

**Dinomek**



GANTRY VERTICAL  
MILLING MACHINE



EMPOWERING INNOVATION

# 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



FRICTION STIR WELDING



TRAINING CENTER

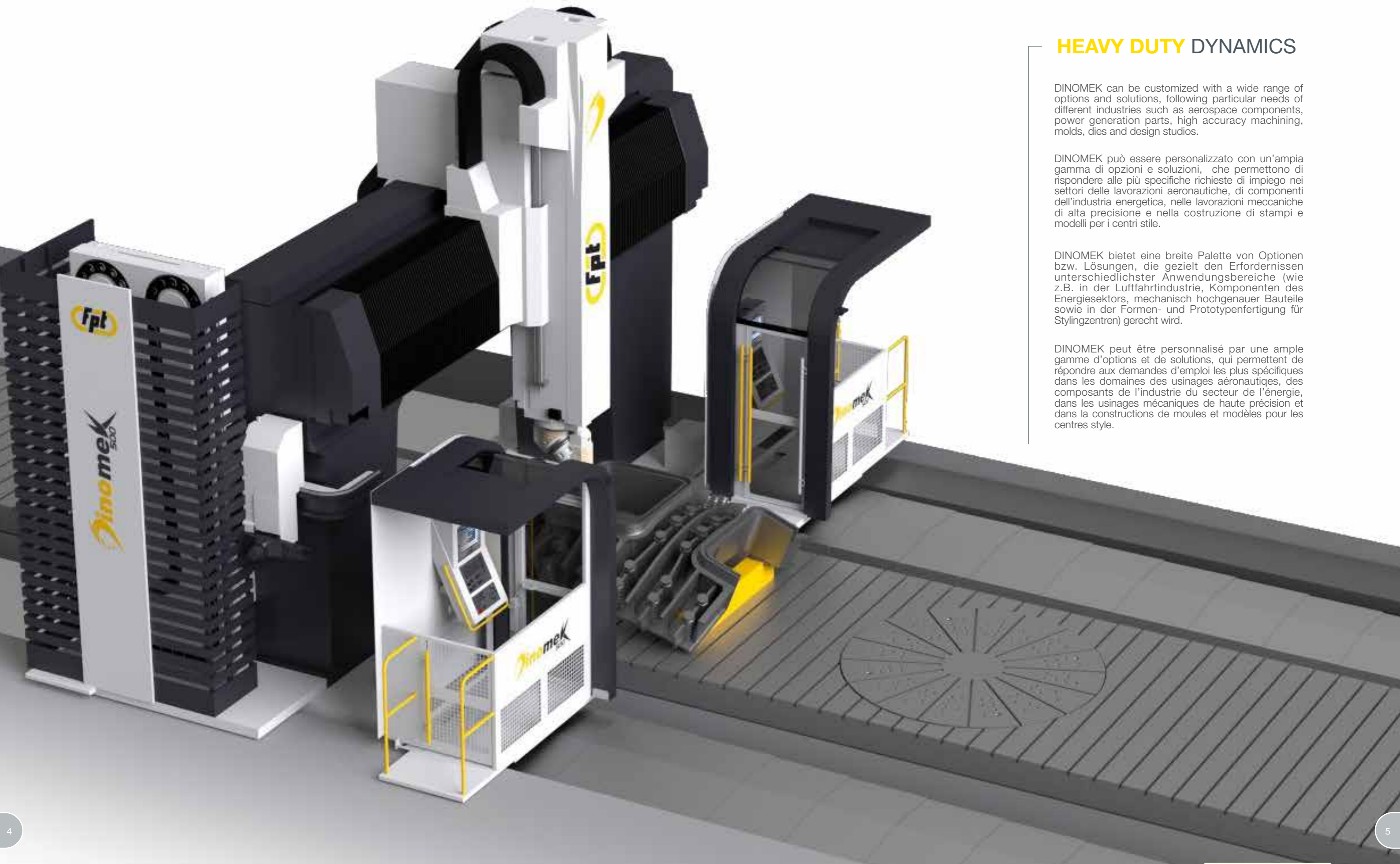
For more than 50 years FPT INDUSTRIE S.p.A. has been manufacturing CNC milling and boring machines for the mechanical and die & mould fields. Since its establishment in 1969, FPT INDUSTRIE S.p.A. has greatly increased and significantly consolidated its presence on the domestic and International market, 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.





## HEAVY DUTY DYNAMICS

DINOMEK can be customized with a wide range of options and solutions, following particular needs of different industries such as aerospace components, power generation parts, high accuracy machining, molds, dies and design studios.

DINOMEK può essere personalizzato con un'ampia gamma di opzioni e soluzioni, che permettono di rispondere alle più specifiche richieste di impiego nei settori delle lavorazioni aeronautiche, di componenti dell'industria energetica, nelle lavorazioni meccaniche di alta precisione e nella costruzione di stampi e modelli per i centri stile.

DINOMEK bietet eine breite Palette von Optionen bzw. Lösungen, die gezielt den Erfordernissen unterschiedlichster Anwendungsbereiche (wie z.B. in der Luftfahrtindustrie, Komponenten des Energiesektors, mechanisch hochgenauer Bauteile sowie in der Formen- und Prototypenfertigung für Stylingzentren) gerecht wird.

DINOMEK peut être personnalisé par une ample gamme d'options et de solutions, qui permettent de répondre aux demandes d'emploi les plus spécifiques dans les domaines des usinages aéronautiques, des composants de l'industrie du secteur de l'énergie, dans les usinages mécaniques de haute précision et dans la constructions de moules et modèles pour les centres style.

## TRAVERS STRUCTURE

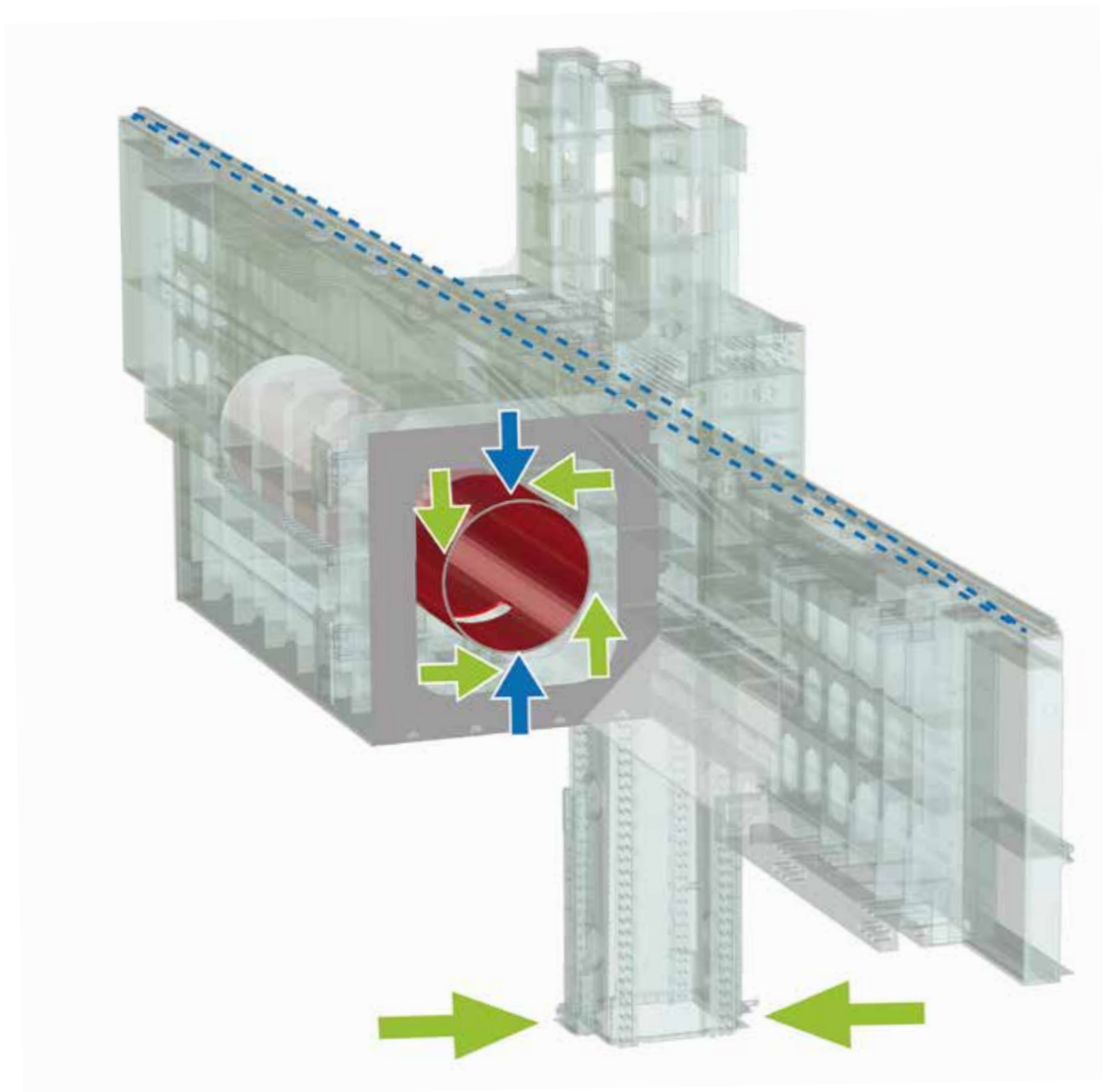
System for the control and active preservation of the machine geometry along the strokes of all axes.

E' il sistema unico al mondo, applicato su macchine a portale, con cui FPT controlla e mantiene la perfetta geometria della macchina lungo le corse di tutti gli assi.

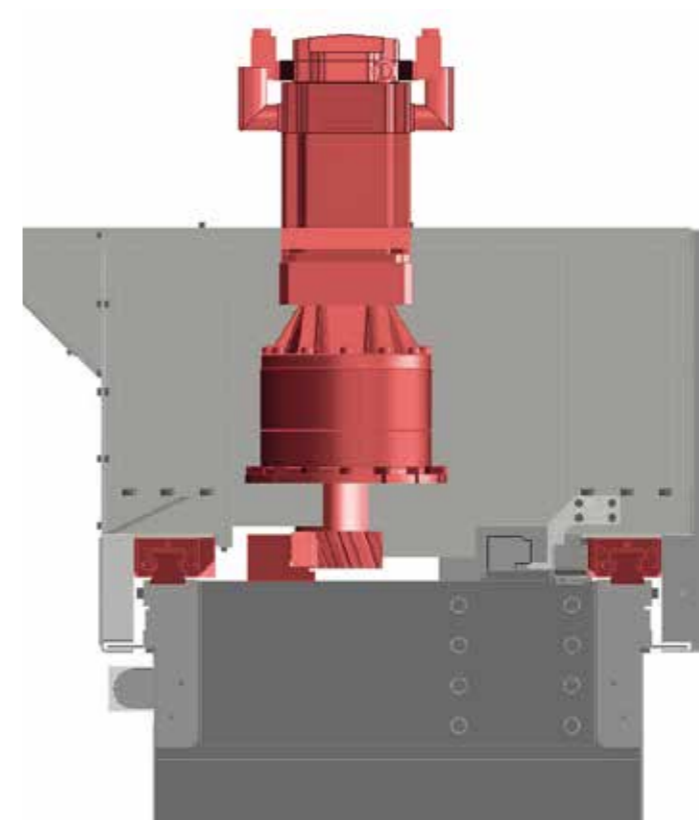


System zur Überwachung und Aufrechterhaltung der Geometrie der Maschine entlang aller Achsenwege.

Système de contrôle et sauvegarde active de la géométrie de la machine le long des courses de tous les axes.



## LONGITUDINAL AXIS MOVEMENT



Dinomek equipped with DD (dual-drive) on the longitudinal axis

Dinomek equipaggiata con DD (dual-drive) su asse longitudinale

Dinomek mit DD (dual-drive) auf Längsweg versehen

Dinomek équipée avec DD (dual-drive) sur l'axe longitudinal

## ABSOLUTE PRECISION / PRECISIONE ASSOLUTA



### FPT TECHNOLOGY FOR THE AUTOMATIC AND INDEPENDENT CORRECTION OF THE GEOMETRY OF THE HEAD BY THE OPERATOR

AUTOCAL is a device developed by FPT permitting the automatic calibration of the geometry and RTCP of 5 axes or 3+2 axes heads. It resets the predetermined tolerances of the heads having undergone collisions, substitution of electrospindle or substitution of a spindle for normal maintenance. In this way the machine operator will be able to reset the geometry of the head by himself, otherwise he would be obliged to ask for the intervention of the manufacturer with unavoidable loss of working days and heavy costs. The use of FPT device -AUTOCAL, through a very quick operation, about 30 minutes, allow to solve easily and cheaply the many problems arising from the use of boring and milling machines (option). FPT once again overcomes barriers which are impossible for others. FPT not only high-tech boring machines but also care and attention to its own customers.

### TECNOLOGIA FPT PER CORREZIONE AUTOMATICA ED AUTONOMA DELLA GEOMETRIA DELLA TESTA DA PARTE DELLO OPERATORE

AUTOCAL è un dispositivo studiato da FPT per consentire la calibrazione automatica della geometria e del RTCP delle teste 5 assi o 3+2, in grado di riportare all'interno delle tolleranze prefissate le teste che abbiano subito una collisione di lieve entità o la sostituzione di un elettromandrino o di un mandrino per normale manutenzione. In questo modo l'operatore della macchina sarà in grado autonomamente di ricomporre la geometria della testa, mentre altrimenti sarebbe costretto a richiedere l'intervento della casa costruttrice, con inevitabili perdite di giorni di lavoro per il riassetto, oltre gli inevitabili pesanti costi. L'utilizzo del dispositivo FPT - AUTOCAL, attraverso un'operazione velocissima, richiesti c.a. 30 minuti, permette di risolvere facilmente ed economicamente, i tanti inevitabili problemi che emergono nell'utilizzo delle alesatrici e delle fresatrici (opzionale). FPT ancora una volta supera barriere per altri impossibili. FPT non solo alesatrici di altissima tecnologia, ma anche cura ed attenzione per i propri Clienti.

### FPT TECHNOLOGIE ZUR AUTOMATISCHEN UND SELBSTSTÄNDIGEN KORREKTUR DER KOPFGEOMETRIE SEITENS DES BEDIENERS

AUTOCAL ist die von FPT entwickelte Technologie zum automatischen Kalibrieren der Geometrie und der RTCP der 5- oder 3+2-Achs-Frasköpfe. Somit ist es möglich, die Frasköpfe automatisch nach einer Kollision geringerer Bedeutung oder nach Wartungsarbeiten an der (HF)-Spindel zu nullen. Auf diese Weise kann der Bediener die Kopfgeometrie selbstständig nachjustieren, was sonst nur durch einen Servicetechniker des Herstellers mit unvermeidlichen und kostspieligen Ausfallzeiten möglich wäre. Die FPT-Autocal-Technologie (als Option erhältlich) ermöglicht auf einfachste Art und Weise innerhalb von ca. 30 Minuten diese an Fras- und Bohrwerke unvermeidlichen Probleme praktisch und wirtschaftlich zu lösen. FPT beweist wieder einmal, dass fast unüberwindbare Barrieren genommen werden können. FPT steht nicht nur für Bohr- und Fraswerke der Spitzenklasse, sondern auch für äußerst kundenorientierte Firmenpolitik.

### TECNOLOGIE FPT POUR LA CORRECTION AUTOMATIQUE ET AUTONOME PAR L'OPERATEUR DE LA GEOMETRIE DE LA TETE

AUTOCAL est le dispositif étudié par FPT pour la calibration automatique de la géométrie et du RTCP des têtes à 5 axes ou 3+2 axes. Il peut rétablir les tolérances préfixées des têtes qui ont subi une collision mineure, le changement d'une électrobroche ou d'une brache pour le normal entretien. Ainsi l'opérateur sera capable de rétablir de façon autonome la géométrie de la tête en évitant une intervention de part du constructeur, perte de jours ouvrables et importants couts. L'emploi du dispositif FPT-AUTOCAL (option) permet, par une rapide operation de 30 min. environ, la resolution facile et économique des inévitables problèmes qui émergent de l'utilisation des fraiseuses aleseuses. FPT encore une fois surmonte barrières qui sont impossibles pour les autres. FPT, pas seulement aleseuse à haute technologie, mais aussi soin et attention pour ses propres clients.



Exclusive technology from

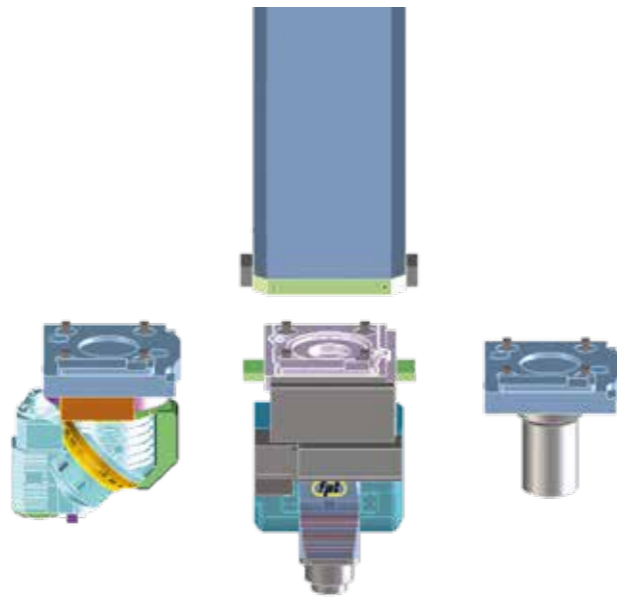
## FTM SYSTEM

The "FTM system" through use of a high-torque built-in spindle transmission, integrated within the ram, allows the use of a full range of FPT mechanical heads, including the infinite positioning universal head, together with high-speed heads equipped with an electrospindle.

Sistema FTM che grazie all'utilizzo di una trasmissione mandrino ad alta coppia di tipo built-in, integrata nella slitta portatesta, consente il contemporaneo utilizzo della gamma di teste meccaniche FPT e delle teste ad alta velocità dotate di elettromandrino. La testa universale meccanica a posizionamento continuo TUPCG, applicabile con l'interfaccia FTM, rappresenta la soluzione ideale per l'asportazione pesante, senza limiti nel posizionamento angolare.

FTM Schnittstelle erlaubt, durch Verwendung eines im RAM eingebauten Direktantriebs (built-in), den Einsatz aller mechanischen Fräsköpfe von FPT, einschließlich des mechanischen, kontinuierlich positionierbaren Unikopfes, sowie Köpfe mit Hochfrequenzspindel.

Système FTM qui grâce à l'application d'une transmission broche à haute couple de type built-in, intégrée dans le bélier porte-tête, permet l'utilisation simultanée de la gamme de têtes mécaniques FPT, y compris la tête universelle mécanique à positionnement continu, avec les têtes à haute vitesse pourvues d'électrobroche.



## AUTOMATIC HEAD CHANGER

The automatic head change is possible on both systems (FTA-FTM) and guarantees the maximum flexibility without compromises, obtaining the best performances for both roughing and finishing operations.

Il cambio automatico delle teste è possibile con entrambe le configurazioni (FTA-FTM) e garantisce, senza compromessi, la massima flessibilità di utilizzo e le migliori prestazioni sia in sgrassatura che in finitura.

Ein automatischer Kopfwechsel ist in beiden Versionen möglich (FTA-FTM), leistet kompromisslose Flexibilität und garantiert zudem Höchstleistungen beim Schruppen und Schlichten.

Le changement automatique des têtes est possible dans les deux configurations (FTA-FTM) et garantit la maximale flexibilité d'utilisation sans compromis, en garantissant les meilleures performances soit en ébauche soit en finition.



## HEAD / TESTE



BUILT-IN MOTOR



BUILT-IN MOTOR



BUILT-IN MOTOR



BUILT-IN MOTOR



HI-FREQUENCY SPINDLE



INDEXABLE TURNING HEAD

| <b>SELS</b>   |             |   |   |
|---|-------------|---|---|
| Max. spindle speed<br>Velocità massima di rotazione | r.p.m.      | 5.000                                   | 7.000                                   |
| Power - Potenza                                     | kW (Hp)     | up to 42 (56,3)                         | up to 42 (56,3)                         |
| Torque - Coppia mandrino                            | Nm (lbf.ft) | up to 1.180 (870,3)                     | up to 1.180 (870,3)                     |
| Spindle taper - Attacco utensile                    | mm (in)     | 400 - 600 - 900<br>(15,7 - 23,6 - 35,4) | 400 - 600 - 900<br>(15,7 - 23,6 - 35,4) |
| Length - Lunghezza                                  |             | ISO 50 / HSK A100                       | ISO 50 / HSK A100                       |
| Automatic change                                    |             | Available                               | Available                               |

| <b>TUPC TUI44</b>                                   |             |                        |                        |
|---|-------------|------------------------|------------------------|
| Max. spindle speed<br>Velocità massima di rotazione | r.p.m.      | 5.000                  | 7.000                  |
| Power - Potenza                                     | kW (Hp)     | up to 37 (49,6)        | up to 37 (49,6)        |
| Torque - Coppia mandrino                            | Nm (lbf.ft) | up to 1.180<br>(870,3) | up to 1.180<br>(870,3) |
| Spindle taper - Attacco utensile                    |             | ISO50<br>HSK A100      | ISO50<br>HSK A100      |
| Position - Posizione                                |             | 0,001°                 | 0,001°                 |
| Automatic change                                    |             | Available              | Available              |
| Turn-mill HSK-T100                                  |             | Available              | Available              |

| <b>TUDD</b>   |             |                     |                     |
|---|-------------|---------------------|---------------------|
| Max. spindle speed<br>Velocità massima di rotazione | r.p.m.      | 5.000               | 7.000               |
| Power - Potenza                                     | kW (Hp)     | up to 28 (37,5)     | up to 28 (37,5)     |
| Torque - Coppia mandrino                            | Nm (lbf.ft) | up to 500 (368,7)   | up to 500 (368,7)   |
| Spindle taper - Attacco utensile                    |             | ISO 50<br>HSK A100  | ISO 50<br>HSK A100  |
| Position - Posizione                                |             | 0,001° / Continuous | 0,001° / Continuous |
| Turn-mill HSK-T100                                  |             | Available           | Available           |

| <b>TTWM</b>   |             |  |                   |
|---|-------------|--|-------------------|
| Max. spindle speed<br>Velocità massima di rotazione | r.p.m.      |  | 5.000             |
| Power - Potenza                                     | kW (Hp)     |  | 25 (33,5)         |
| Torque - Coppia mandrino                            | Nm (lbf.ft) |  | 708 (522,1)       |
| Spindle taper - Attacco utensile                    |             |  | ISO 50 / HSK A100 |
| Position - Posizione                                |             |  | Continuous        |
| Axis motor  |             |  | GEAR TRASMISSION  |
| Rot. A / C axis                                     |             |  | ± 120° / ENDLESS  |
| Automatic change                                    |             |  | Available         |

| <b>TTWIB</b>  |             |  |                  |
|---|-------------|--|------------------|
| Max. spindle speed<br>Velocità massima di rotazione | r.p.m.      |  | 18.000           |
| Power - Potenza                                     | kW (Hp)     |  | up to 28 (37,5)  |
| Torque - Coppia mandrino                            | Nm (lbf.ft) |  | up to 100 (73,7) |
| Spindle taper - Attacco utensile                    |             |  | HSK A63          |
| Position - Posizione                                |             |  | Continuous       |
| Automatic change                                    |             |  | Available        |

| <b>T1</b>                        |  |  |                 |
|----------------------------------|--|--|-----------------|
| Spindle taper - Attacco utensile |  |  | HSK A100 T - C8 |
| Automatic change                 |  |  | Available       |

## ROTATING TABLES

|   |                | TRF30                       | TRF50                        | TRF75                        | TRF100                       | TRF120                       |
|---|----------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| Dimensions - Dimensioni<br>Abmessungen - Dimensions         | MIN<br>mm (in) | 2.000x2.500<br>(78,7x98,4)  | 2.500x2.500<br>(98,4x98,4)   | 2.500x2.500<br>(98,4x98,4)   | 3.000x3.000<br>(118,1x118,1) | 3.000x3.000<br>(118,1x118,1) |
|   | MAX<br>mm (in) | 2.500x3.000<br>(98,4x118,1) | 3.000x3.500<br>(118,1x137,8) | 4.000x4.000<br>(157,5x157,5) | 5.000x5.000<br>(196,9x196,9) | 5.000x5.000<br>(196,9x196,9) |
| Loading capacity - Portata<br>Tischlast - Capacité de poids | kg (lb)        | 30.000<br>(66.138)          | 50.000<br>(110.231)          | 75.000<br>(165.347)          | 100.000<br>(220.462)         | 120.000<br>(264.554)         |
| Rotation - Rotazione - Rotation - Rotation                  |                | Hydrostatic                 | Hydrostatic                  | Hydrostatic                  | Hydrostatic                  | Hydrostatic                  |
| Traverse - Traslazione - Verstellung - Translation          |                | Lubricated                  | Hydrostatic                  | Hydrostatic                  | Hydrostatic                  | Hydrostatic                  |



TRF 75

**HYDROSTATIC SYSTEM** by

**BHB** BOOSTED HYDROSTATIC BEARINGS



## 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 Stützlagert 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

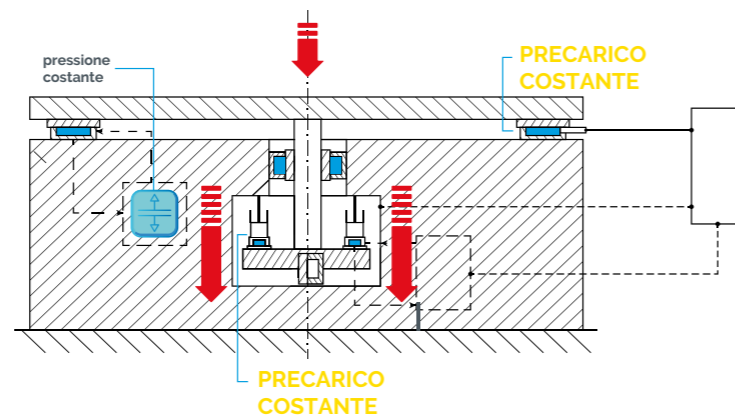
## ZERO LOAD SITUATION

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.



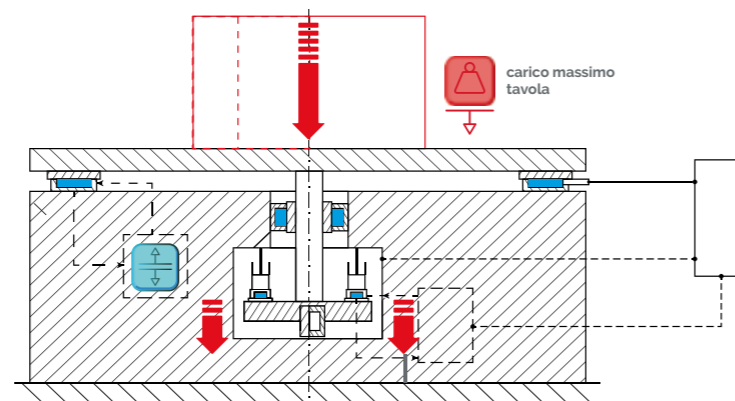
## LOADING SITUATION

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

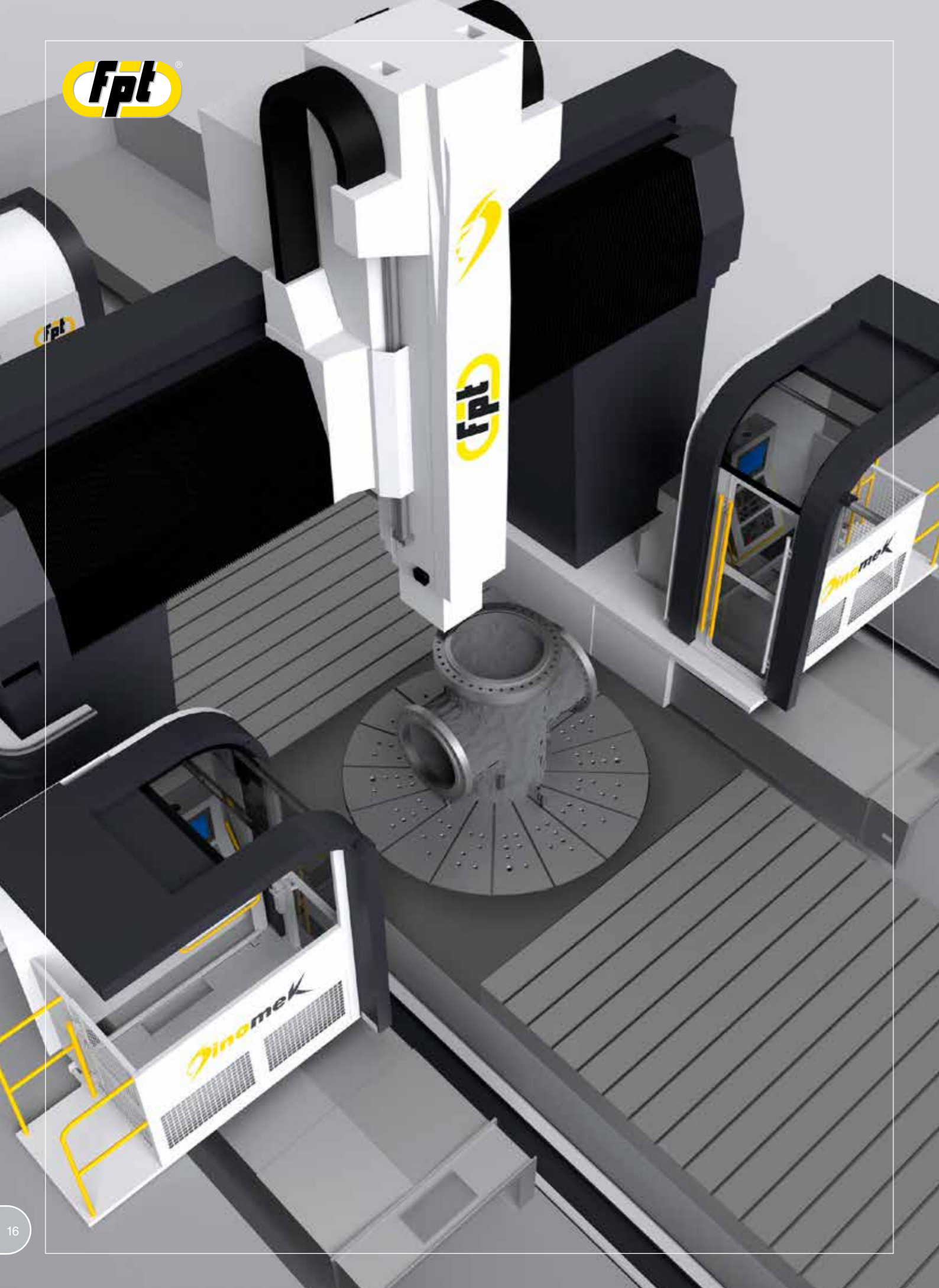
- Possibility of using low viscosity and therefore low friction oils with a consequent reduction in both the oil heating and the power required
- Dissipated power at maximum load equal to that absorbed in loadless condition
- Constant table stiffness, both at low and high load
- Possibility of "weighing"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

- Possibilità 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





INIMITABLE SOLUTION - SOLUZIONE INIMITABILE - UNVERGLEICHBARE LÖSUNG - SOLUTION INIMITABLE

MACHINE MORPHOLOGY  
PATENT  
N. WO 2011/042438 A1



## HYDROSTATIC TURNING SYSTEM

|   |         | TT30               | TT40                         | TT60                         | TT80                         |
|---|---------|--------------------|------------------------------|------------------------------|------------------------------|
| Dimensions - Dimensioni<br>Abmessungen - Dimensions   | mm (in) | 3.000<br>(118,1)   | 3.500<br>(137,8)             | 4.000<br>(157,5)             | 4.500<br>(177,2)             |
| Loading capacity - Portata<br>Tischlast - Capacité de poids                                     | kg (lb) | 30.000<br>(66.139) | 40.000<br>(88.185)           | 60.000<br>(132.277)          | 80.000<br>(176.370)          |
| Max power - Massima potenza<br>Max. Leistung - Puissance maxi                                   | kW (Hp) | 60<br>(80,5)       | 100 / 150<br>(134,1 / 201,2) | 100 / 150<br>(134,1 / 201,2) | 126 / 160<br>(169,0 / 214,6) |
| Type of Bearing - Tipo di cuscinetto<br>Lagertyp - Palier                                       |         | Hydrostatic        | Hydrostatic                  | Hydrostatic                  | Hydrostatic                  |
| Max. speed rotation - Max. velocità di rotazione<br>Maximale Drehzahl - Max vitesse de rotation | r.p.m.  | 180                | 120                          | 120                          | 100                          |





## TECHNICAL DATA

| Travels - Corse - Verfahrwege - Courses                  |         | DINOMEK 375                                 | DINOMEK 475                                 | DINOMEK 575                                 |
|--|---------|---|---|---|
| Longitudinal - Longitudinale - Längs - Longitudinale     | mm (in) | ≥ 6.000 (236,2)                             | ≥ 6.000 (236,2)                             | ≥ 6.000 (236,2)                             |
| Cross travel - Corsa Trasversale - Quer - Transversale   | mm (in) | 3.750 (147,6)                               | 4.750 (187,0)                               | 5.750 (226,4)                               |
| Vertical travel - Corsa Verticale - Vertikal - Verticale | mm (in) | 1.500 - 1.750 - 2.000<br>(59 - 68,9 - 78,7) | 1.500 - 1.750 - 2.000<br>(59 - 68,9 - 78,7) | 1.500 - 1.750 - 2.000<br>(59 - 68,9 - 78,7) |
| Distance between columns - Distanza tra le colonne       | mm (in) | 3.000 (118,1)                               | 4.000 (157,4)                               | 5.000 (196,8)                               |
| Floor plate width - Larghezza piastra pavimento          | mm (in) | 2.000 (78,7)                                | 3.000 (118,1)                               | 4.000 (157,4)                               |

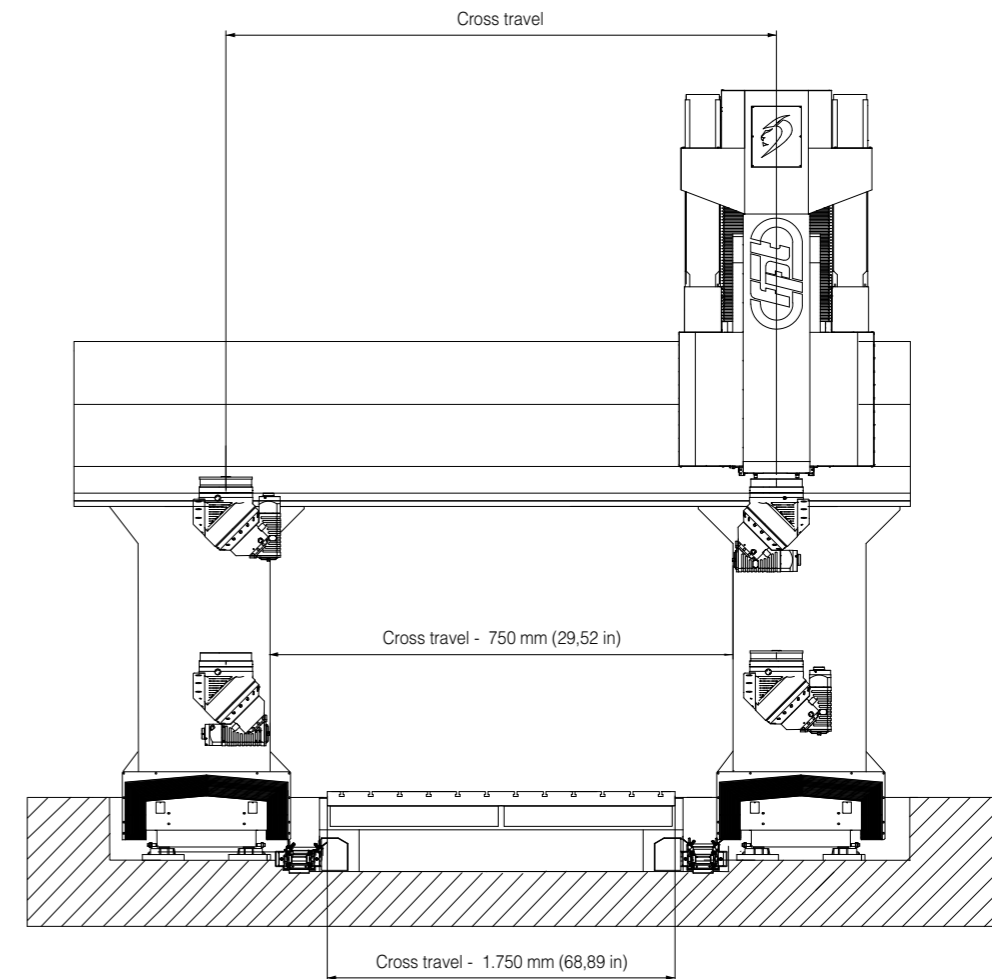
### Spindle - Mandrino - Spindel - Broche

|  |            |                     |                     |                     |
|--|------------|---------------------|---------------------|---------------------|
| Max Power - Potenza massima - Max Leistung des Motors - Puissance max      | kW (Hp)    | up to 42 (56,3)     | up to 42 (56,3)     | up to 42 (56,3)     |
| Max torque - Coppia massima mandrino - Max. Spindeldrehmoment - Couple max | Nm (lb.ft) | up to 1.180 (870,3) | up to 1.180 (870,3) | up to 1.180 (870,3) |

### NC Options

|                    |           |                    |
|--------------------|-----------|--------------------|
| SINUMERIK 840 D sl | FANUC 31i | HEIDENHAIN TNC 640 |
|--------------------|-----------|--------------------|

## LAYOUT EXAMPLE



Data and features in the present catalogue are not binding. The producer reserves the right to alter them without advance notice at any time - Dati e caratteristiche del presente catalogo non sono impegnativi. Il costruttore si riserva di modificarli senza preavviso in qualsiasi momento - Die in diesem Katalog angeführten Daten und Angaben sind unverbindlich. Der Hersteller behält sich das Recht zur Änderung ohne vorherige Benachrichtigung vor - Les données et caractéristiques du présent catalogue ne sont pas un engagement. Le constructeur se réserve de modifier celles-ci sans préavis à n'importe quel moment

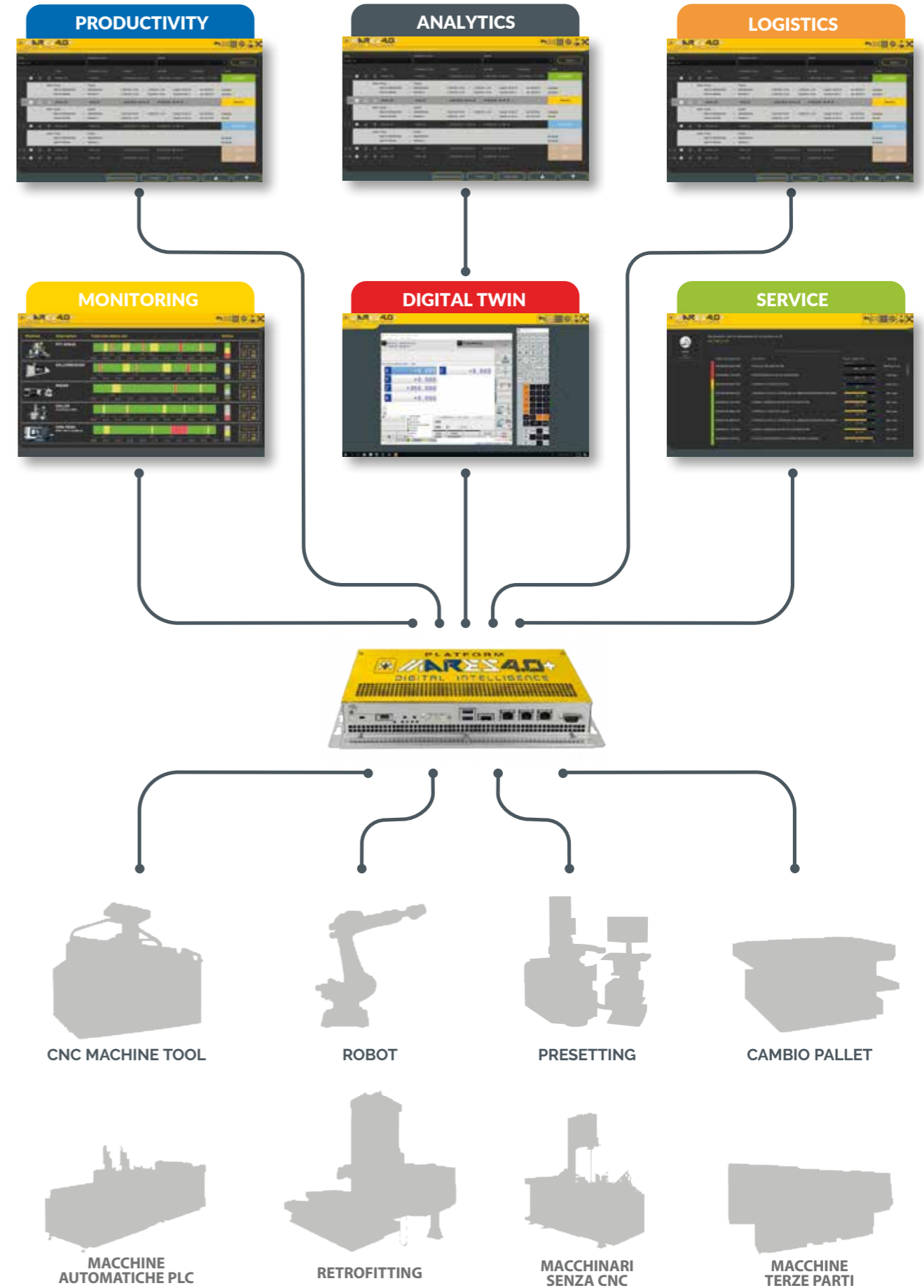
PLATFORM  
**MARES 4.0+**  
 DIGITAL INTELLIGENCE

# INDUSTRY 4.0 PLATFORM



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



## PRODUCTIVITY



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

- 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.

## LOGISTICS



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

- 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.

## ANALYSIS



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

- 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.

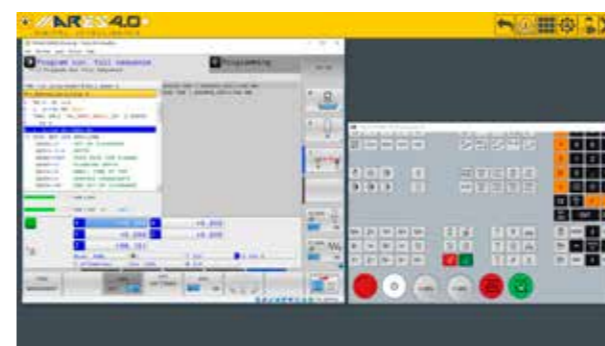
## MONITORING



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

- 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.

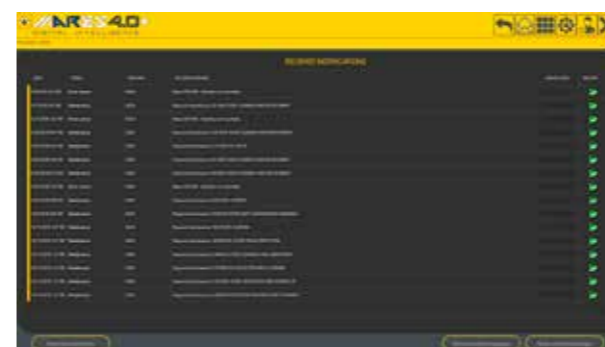
## DIGITAL TWIN



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.

- 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.

## SERVICE



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



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Thinking heads!

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