productivity.



PUMA 700LM II Long Boring Bar

Meet the PUMA 700LM II, the first machine in the world to be equipped with an ATC long boring bar.





O MP 6500

Q/A about Multitasking *PUMA SMX* Series and Multifunctional *PUMA TT* Turning Center Series

In order to enhance our customers' understanding of the multitasking PUMA SMX series and the multifunctional PUMA TT turning center series, we have produced a video to explain the major features of the machine tools, which are frequently asked about during our marketing activities, in plain English, drawing an enthusiastic response from customers.

Other popular videos in 2020 include one about the MP 6500, a high-quality, high-precision die & mold machining center, and one about the PUMA SMX5100 series, a turning center equipped with the largest Y-axis in its class, optimized for the processing of large complex-shaped workpieces.

CUFOS, OPEN CNC Software Solution

Among the software related posts, 'CUFOS' was definitely the one that received the most enthusiastic attention from customers and most raised their expectations. CUFOS, which helps make Doosan's machine tools more convenient to use, is a new operating system designed to improve productivity. Doosan Machine Tools' CUFOS, a PC-based control system, is customer-friendly like a smartphone, is highly intuitive and easy to customize according to the usage environment. It also helps improve the utilization rate by minimizing waste elements in mechanical operations, another good reason why customers should pay it keen attention.

From the Latest Machine Tools and Software Solutions to the Most Advanced Cutting Trends

Meet More Stories on Doosan Machine Tools' Various SNS Channels.



interview

An elaborate introduction to the multitasking PUMA SMX series and the multifunctional PUMA TT turning center series

PUMA SMX series



PUMA TT series





CUFOS, OPEN CNC Software Solution

Doosan Machine Tools' CUFOS is a new operating system that makes the operation of its machine tools much easier and more productive.





Titan of CNC

Doosan Machine Tools Enters Partnership with, Titan of CNC



Doosan Machine Tools has partnered with TITANS of CNC, a United States-based leader in manufacturing education. We are now the company's exclusive premier machine tool provider, and we are excited to provide value to young engineers being trained in manufacturing.





excerpts from the TITANS OF CNC'S video '9-Axis Doosan PUMA SMX 3100 Titanium Aerospace Part Final Operation' & 'Doosan Mynx 6500 CNC Mill Arrives at Our Shop'



TITANS of CNC said, "Amazing CNC Machine that you have Never Seen Before!"

Doosan Machine Tools is pleased to announce a new strategic partnership with TITANS of CNC, Inc. As part of this partnership, Doosan Machine Tools will become the exclusive premier machine tool builder partner for TITANS of CNC.

TITANS of CNC is focused on being the top global manufacturing education provider, and over the past few years, has reshaped the way manufacturing education is approached and delivered. With its free, online, video-based, step-by-step, training system, TITANS of CNC continues to provide real solutions to real manufacturing problems.

"My team and I are extremely excited to partner with Doosan Machine Tools," stated Titan Gilroy, CEO of TITANS of CNC. "They are a global leader in machine tool technology and are trusted by companies all around the world. Together we will close the skills gap and train machinists to produce real parts, allowing them to compete at the highest level."

For over 40 years, Doosan Machine Tools has been supporting the manufacturing industry with high performance CNC machine tools. "Doosan Machine Tools shares TITANS of CNC's passion for educating manufacturing professionals," stated Jim Shiner, Doosan Machine Tools America's Vice President of Sales & Marketing. "The need for trained machinists is greater now than ever, and in our new partnership with TITANS of CNC, we are proud to recommit our efforts to building the next generation of young machinists."

ABOUT TITANS OF CNC

TITANS of CNC, Inc. has developed "TITANS of CNC: Academy" and "TITANS of CNC Aerospace Academy" and is the world's leader in manufacturing education, teaching the latest breakthroughs in CAD, CAM, CNC, and Metrology. Their online video-based curriculum is FREE to anyone regardless of age, technical savvy, or prior schooling. By focusing on the fundamentals of advanced manufacturing, students learn via the power of repetition, through a model that flips traditional manufacturing on its head and gets students hands-on with part design FIRST. As each part increases in difficulty new methods are added so the foundation continues to build on itself. TITANS of CNC's latest platform, the

Aerospace Academy (www.aerospaceacademy. com) is taking their education platform to the highest levels of manufacturing previously only accessible behind the closed doors of the world's top aerospace companies. For more information, visit www.titansofcnc.com or follow them on YouTube, Instagram, Twitter, Facebook and LinkedIn.



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