



# VERTIGO



## BIG-SIZED VERTICAL LATHE



### PATENTED EQUIPMENT



# CORPORATE SYSTEM

## UNIQUE IN THE WORLD



MACHINE RANGE



PRODUCTION LINE AUTOMATION



SERVICE DURING AND AFTER SALES SERVICE



ACCESSORIES



DIGITAL PLANT MANAGEMENT



ADVANCE CLAMPING SYSTEM



STOCK OF SPARE PARTS



FRICION STIR WELDING



TRAINING CENTER

For more than 50 years FPT INDUSTRIE S.p.A. has been manufacturing CNC milling and boring machines for the mechanical and die & mould fields. Since its establishment in 1969, FPT INDUSTRIE S.p.A. has greatly increased and significantly consolidated its presence on the domestic and International market, confirming its brand as the epitome of technology, accuracy and reliability. The constant growth of the company affirms the validity of the adopted manufacturing and commercial strategies. The success of FPT INDUSTRIE S.p.A. is determined by its capacity to generate new ideas and above all by the continuous research and development of new processes, products, services and corporate image. The research team is particularly attentive to market demands and at the same time committed to offer a totally reliable service to the end user.

FPT INDUSTRIE S.p.A. produce da più di 50 anni macchine alesatrici e fresatrici a controllo numerico per il settore della meccanica generale e per il settore della stampistica. Dalla sua costituzione, avvenuta nel 1969, ad oggi, FPT INDUSTRIE S.p.A. ha incrementato e consolidato significativamente la propria presenza sul mercato italiano e sui mercati internazionali, affermando il proprio marchio come sinonimo di tecnologia, precisione ed affidabilità. Lo sviluppo dell'azienda non ha conosciuto rallentamenti nel tempo a conferma della riuscita delle proprie strategie produttive e commerciali. FPT INDUSTRIE S.p.A. deve il suo successo alla continua produzione di idee innovative e soprattutto al continuo lavoro di ricerca nell'ambito del miglioramento dei processi, dei prodotti, dei servizi e della propria immagine aziendale. Tale ricerca è particolarmente attenta alle esigenze del mercato e nel contempo molto sensibile all'importanza dell'affidabilità del servizio al cliente finale.

FPT INDUSTRIE S.p.A. verfügt über mehr als 50 Jahre Erfahrung in der Produktion von NC-gesteuerten Fräsmaschinen und Bohrwerken für Einsatzbereiche wie allgemeine Mechanik und Formenbau. FPT INDUSTRIE S.p.A. hat seine Anteile im italienischen und internationalen Markt seit seiner Gründung im Jahr 1969 stetig ausgebaut. Das Markenzeichen von FPT INDUSTRIE S.p.A. steht weltweit für Technologie, Präzision und Zuverlässigkeit. Die konstant fortschreitende Unternehmensentwicklung ist der Beweis der gezielten Produktions- und Vertriebsstrategien. Seinen Erfolg verdankt FPT INDUSTRIE S.p.A. den innovativen Entwicklungen, besonders aber der konsequenten Forschung zur Optimierung von Prozessen, Produkten und Dienstleistungen. Bei der Forschung werden Schwerpunkte auf die Marktanforderungen insbesondere auf Serviceleistungen für den Kunden gerichtet.

FPT INDUSTRIE S.p.A. produit depuis plus de 50 ans des fraiseuses-aléseuses à contrôle numérique pour le secteur de la mécanique générale et pour le secteur des moules. De sa constitution, qui a eu lieu en 1969, à ce jour FPT INDUSTRIE S.p.A. a développé et consolidé d'une façon significative sa présence sur le marché italien et sur les marchés internationaux, en affirmant sa propre marque comme synonyme de technologie, précision et fiabilité. Le développement de l'entreprise n'a pas connu de ralentissements ce qui confirme la réussite des propres stratégies de production et commerciales. FPT INDUSTRIE S.p.A. doit son succès à la recherche d'idées innovantes et surtout au travail continu pour l'amélioration des procédés de fabrication, des produits, des services et de son image. Cette recherche est très attentive aux exigences du marché et très sensible aussi à l'importance de la fiabilité du service au client final.





## VERTIGO : A VERTICAL LATHES

The range of big-sized vertical lathes VERTIGO represents the reference point of the sector. FPT decade-long planning and technological experience in manufacturing big-sized HYDROSTATIC MACHINES, finds implementation in the turning, milling and grinding technology of big mechanical components.

Die Baureihe großer Vertikaldrehmaschinen VERTIGO stellt einen Branchenmaßstab dar. Die jahrzehntelange Projektierungs- und Technologieerfahrung von FPT in der Herstellung großer HYDROSTATISCHEN MASCHINEN findet Anwendung in der Dreh-, Fräs- und Schleiftechnologie von mechanischen Großbauteilen.

La gamma di grandi torni verticali VERTIGO rappresenta un punto di riferimento del settore. La pluridecennale esperienza progettuale e tecnologica di FPT, nella costruzione delle grandi MACCHINE IDROSTATICHE, trova applicazione nelle tecnologie di tornitura, fresatura e rettifica di grandi componenti meccanici.

La gamme des grands tours verticaux VERTIGO représente le nouveau point de repère du secteur. La pluridécennale expérience technologique et en projet de FPT dans la construction des grandes MACHINES HYDROSTATIQUES, trouve application dans les technologies de tournage, fraisage et rectification des grands composants mécaniques.

### HYDROTURN hydrostatic main spindle

Hydrostatic technology of the turning and milling spindle

Tecnologia idrostatica del mandrino di tornitura e fresatura

Hydrostatische Technologie für Dreh- und Frässpindel

Technologie hydrostatique de la broche de tournage et de fraisage

### BHB BOOSTED HYDROSTATIC BEARINGS

Technical evolution to the hydrostatic system that maximizes speed and rigidity

Tecnologia costruttiva del sistema idrostatico che ottimizza velocità e rigidità

Technologischer Ansatz zur Optimierung der Vorschübe und Eigensteifigkeit der Maschinenhydrostatik

Solution technique du système hydrostatique qui optimise vitesse et rigidité

  
VERTIGO  
HDG20

 THE ITALIAN STYLE





## FULL HYDROSTATIC

The result is a family of machines offering solutions available for the first time on the market:

- Full hydrostatic movement of all axes (included the vertical movement of the beam W) with "active" oil cooling system;
- Clever hydrostatic thrust-bearing "tilter" for the table bearing and rotation with automatic unbalancing control of the loads to be machined, with adjustment data self-learning (Patent Int. Pend.)

Das Ergebnis ist eine neue Maschinenreihe, die erstmals dem Markt neue technische Lösungen zur Verfügung stellt:

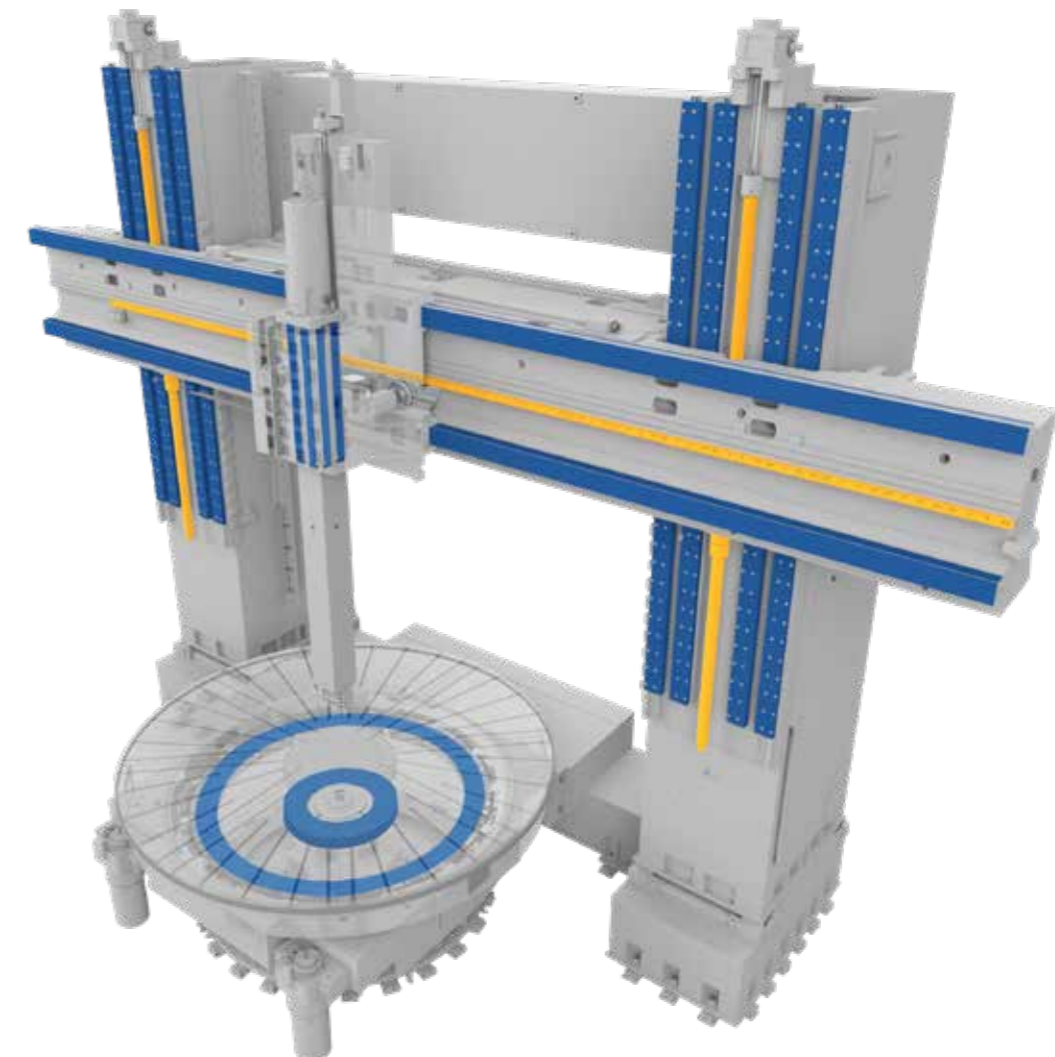
- Vollständige hydrostatische Zustellung aller Achsen (auch die vertikale Zustellung der Traverse W) mit 'aktivierter' Ölklimatisierung;
- Intelligente hydrostatische "Tilter" Lagerkränze zur Lagerung und Drehung des Werkstücktisches mit automatischem Druckausgleich der zu bearbeitenden Teilen, mit kontinuierlichem automatischem Teaching über einen geschlossenen Regelkreis (Patent Int. Pend.)

Il risultato è una famiglia di macchine che offre soluzioni per la prima volta disponibili sul mercato:

- Movimento di tutti gli assi completamente idrostatico (compreso il movimento verticale della traversa W) con sistema di condizionamento "attivo" dell'olio;
- Ralle idrostatiche intelligenti "tilter" per il sostentamento e rotazione della tavola porta pezzo con controllo automatico degli sbilanciamenti dei carichi da lavorare, con autoapprendimento dei dati di regolazione (Patent Int. Pend.)

Le résultat est une nouvelle famille de machines qui offre des solutions disponibles sur le marché pour la première fois:

- Mouvement de tous les axes complètement hydrostatique (y inclu le mouvement vertical de la traverse W) avec système de refroidissement "actif" de l'huile;
- Couronnes hydrostatiques intelligentes "tilter" pour la sustentation et rotation de la table avec contrôle automatique des déséquilibres des charges à usiner, avec données de réglage à auto-apprentissage (Patent Int. Pend.)



## HTS: HYDROSTATIC TURNING SYSTEM



The supporting hydrostatic bearing works with constant oil layer, independently of the load on the table.

Il cuscinetto idrostatico di supporto lavora a meato costante, indipendentemente dal carico sulla tavola

Der hydrostatische Stützlager arbeitet mit konstanter Ölschicht, unabhängig von der Last auf dem Tisch

Le palier hydrostatique de support fonctionne à couche d'huile constante, quelle que soit la charge sur la table

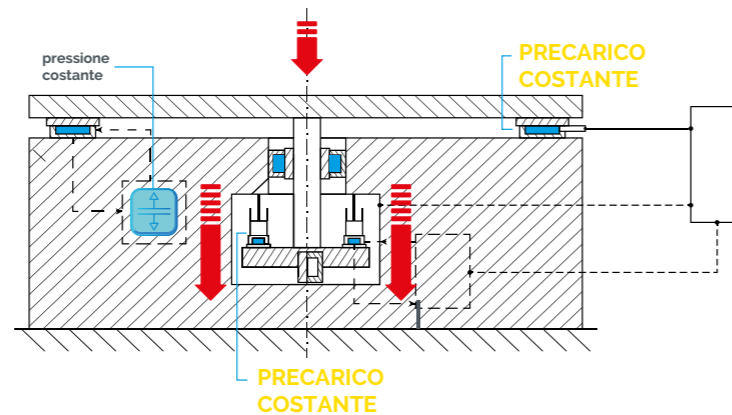
## ZERO LOAD SITUATION

In this condition, a preload of the maximum capacity is applied to the table through the internal preload device

In questa condizione viene applicato alla tavola un precarico del massimo della portata attraverso il meccanismo interno di precarico

In diesem Zustand wird durch den internen Vorspannmechanismus eine Vorspannung in Höhe der maximalen Tragfähigkeit auf den Tisch aufgebracht.

Dans cette condition, une précharge de la portée maximale est appliquée à la table par le mécanisme interne de précharge



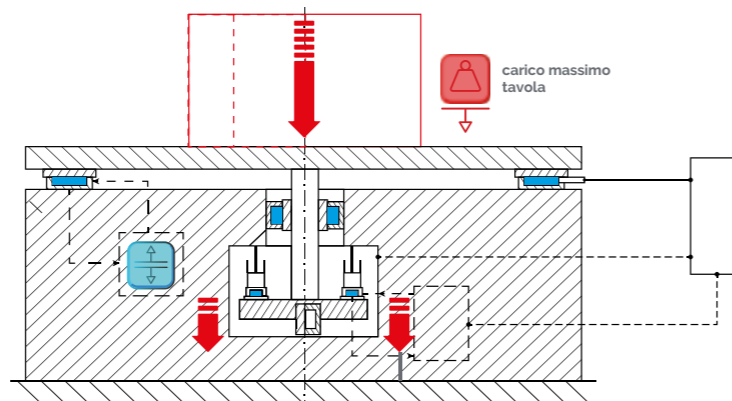
## LOADING SITUATION

The system compensates for the preload pressure until the pressure is always equal to the total load

Il sistema compensa la pressione di precarico fino ad ottenere una pressione sempre equivalente al carico totale

Das System kompensiert den Vorspanndruck, bis der Druck immer der Gesamtlast entspricht

Le système compense la pression de précharge jusqu'à obtenir une pression toujours égal à la charge totale



FPT turning tables **GUARANTEE** the same behavior (stiffness, precision, repeatability) regardless of the applied load (1Kg - 150.000 Kg)

Le tavole a tornire FPT **GARANTISCONO** lo stesso comportamento (rigidità, precisione e ripetibilità) indipendentemente dal carico applicato ( 1 Kg - 150.000 kg)

FPT-Drehtische **GARANTIEREN** das gleiche Verhalten (Steifigkeit, Präzision, Wiederholbarkeit) unabhängig von der aufgebrachten Last (1 kg - 150.000 kg).

Les tables de tournage FPT **GARANTISSENT** le même comportement (rigidité, précision, répétabilité) quelque que soit la charge appliquée (1Kg - 150.000 Kg)



## MAIN ADVANTAGE

- Possibility of using low viscosity and therefore low friction oils with a consequent reduction in both the oil heating and the power required
- Dissipated power at maximum load equal to that absorbed in loadless condition
- Constant table stiffness, both at low and high load
- Possibility of "weighing" the piece loaded on the table

- Possibilità di usare olii a bassa viscosità e quindi a basso attrito con conseguente riduzione sia del riscaldamento dell'olio, che della potenza necessaria
- Potenza dissipata a massimo carico uguale a quella assorbita a vuoto
- Rigidezza della tavola costante, sia a basso carico che ad alto carico
- Possibilità di "pesare" il pezzo caricato sulla tavola

- Möglichkeit der Verwendung von Ölen mit niedriger Viskosität und damit geringer Reibung, mit konsequenter Reduzierung der Ölerwärmung und der zur thermischen Ölkühlung erforderlichen Leistung
- Verlustleistung bei maximaler Last gleich der im Leerlauf aufgenommenen Leistung
- Konstante Tischsteifigkeit, sowohl bei niedriger als auch bei hoher Last
- Möglichkeit, das auf den Tisch geladene Werkstück zu wiegen

- Possibilité d'utiliser des huiles à faible viscosité et donc à faible coefficient de frottement avec une conséquente réduction soit du chauffage de l'huile soit de la puissance requise
- Puissance dissipée à charge maximale égale à celle absorbée à vide
- Rigidité constante de la table, soit avec une charge faible soit élevée
- Possibilité de "peser" la pièce chargée sur la table



## DUAL DRIVE DEVICE

Turning spindle movement transmission device with hybrid gearbox (planetary+parallel) and high torque and liquid-cooled built-in motor.

Dual Drive type, dedicated high stiff transmission system of C axis with complete backlash compensation and with very high bidirectional dynamics (deriving from the big-sized table of FPT boring machines).

Antriebsstrang der Drehspindel durch eine Hybriduntersetzung (epizyklisch + parallel) und einen flüssigkeitsgekühlten High Torque Einbaumotor.

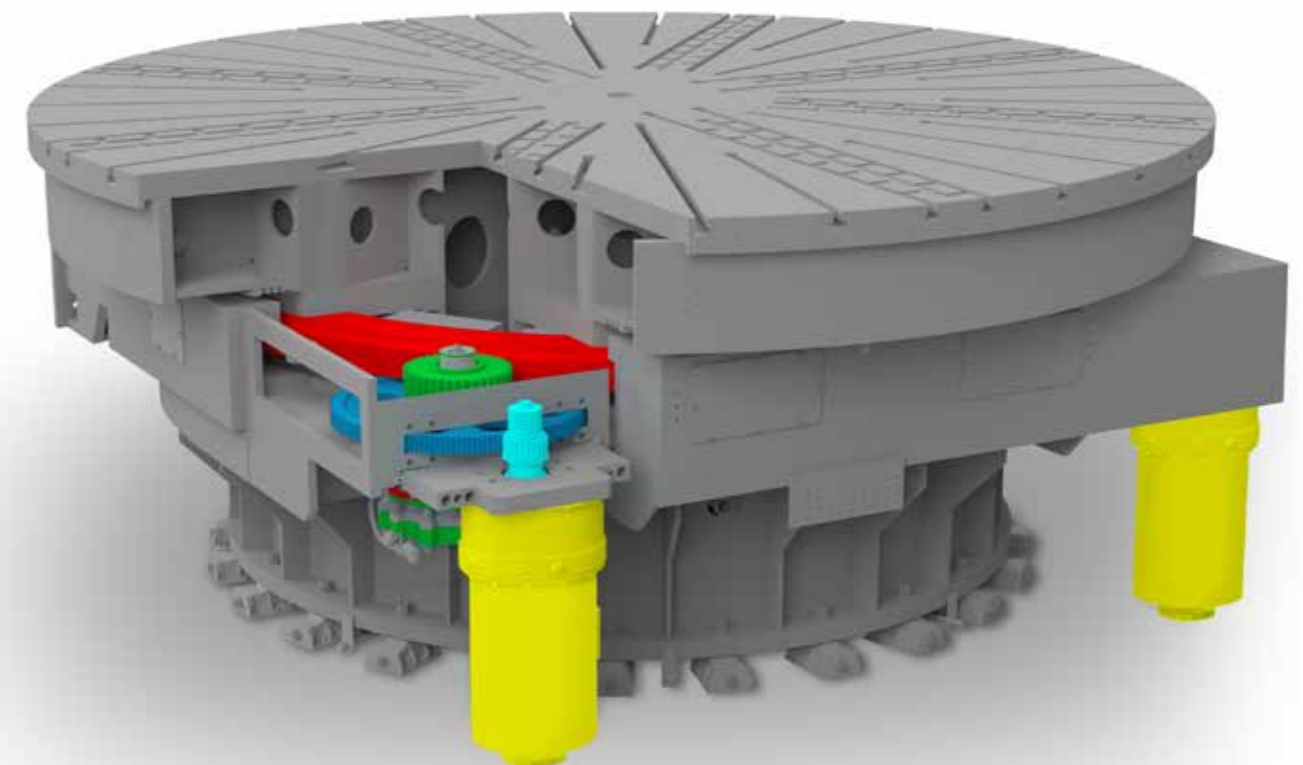
C-Achse mit hochstefem Dual-Drive Spezialantriebssystem mit absoluter Spielfreiheit und höchster Zweirichtungsdynamik (abgeleitet von den grossen Tischen der Bohrwerke FPT).

Sistema di trasmissione del moto al mandrino di tornitura con riduzione ibrida (epicicloidale + parallela), e motore built-in ad alta coppia raffreddato a liquido.

Asse C con sistema dedicato di trasmissione ad alta rigidezza, del tipo Dual-Drive a completo recupero di gioco ed altissima dinamica bidirezionale (derivato dalle grandi tavole per alesatrici FPT).

Système de transmission du mouvement à la broche de tournage avec réduction hybride (epicycloïdale+parallèle) et moteur built-in à couple élevé et avec refroidissement à liquide.

Axe C avec système de transmission dédié, à haute rigidité, type Dual Drive, avec complète récupération du jeu et très haute dynamique bi-directionnelle (dérivée des grandes tables pour aléseuses FPT).



## HEAD CHANGER



## DIRECT DRIVE KINEMATIC

Direct Drive kinematic system of the milling spindle. This solution manufactured for years by FPT for its boring machines, provides an in-axis power transmission to the spindle, without mechanical gear systems, through high torque liquid-cooled built-in motor.

The advantages are certain in terms of stiffness and kinematic efficiency, with cancellation of wear and heating of the mechanical parts and subsequent optimization of milling accuracy.

Direct Drive Kraftübertragung. Diese Lösung, seit Jahren von FPT für ihre Bohrwerke hergestellt, ist achsparallel gebaut und ohne zusätzliche Getriebestufen ausgeführt, durch einen flüssigkeitsgekühlten High Torque Einbaumotor.

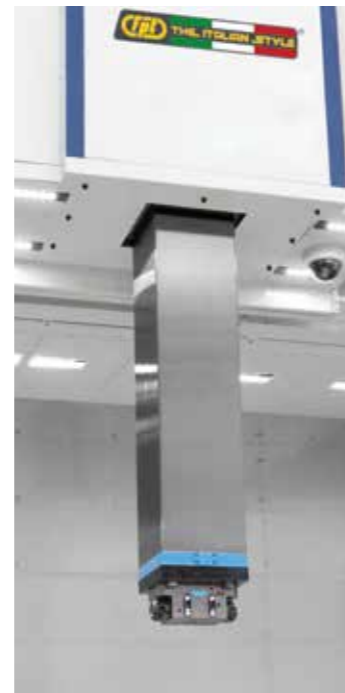
Die Vorteile sind zweifelsfrei hinsichtlich der Steifigkeit des Antriebsstrangs und Kinematikleistungsabgabe, mit Ausschluss von Verschleiß und Erwärmung der mechanischen Elemente und sich daraus ergebende Optimierung der Bearbeitungsgenauigkeiten.

Cinematismo del mandrino di fresatura di tipo Direct Drive. Tale soluzione, che FPT produce da anni per le proprie alesatrici, prevede la trasmissione di potenza in asse al mandrino, senza sistemi di riduzione meccanici, mediante motore built-in ad elevata coppia con raffreddamento a liquido.

Indubbi sono i vantaggi in termini di rigidità del sistema e di rendimento cinematico, con annullamento dei fenomeni di usura e riscaldamento degli organi meccanici e conseguente ottimizzazione delle precisioni di fresatura.

Cinématique de la broche de fraisage type Direct Drive. Cette solution produite par FPT depuis plusieurs années, prévoit la transmission de puissance en axe à la broche par un moteur built-in, à couple élevé et avec refroidissement à liquide, sans systèmes de réductions mécaniques.

Les avantages sont sûrs en termes de rigidité du système et de performance cinématique, avec annulation de l'usure et échauffement des organes mécaniques avec conséquente amélioration des precisiones de fraisage.







## ACTIVE COMPENSATION

X axis movement (saddle-ram movement) with double pinion, rack and Dual-Drive management. It allows an improvement of the stiffness and accuracy performances achieving results that cannot be compared with the traditional screw transmission.

Active compensation of the machine geometry able to maintain the constant trim of the structures in all positions of the moving masses in the working field.

Antrieb der X-Achse (Sattelbewegung) erfolgt durch Doppelritzel und Zahnstange, mit Dual-Drive Verwaltung. Das erlaubt die Optimierung der Steifigkeits- und Genauigkeitsleistungen mit Ergebnissen, die mit dem normalen Kugeltrieb nicht vergleichbar sind.

Aktive geometrische Überwachung des Querbalkens, unabhängig davon, an welcher Stelle sich die verfahrbaren Lasten befinden.

Trasmissione dell'asse X (movimento carro-slitta) con sistema a doppio pignone e cremagliera, e gestione Dual-Drive. Permette l'ottimizzazione delle prestazioni di rigidità e di precisione raggiungendo risultati nemmeno comparabili alla tradizionale trasmissione a vite.

Sistema di compensazione attiva delle geometrie macchina, in grado di mantenere costante l'assetto delle strutture in qualunque posizione delle masse mobili nel campo di lavoro.

Transmission de l'axe X (mouvement chariot-coulant) avec système à double pignon, crémaillère et gestion Dual Drive. Il permet l'amélioration des performances de rigidité et précision en rejoignant des résultats pas comparables à la traditionnelle transmission à vis.

Système de compensation active des géométries machine, capable de maintenir constant l'assiette des structures dans toutes positions des masses mobiles dans le champ de travail.





## TECHNOLOGICAL RESEARCH

The SCIENTIFIC DEVELOPMENT and FPT TECHNOLOGICAL RESEARCH, at the disposal of all its customers throughout the world, grant competitive and absolute advantages which are synonyms of success.

Some FEM pictures (Computer aided calculation of Finite Elements) of the main assembled structures. In this way it is simulated, with high accurate data, the stiffness, behaviour and answers of the finished machine subjected to the highest stress and strains during the various machining phases.

Die WISSENSCHAFTLICHE ENTWICKLUNG und die TECHNOLOGISCHE FORSCHUNG FPT im Dienste der Kunden garantieren Wettbewerbsvorteile und sind Synonyme für Erfolg.

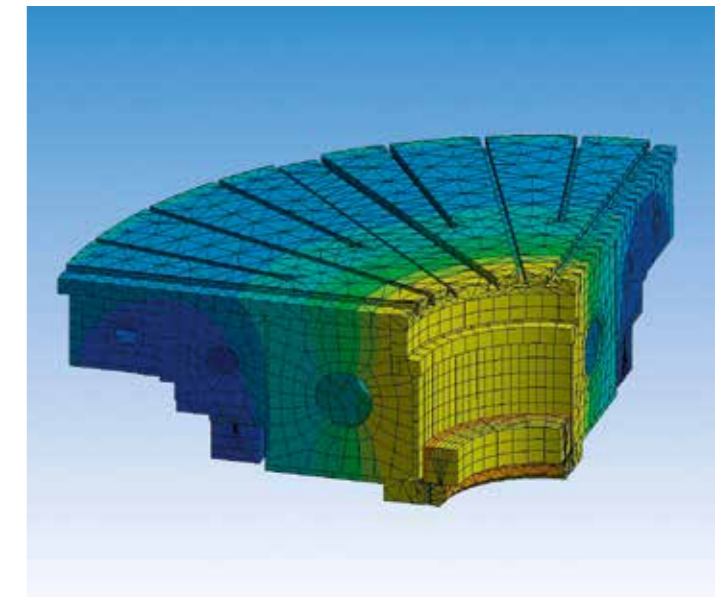
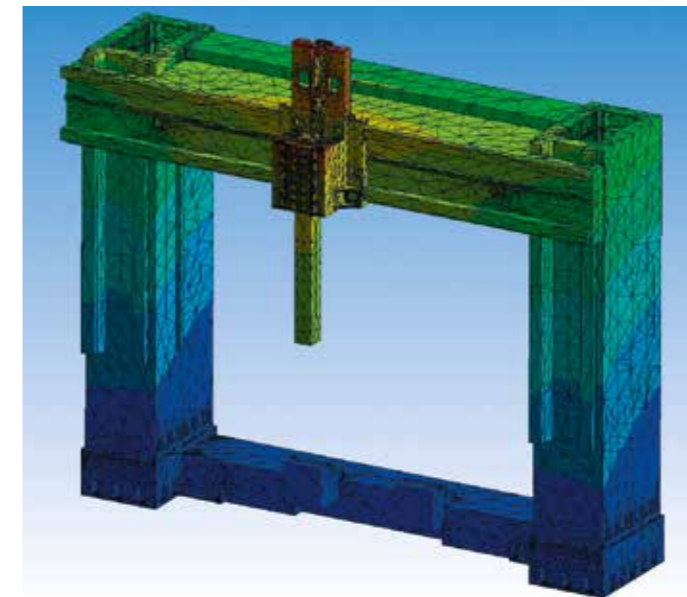
Einige Abbildungen vom FEM (computerisiertes Verfahren der finiten Elemente) der Hauptbaugruppen. Auf diese Weise werden mit hoher Genauigkeit die Eigensteifigkeit, das Verhalten und das Ansprechen einer fertiggebauten Maschine simuliert, die den höchsten Bearbeitungskräften und -torsionen während der unterschiedlichen Bearbeitungsstufen ausgesetzt wird.

Lo SVILUPPO SCIENTIFICO e la RICERCA TECNOLOGICA FPT, al servizio dei propri clienti in tutto il mondo, garantiscono vantaggi competitivi assoluti e sono sinonimo di successo.

Alcune immagini del FEM (Calcolo computerizzato agli Elementi Finiti) delle principali strutture assemblate. In questo modo viene simulato con grande precisione di dati, la rigidità, il comportamento e le risposte della macchina finita sollecitata con le più elevate forze e torsioni a cui sarà sottoposta durante le varie fasi di lavoro.

Le DEVELOPPEMENT SCIENTIFIQUE et la RECHERCHE TECHNOLOGIQUE FPT au service des propres clients dans tout le monde, garantissent des avantages compétitifs absolus et sont synonymes de succès.

Quelques images du FEM (Calcul structurel des Elements Finis) des principales structures assemblées. Dans cette façon c'est simulé avec données de grandes precision, la rigidité, le comportement et les réponses de la machine finie, sollicité par les plus élevées forces et torsions aux quelles la machine sera soumise pendant les différentes phases d'usage.





## TECHNICAL DATA

DIMENSIONS - DIMENSIONI ABMESSUNGEN - DIMENSIONS			HD 625	HD 726	HD 806	VDH 1008	VDH 1209
Max. turning diameter Max. diametro di tornitura Max. Drehdurchmesser Max. diamètre de tournage	mm (in)		6.200 (244,1)	7.200 (283,4)	8.000 (314,1)	10.000 (393,7)	12.000 (472,4)
Diameter of the turning table Diametro piattaforma Planscheibe Durchmesser Diamètre du plateau	mm (in)		5.000 (196,8)	6.000 (236,2)	6.000 (236,2)	8.000 (314,9)	9.500 (374,1)
RAM section Sezione RAM RAM Schnitt Section du BELIER	mm (in)		350x350 (13x13)	350x350 (13x13)	350x350 (13x13)	400x400 (15x15)	400x400 (15x15)
Max. turning height Max. altezza di tornitura Max. Drehhöhe Max. hauteur de tournage	mm (in)		3.000 ÷ 6.000 (118,1 ÷ 236,2)	3.000 ÷ 6.000 (118,1 ÷ 236,2)	3.000 ÷ 6.000 (118,1 ÷ 236,2)	4.000 ÷ 8.000 (157,4 ÷ 314,9)	4.000 ÷ 8.000 (157,4 ÷ 314,9)
Feed rate Velocità di avanzamento Vorschubgeschwindigkeit Vitesse d'avance	X, Z mm/min (ipm)		18.000 (708,7)	18.000 (708,7)	18.000 (708,7)	18.000 (708,7)	18.000 (708,7)
<b>MACHINE STROKES - CORSE ASSI VERFAHRWEGE - COURSES DES AXES</b>			<b>HD 625</b>	<b>HD 726</b>	<b>HD 806</b>	<b>VDH 1008</b>	<b>VDH 1209</b>
Vertical RAM stroke - Corsa asse (RAM) RAM Vertikalweg - Course verticale	Z	mm (in)	2.000 ÷ 3.250 (78,7 ÷ 127,9)	2.000 ÷ 3.250 (78,7 ÷ 127,9)	2.000 ÷ 3.250 (78,7 ÷ 127,9)	2.500 ÷ 4.000 (98,4 ÷ 157,4)	2.500 ÷ 4.000 (98,4 ÷ 157,4)
Axis stroke - Corsa asse Verfahrweg Achse - Course axe	W	mm (in)	2.000 ÷ 5.000 (78,7 ÷ 196,8)	2.000 ÷ 5.000 (78,7 ÷ 196,8)	2.000 ÷ 5.000 (78,7 ÷ 196,8)	3.000 ÷ 7.000 (118,1 ÷ 275,5)	3.000 ÷ 7.000 (118,1 ÷ 275,5)
<b>MILLING SPINDLE - MANDRINO DI FRESATURA FRÄSSPINDEL - BROCHE DE FRAISAGE</b>			<b>HD 625</b>	<b>HD 726</b>	<b>HD 806</b>	<b>VDH 1008</b>	<b>VDH 1209</b>
AC motor power Potenza motore AC AC Motorantriebsleistung Puissance du moteur AC	kW (Hp)		43 (57,6)	43 (57,6)	43 (57,6)	52 (69,7)	52 (69,7)
Milling spindle speed Velocità di rotazione mandrino di fresatura Frässpindelrehzahl Vitesse de rotation de la broche de fraisage	r.p.m		5 - 3.000	5 - 3.000	5 - 3.000	5 - 3.000	5 - 3.000

## TECHNICAL DATA

TURNING TABLE - TAVOLA DI TORNITURA PLANSCHHEIBE - TABLE DE TOURNAGE			HD 625	HD 726	HD 806	VDH 1008	VDH 1209
AC motor power Potenza motore AC AC Motorantriebsleistung Puissance du moteur AC	S1 100%	kW (Hp)	100 - 150 (134,1 - 201,1)	100 - 150 (134,1 - 201,1)	100 - 150 (134,1 - 201,1)	200 - 250 (268,2 - 335,2)	200 - 250 (268,2 - 335,2)
Rotating speed of the turning table Velocità di rotazione tavola di tornitura Spindelrehzahl der Planscheibe Vitesse de rotation de la table de tournage	r.p.m		0,2 - 60	0,2 - 60	0,2 - 50	0,2 - 40	0,2 - 35
Max. load permitted on the table Max. carico ammesso sulla piattaforma Max. zulässige Tischlast Max. poids admis sur la table de tournage	Ton		100 - 150	100 - 150	100 - 150	200 - 350	200 - 350
<b>TECHNICAL SPECIFICATIONS CARATTERISTICHE TECNICHE SPÉCIFICATIONS TECHNIQUES TECHNISCHE HAUPTDATEN</b>			<b>HD 625</b>	<b>HD 726</b>	<b>HD 806</b>	<b>VDH 1008</b>	<b>VDH 1209</b>
Operator platform Postazione di comando Poste operateur Bedienerpodest						On the floor / moving - A terra / mobile Au sol / mobile - Am Boden / verfahrbar	
Number of tool changer pockets Numero tasche del magazzino portautensili Numéro des poches du magasin d'outils Anzahl der Plätze des Werkzeugmagazins						12 - 24 - 36 - Other - Altro - Autres - Anderes	
<b>NC OPTIONS</b>							
			SINUMERIK 840 D sl	FANUC 31i		HEIDENHAIN TNC 640	

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CUSTOMER APPLICATIONS



CUSTOMER APPLICATIONS

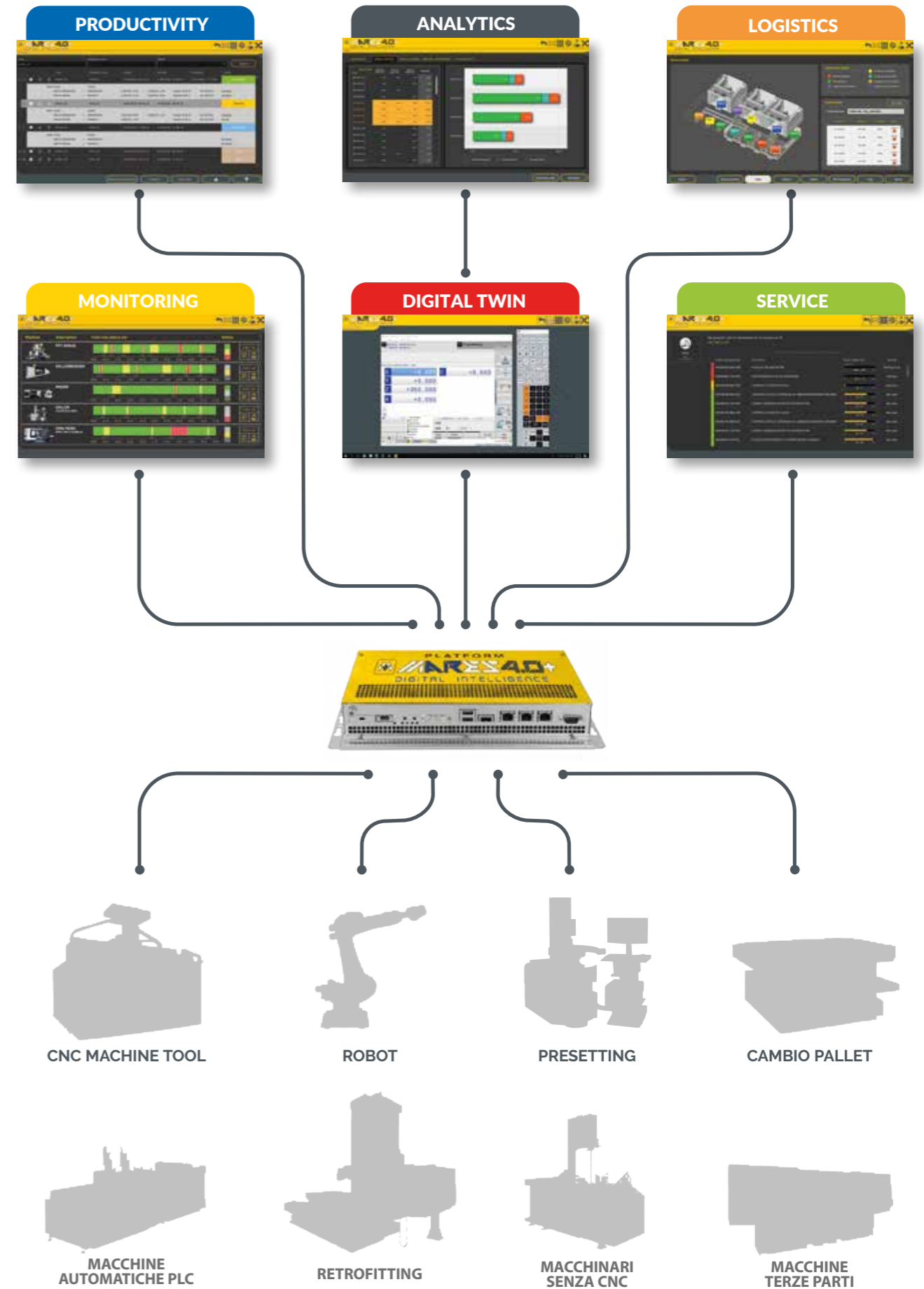


PLATFORM  
**MARES 4.0+**  
 DIGITAL INTELLIGENCE



Platform MARES 4.0+ is the new exclusive IT platform for Industry 4.0 designed and developed by whom produces, uses and manages the integration of machines for over 50 years. MARES 4.0 + is the only platform that allows the interconnection of machines from different manufacturers and with different electronics and an operator interface directly integrated on the machines.

- +250**  
INSTALLATIONS
- MULTI SITE**  
CONNECTION
- READY FOR**  
**INDUSTRY**  
**5.0**
- REAL TIME**  
MANAGEMENT



# INDUSTRY 4.0 PLATFORM

## PRODUCTIVITY



- JOB SERVER**: Production order detail management in the single machine. Storage and consultation of workpiece programs to be performed by the single machine. Remotely loading of part programs (combined with Job Server).
- SCHEDULER ASSEMBLY**: Infinite capacity production scheduling by allocating the different phases of the working cycle to work teams, and updating their progress according to the number of resources daily assigned to every team.
- MDO**: Data analysis of productivity; Assessment of equipment effectiveness O.E.E. (Overall Equipment Effectiveness).
- IMPORT ORDER**: Automatic import of production order data into JOB Server from a file created by the management system ERP, PLM, PDM, CAD/CAM etc.
- JOB CLIENT**: Automated integration with other machines of the production cycle; Production order detail management and distribution to every machine in the network; Storage and consultation of workpiece programs.
- TOOLS MANAGER**: Tool lifetime; wear assessment; Tool requirements assessment; Tool loading and unloading list from magazine.
- SCHEDULER**: Production scheduling and allocation of resources to the different phases of the working cycle.
- RESOURCE DATABASE**: Configuration of resource characteristics (machines, people) for their correct assignment and management in the various applications.

The applications belonging to this group are aimed at managing productivity and controlling the efficiency of the machine.

## LOGISTICS



- FACTORY LOGISTICS**: Management of the localization of the single incoming and outgoing packing cases comprising a production batch in intermediate storage areas between the different machining phases.
- FMC**: Management of a machining cell comprised of several machines and a system for the displacement and automatic loading/unloading of workpieces, by considering all the elements as a single entity collecting the significant data of every machine.
- FMS**: Management of machines with palletized systems, by defining a precise production cycle, with the possibility to modify the production flow to meet the various requirements that may arise.
- TRACKING MANAGER**: Production batch logistic flow tracking.

The applications belonging to this group are aimed at managing production logistics, FMS and processing cells.

## ANALYSIS



- ANALYSIS**: Creation of a set of reports relevant to production and productivity statistics of the interconnected machines, with the possibility to verify the reasons why real machine efficiency differs from the ideal value.
- QUALITY**: Management of the control plans of workpieces or production batches. Possibility to monitor the quality trend of the production process.

The applications belonging to this group are aimed at the statistical analysis of production data.

## MONITORING



- MONITORING**: Continuous monitoring of the working conditions and process parameters of the interconnected machines and graphical view of machine activities in real time.
- ALARM**: History of error events, with the possibility to display information about the causes that generated them and the activities to be performed to restore machine operation.
- AUTOCAL**: Check and calibration of the kinematic parameters of the milling head.
- EXTRACAL**: System able to qualify the geometric health of the machine.
- CBE**: Electric spindle balancing control system.
- GREEN MODE**: Optimization of machine energy consumptions, by avoiding wastage when the machine is not working. Possibility to program automatic switching off and re-ignitions of the machine and automatic Warm-Up cycles.
- SRV**: System for the detection of collisions and excessive vibrations.
- IRT**: Software for the acquisition of the temperature values of machine structures over time, with the application of a compensation algorithm.

The applications belonging to this group aim at monitoring machine status, monitoring working conditions and using adaptive control software for process deviations.

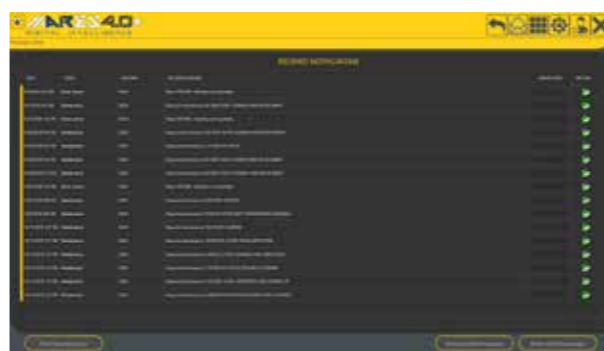
## DIGITAL TWIN



- SIMULATION**: Start of the simulation program of the numerical control.
- VIRTUAL MACHINING**: Possibility to start a virtualization program of the production process of the machine by simulating not only the machining program, but also all machine movements, included auxiliary movements (for example tool change) so as to make sure there are no collisions between the machine and the workpiece during machining.

The applications belonging to this group aim at simulating work programs and virtualizing production processes of the machine. They also check for any collisions and programming errors to avoid damages to the machine and hazardous situations.

## SERVICE



- TELESERVICE**: Systems for telemaintenance and/or telediagnosis and/or remotely control; Remote video monitoring.
- MAINTENANCE**: Management of the scheduled maintenance operations of the machines, with the possibility of sending warning messages at the approach or at the end of the maintenance operations and being informed of the maintenance activities to be performed and the spare parts required.
- USERMANUAL**: Online viewing of machine manuals, with interactive browsing between the documents to simplify their consultation.

The applications belonging to this group aim at properly managing the machine, providing both technical support for its use and technical assistance service.





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Thinking heads!

Join the future!

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