TECHNOTOOLS
ITALIA

# ADVANCED SPECIAL TOOLS

## L'AZIENDA

Technotools è un'azienda leader nel settore della progettazione e costruzione di utensili speciali a bloccaggio meccanico con una consolidata esperienza nel campo delle lavorazioni meccaniche di precisione. Il nostro obiettivo è quello di contribuire in maniera determinante al miglioramento dei tempi e dei metodi di lavoro delle aziende che producono grandi e piccole serie di componenti su centri di lavoro, linee transfer e torni. Sviluppiamo soluzioni e tecnologie per la tornitura, barenatura, foratura e fresatura fornendo studi personalizzati e utensili speciali dedicati. Collaboriamo con le più grandi aziende italiane ed europee nel settore dell'oleodinamica, automotive, trasmissioni e riduttori ma anche con piccole e medie imprese in tutti i settori della meccanica.

## *THE COMPANY*

*TECHNOTOOLS is a company leader in the sector of the study and the construction of special tools with mechanical blocking, with a solid experiment in the sector of the precision mechanics. Our main aim is to contribute to the improvement of the times and working methods specially for the companies which produce high and small series of components in using machining centers, on transfer lines and on lathes. We are developing solutions and technologies for the turning, machining, drilling and milling in submitting to our customers personalised studies and very special dedicated tools. We are collaborating with the most famous Italian and European companies in the sector of the hydraulic, car industry, transmission and reduction, also with medium and small companies in all sectors in relation with mechanic*


**TECHNOTOOLS ITALIA srl**
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Tel. +39 0523 524239 Fax +39 0523 524161 mail: info@technotoolsitalia.it

**www.technotoolsitalia.it**

THE INTERNATIONAL CERTIFICATION NETWORK

# CERTIFICATE

IQNet and its partner
CISQ/ICIM
hereby certify that the organization

**TECHNOTOOLS ITALIA S.r.l.**

**Via Enrico Mattei, 3 - I-29027 Gariga di Podenzano (PC)**

for the following field of activities

**Design and production of chip removal tools with mechanical blocking.**

Quality Management System

which fulfills the requirements of the following standard

**ISO 9001:2000**

Issued on: **2006-10-16**
Validity date: **2009-10-15**

*Registration Number:* IT-11950

*Fabio Roversi*
*President of IQNet*

*Gianrenzo Prati*
*President of CISQ*

IQNet partners*:
AENOR *Spain* AFAQ AFNOR *France* AIB-Vinçotte International *Belgium* ANCE *Mexico* APCER *Portugal* CISQ *Italy* CQC *China* CQM *China* CQS *Czech Republic* Cro Cert *Croatia* DQS *Germany* DS *Denmark* ELOT *Greece* FCAV *Brazil* FONDONORMA *Venezuela* HKQAA *China* ICONTEC *Colombia* IMNC *Mexico* IRAM *Argentina* JQA *Japan* KFQ *Korea* MSZT *Hungary* Nemko AS *Norway* NSAI *Ireland* PCBC *Poland* PSB Certification *Singapore* QMI *Canada* Quality Austria *Austria* RR *Russia* SAI Global *Australia* Inspecta Certification *Finland* SII *Israel* SIQ *Slovenia* SQS *Switzerland* SRAC *Romania* TEST St Petersburg *Russia* *YUQS Serbia and Montenegro*
IQNet is represented in the USA by: AFAQ AFNOR, AIB-Vinçotte International, CISQ, DQS, NSAI, QMI and SAI Global
*The list of IQNet partners is valid at the time of issue of this certificate. Updated information is available under www.iqnet-certification.com

CISQ is a member of IQNet
www.iqnet-certification.com

*IQNet, the association of the world's first class certification bodies, is the largest provider of management System Certification in the world. IQNet is composed of more than 30 bodies and counts over 150 subsidiaries all over the globe.*

ICIM
www.icim.it

CERTIFICATO n. / *CERTIFICATE No.* **1784/2**

SI CERTIFICA CHE IL SISTEMA DI GESTIONE PER LA QUALITA' DI
*WE HEREBY CERTIFY THAT THE QUALITY MANAGEMENT SYSTEM OPERATED BY*

**TECHNOTOOLS ITALIA S.r.l.**

UNITA' OPERATIVE
*OPERATIVE UNITS*

Via Enrico Mattei, 3 - 29027 Gariga di Podenzano (PC)
Italia

E' CONFORME ALLA NORMA
*IS IN COMPLIANCE WITH THE STANDARD*

**UNI EN ISO 9001:2000**

PER LE SEGUENTI ATTIVITA'
*FOR THE FOLLOWING ACTIVITIES*

**EA: 17**

Progettazione e produzione di utensili per asportazione di truciolo a bloccaggio meccanico.
*Design and production of chip removal tools with mechanical blocking.*

Riferirsi al Manuale della Qualità per l'applicabilità dei requisiti della Norma ISO 9001:2000.
*Refer to Quality Manual for details of application to ISO 9001:2000 requirements.*

Il presente certificato è soggetto al rispetto del regolamento per la certificazione dei sistemi di gestione per la qualità delle aziende.
*The use and the validity of this certificate shall satisfy the requirements of the rules for the certification of company quality management systems.*

| Data emissione | Emissione corrente | Data di scadenza |
|---|---|---|
| *First issue* | *Current issue* | *Expiring date* |
| 14/12/2000 | 16/10/2006 | 15/10/2009 |

ICIM S.p.A. – PIAZZA A. DIAZ, 2 - 20123 MILANO

SINCERT
Membro degli Accordi di Mutuo Riconoscimento EA e IAF
*Signatory of EA and IAF Mutual Recognition Agreements*
SGQ N° 004A
SGA N° 005D
PRD N° 004B
SCR N° 006F

CISQ è la Federazione Italiana di Organismi di Certificazione dei sistemi di gestione aziendale
*CISQ is the Italian Federation of management system Certification Bodies*
FEDERAZIONE CISQ
www.cisq.com

# COME LAVORIAMO

## LA QUALITA'

Tutti i nostri prodotti sono certificati e garantiti a norme ISO, la qualità del prodotto è uno dei nostri obiettivi principali e questo fa si che Technotools sia riconosciuta tra le prime aziende italiane del settore in termini di qualità e tecnologia nello studio e progettazione di utensili speciali a bloccaggio meccanico. L'ufficio tecnico sviluppa progetti sulle richieste e sulle esigenze del cliente con software in 3D di ultima generazione. Simulando la lavorazione e la condizione di impiego dell'utensile riusciamo a garantirne la produttività dello stesso, il tempo ciclo e la vita dell'utensile, fornendo al cliente tutte le informazioni per l'impiego con tempi e avanzamenti. Tutto il processo produttivo viene svolto all'interno dell'azienda, dal semilavorato alla produzione. Ogni utensile viene trattato termicamente, rettificato, bilanciato, e sottoposto ad un rigoroso collaudo prima di essere inviato al cliente.

## LE CONSEGNE

Un altro dei nostri vantaggi sono i tempi di consegna al cliente, che variano in base al tipo di studio richiesto; tra i 3 e 5 giorni per avere uno studio complessivo dell'utensile e dalle 2/4 settimane per avere il prodotto finito. Inoltre è possibile prestabilire le consegne per piani di produzione su larga scala.

## IL SUPPORTO TECNICO

Il cliente è sempre stato per noi una figura importante per lo sviluppo dei nostri prodotti, non è semplicemente una azienda che acquista un prodotto ma diventa un partner che lavora per migliorare la propria produttività dandoci la possibilità di crescere in termini di qualità e tecnologia. Il cliente può contare su un servizio pre e post vendita direttamente col nostro ufficio tecnico dedicato al problem-solving presso le aziende dei clienti.

## *OUR KNOW-HOW:*

***THE QUALITY:*** *All products that we manufacture are certified and guaranteed in compliance with the ISO standards, the quality of our products is one of our main aims and that's why the company TECHNOTOOLS is famous among the first Italian companies of the sector in terms of quality, technology and study of special tools with mechanical blocking. Our research department develops some projects according to the requests and the requirements of our customers in using a software in 3 D resulting of the very last generation. By simulating work and the using conditions of the tool, we succeed in guaranteeing of its productivity like its cycle time and its lifespan, by giving to the customer all information for its optimal use in indicating the times and the phases of advance. All the manufacturing process is made inside the company itself, from the outline to the production of the finished part. Each tool is treated thermically, reground, balanced and subjected to rigorous controls before being returned to the customer.*

***DELIVERY TIMES:*** *One of our other advantages are our delivery times which can vary according to the requested type of tool. From three to five days are necessary to comply the general study of the part and then from two to four weeks to manufacture it. It is nevertheless possible to foresee other delivery times, in case of realization of high quantity of production drawings.*

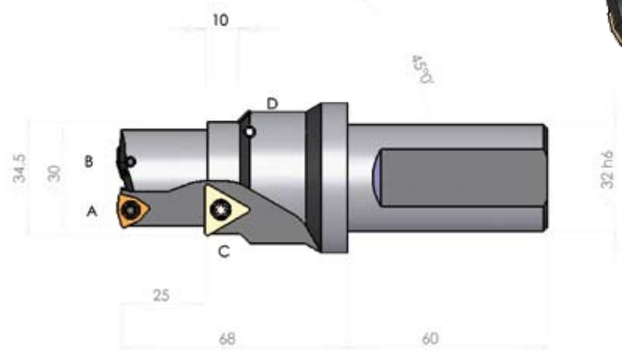
***TECHNICAL SUPPORT:*** *The customer has always highly contributed to our products development, he is not only one company which buys our products but he becomes indeed a partner who collaborates with us to improve his productivity and who gives us the possibility to improve us on the level of the technology and the quality. The customer can rely on a fore and after sales service in contacting directly our research department which is particularly specialized to solve all our customers problems*




# I NOSTRI PRODOTTI

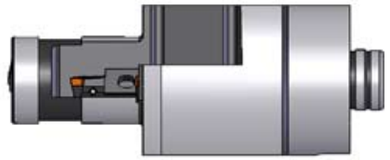
## PUNTE SPECIALI *Special Drills*

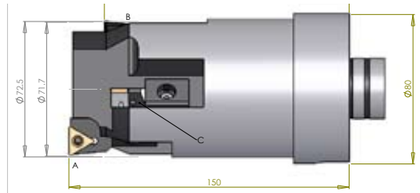
Punte speciali a bloccaggio meccanico - punte foranti multidiametro punte guidate a pattino.

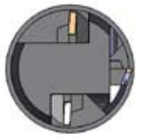


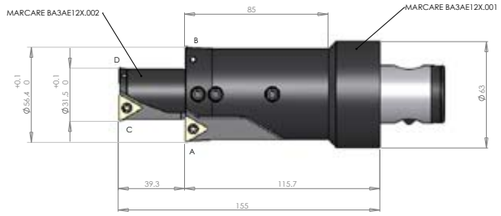

## BARENI COMBINATI SPECIALI *Special Boring Tools*

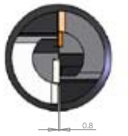
Bareni speciali a fissaggio meccanico, con sedi fisse o registrabili, Bareni integrali e modulari per sgrossatura e finitura, lavorazione di corpi in ghisa con inserti in CERAMICA, bareni con inserto speciale per lavorazioni delle sedi valvole.

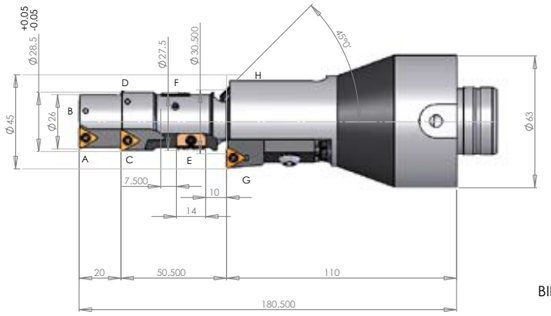







BILANCIARE

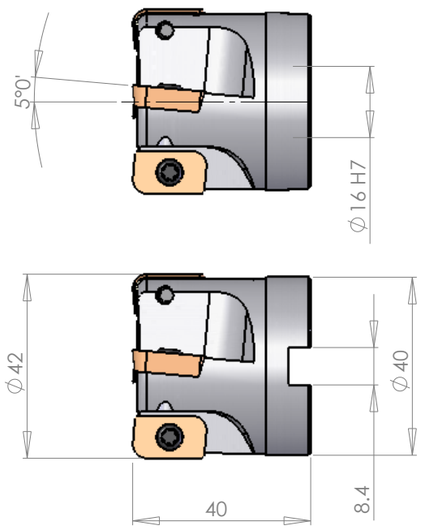
## UTENSILI SPECIALI PER TORNITURA
*Turning Special Tools*

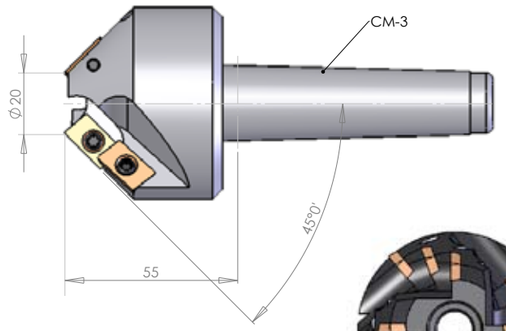
## BARENI AD ESPANSIONE FEED OUT
*Feed Out*

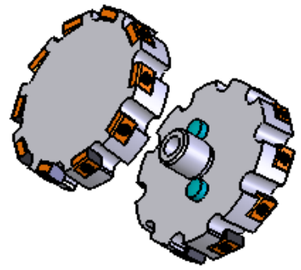
## TESTE A SFACCIARE
*Boring and Facing Heads*



## FRESE SPECIALI
*Special Mills*



# BARENATURA DI CORPI IN GHISA CON L'APPLICAZIONE DI INSERTI IN CERAMICA

Una partnership consolidata, che dal 2005 collabora per offrire ai clienti una soluzione alternativa al metalo duro proponendo una vasta gamma di articoli e di prodotti di altissima qualità e affidabilità. Ceramtec è un'azienda leader tedesca che progetta e produce inserti in ceramica, cbn, cermet e nitruro di silicio con una vasta gamma di gradi di qualità per gli impieghi più generici e per la lavorazione di materiali difficilmente lavorabili, quali ghise, super leghe, acciai speciali e alluminio. E' grazie alla qualità dei prodotti Ceramtec SPK che Technotools progetta e realizza una tipologia di bareni speciali e utensili con inserti SPK per le lavorazioni di copri in ghisa, alluminio, leghe. L'ampia gamma di qualità riesce a rendere ogni bareno adatto al tipo di materiale da lavorare, dalla sgrossatura alla finitura, utilizzando tipologie diverse di inserti e di qualità per ottenere il massimo risultato col minor tempo.
Di seguito le modalità d'uso, i vantaggi e le informazioni necessarie a capire quali sono le potenzialità di questi utensili:

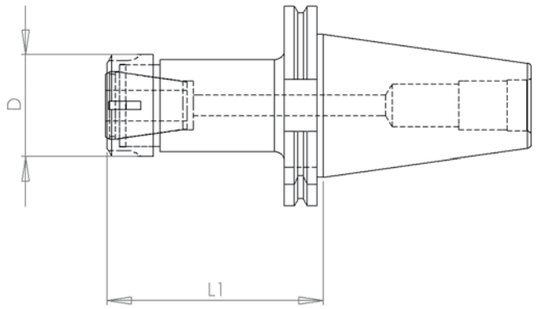
## SGROSSATURA:
Viene realizzata con bareni a bloccaggio meccanico su cui vengono montati inserti in CERAMICA bloccati a staffa. Tale soluzione riesce a garantire un'asportazione di truciolo di circa 2,5/3 mm sul raggio con velocità di taglio intorno ai 1000 M/min. per un avanzamento di 0,2 mm al tagliente. Considerando una vita inserto pari al carburo risulta evidente il netto miglioramento rispetto alla tradizionale applicazione.

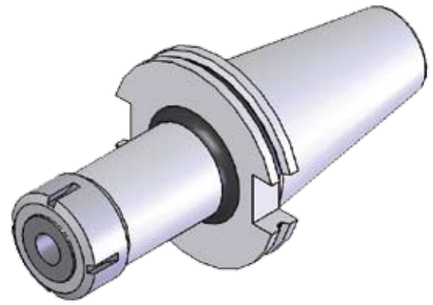
## FINITURA:
Tale operazione viene realizzata utilizzando inserti in CBN che,tramite un sistema rigido e ben bilanciato, garantiscono prestazioni di altissimo livello sia in termini di rugosità che in termini di precisione e abbattimento tempi.
Utilizzando inoltre appositi bareni da noi progettati (Speed Tools) , riusciamo a ridurre al minimo i problemi di microvibrazioni che potrebbero mettere in crisi la struttura del CBN ottenendo così ottimi risultati sia sul taglio continuo che su quello interrotto.

*A strong PARTNERSHIP, which has made its utmost since 2005 to propose to its customers an alternative solution for the metal work in proposing a wide range of products of very high quality and also a very high reliability.*
*CERAMTEC is a leader German company which creates and produces some ceramic ,CBN, cermet and silicon nitride with a wide range of quality levels for a more classic use and for the not easily penetrable material work, such as the cast iron, aluminium or alloys. The wide range of quality succeeds in making each tool adequate to the type of material to be worked, from the outline to the completion, by using various typologies of plates and qualities to obtain the best result in a minimum of time.*

# PORTA UTENSILE
# ATTACCO PORTA PINZE
## *Collet Chucks Toolholders*

### ISO 40 DIN69871 ER



G 6,3 12000 G/MIN **EQUILIBRATO**

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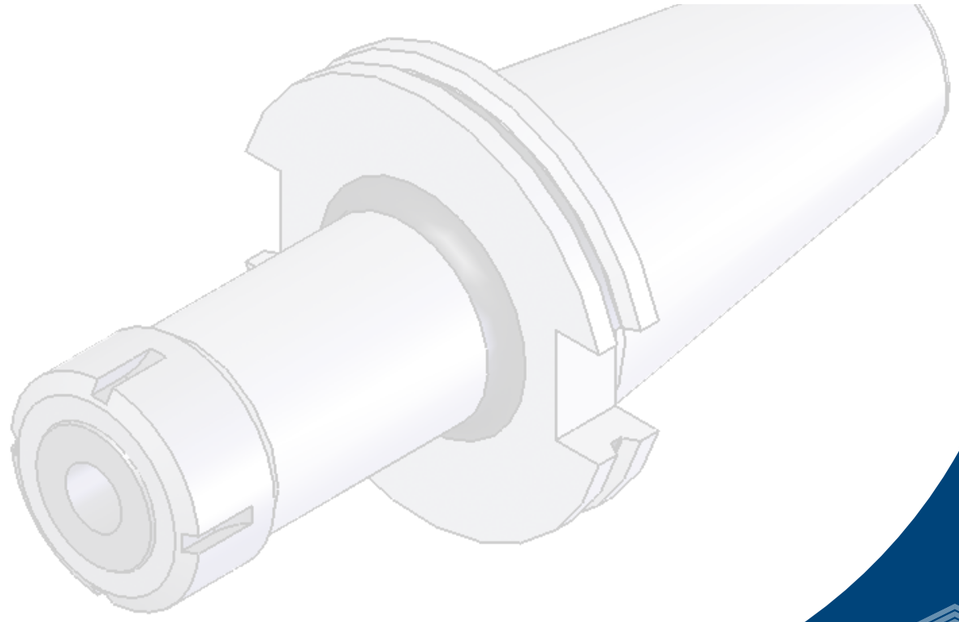
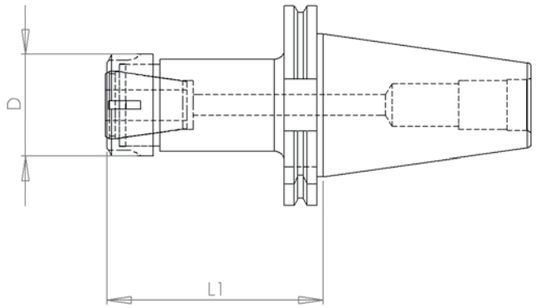
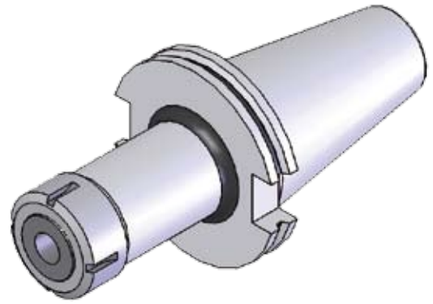


# PORTA UTENSILE
# ATTACCO PORTAPINZE
## *Collet Chucks Toolholders*

### ISO 50 DIN69871 ER



G 6,3 12000 G/MIN **EQUILIBRATO**

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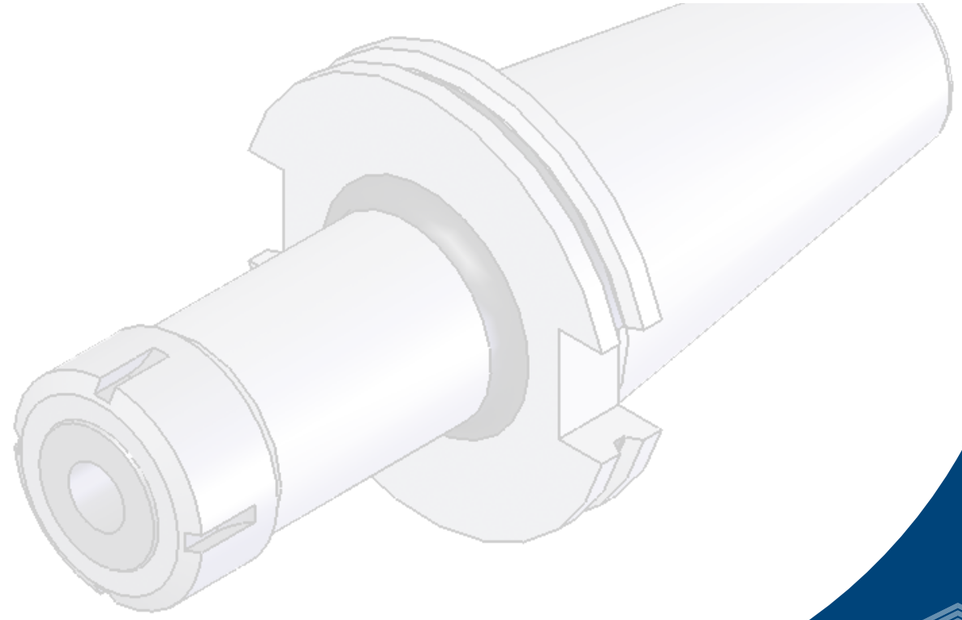
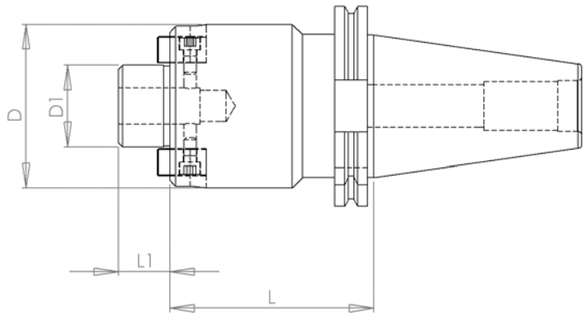
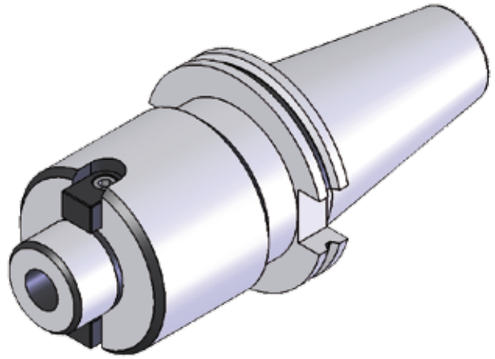
| **DIN 69871 ISO – 50** | ER 32 | **TT69871.50.ER32.50.080** | 50 | 80 |
| **DIN 69871 ISO – 50** | ER 32 | **TT69871.50.ER32.50.100** | 50 | 100 |
| **DIN 69871 ISO – 50** | ER 32 | **TT69871.50.ER32.50.130** | 50 | 130 |
| **DIN 69871 ISO – 50** | ER 32 | **TT69871.50.ER32.50.160** | 50 | 160 |
| **DIN 69871 ISO – 50** | ER 32 | **TT69871.50.ER32.50.200** | 50 | 200 |
| | | | | |
| **DIN 69871 ISO – 50** | ER 40 | **TT69871.50.ER40.63.080** | 63 | 80 |
| **DIN 69871 ISO – 50** | ER 40 | **TT69871.50.ER40.63.100** | 63 | 100 |
| **DIN 69871 ISO – 50** | ER 40 | **TT69871.50.ER40.63.130** | 63 | 130 |
| **DIN 69871 ISO – 50** | ER 40 | **TT69871.50.ER40.63.160** | 63 | 160 |
| **DIN 69871 ISO – 50** | ER 40 | **TT69871.50.ER40.63.200** | 63 | 200 |
| | | | | |
| **DIN 69871 ISO – 50** | ER 50 | **TT69871.50.ER50.78.100** | 78 | 100 |



# PORTA FRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed dragging*

### ISO 40 DIN69871

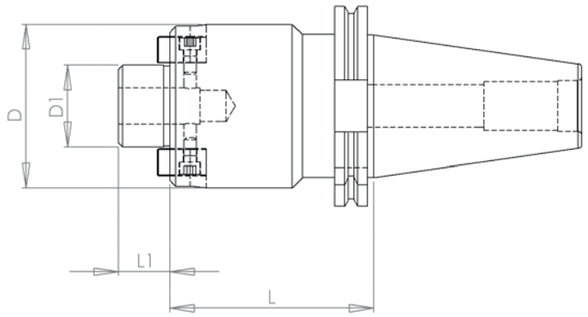


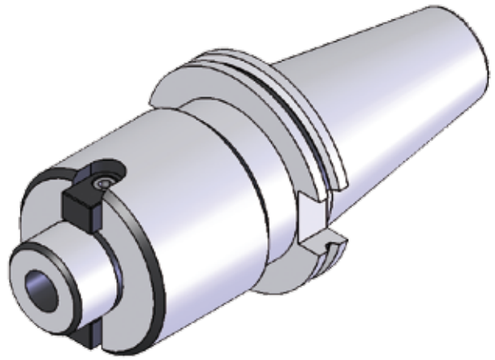



| ACCOPPIAMENTO | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| **DIN 69871 ISO - 40** | 16 | **TT69871.40.PF16.38.35** | 38 | 17 | 35 |
| **DIN 69871 ISO - 40** | 16 | **TT69871.40.PF16.38.50** | 38 | 17 | 50 |
| **DIN 69871 ISO – 40** | 16 | **TT69871.40.PF16.38.100** | 38 | 17 | 100 |
| **DIN 69871 ISO – 40** | 16 | **TT69871.40.PF16.38.130** | 38 | 17 | 130 |
| **DIN 69871 ISO – 40** | 16 | **TT69871.40.PF16.38.160** | 38 | 17 | 160 |
| **DIN 69871 ISO – 40** | 16 | **TT69871.40.PF16.38.200** | 38 | 17 | 200 |
| **DIN 69871 ISO - 40** | 22 | **TT69871.40.PF22.48.35** | 48 | 19 | 35 |
| **DIN 69871 ISO - 40** | 22 | **TT69871.40.PF22.48.55** | 48 | 19 | 55 |
| **DIN 69871 ISO – 40** | 22 | **TT69871.40.PF22.48.100** | 48 | 19 | 100 |
| **DIN 69871 ISO – 40** | 22 | **TT69871.40.PF22.48.130** | 48 | 19 | 130 |
| **DIN 69871 ISO – 40** | 22 | **TT69871.40.PF22.48.160** | 48 | 19 | 160 |
| **DIN 69871 ISO – 40** | 22 | **TT69871.40.PF22.48.200** | 48 | 19 | 200 |
| **DIN 69871 ISO - 40** | 27 | **TT69871.40.PF27.58.35** | 58 | 21 | 35 |
| **DIN 69871 ISO - 40** | 27 | **TT69871.40.PF27.58.55** | 58 | 21 | 55 |
| **DIN 69871 ISO – 40** | 27 | **TT69871.40.PF27.58.100** | 58 | 21 | 100 |
| **DIN 69871 ISO – 40** | 27 | **TT69871.40.PF27.58.130** | 58 | 21 | 130 |
| **DIN 69871 ISO – 40** | 27 | **TT69871.40.PF27.58.160** | 58 | 21 | 160 |
| **DIN 69871 ISO – 40** | 27 | **TT69871.40.PF27.58.200** | 58 | 21 | 200 |
| **DIN 69871 ISO - 40** | 32 | **TT69871.40.PF32.66.50** | 66 | 24 | 50 |
| **DIN 69871 ISO - 40** | 32 | **TT69871.40.PF32.66.60** | 66 | 24 | 60 |
| **DIN 69871 ISO – 40** | 32 | **TT69871.40.PF32.66.100** | 66 | 24 | 100 |
| **DIN 69871 ISO – 40** | 32 | **TT69871.40.PF32.66.130** | 66 | 24 | 130 |
| **DIN 69871 ISO – 40** | 32 | **TT69871.40.PF32.66.160** | 66 | 24 | 160 |
| **DIN 69871 ISO - 40** | 40 | **TT69871.40.PF40.80.60** | 80 | 27 | 60 |
| **DIN 69871 ISO – 40** | 40 | **TT69871.40.PF40.80.100** | 80 | 27 | 100 |
| **DIN 69871 ISO – 40** | 40 | **TT69871.40.PF40.80.130** | 80 | 27 | 130 |
| **DIN 69871 ISO – 40** | 40 | **TT69871.40.PF40.80.160** | 80 | 27 | 160 |

# PORTA FRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed dragging*

### ISO 50 DIN69871

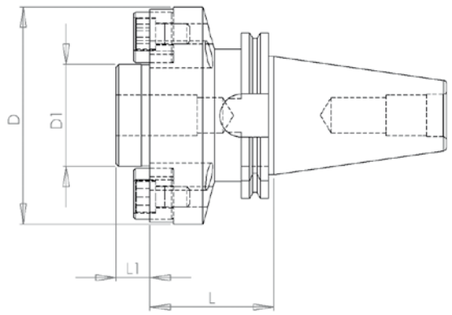


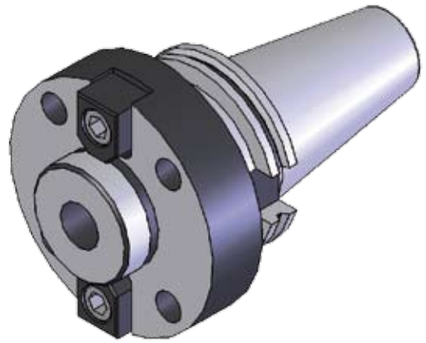



| ACCOPPIAMENTO | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| **DIN 69871 ISO – 50** | 16 | **TT69871.50.PF16.38.35** | 38 | 17 | 35 |
| **DIN 69871 ISO – 50** | 16 | **TT69871.50.PF16.38.45** | 38 | 17 | 45 |
| **DIN 69871 ISO – 50** | 16 | **TT69871.50.PF16.38.100** | 38 | 17 | 100 |
| **DIN 69871 ISO – 50** | 16 | **TT69871.50.PF16.38.130** | 38 | 17 | 130 |
| **DIN 69871 ISO – 50** | 16 | **TT69871.50.PF16.38.160** | 38 | 17 | 160 |
| **DIN 69871 ISO – 50** | 16 | **TT69871.50.PF16.38.200** | 38 | 17 | 200 |
| **DIN 69871 ISO – 50** | 22 | **TT69871.50.PF22.48.35** | 48 | 19 | 35 |
| **DIN 69871 ISO – 50** | 22 | **TT69871.50.PF22.48.45** | 48 | 19 | 45 |
| **DIN 69871 ISO – 50** | 22 | **TT69871.50.PF22.48.100** | 48 | 19 | 100 |
| **DIN 69871 ISO – 50** | 22 | **TT69871.50.PF22.48.130** | 48 | 19 | 130 |
| **DIN 69871 ISO – 50** | 22 | **TT69871.50.PF22.48.160** | 48 | 19 | 160 |
| **DIN 69871 ISO – 50** | 22 | **TT69871.50.PF22.48.200** | 48 | 19 | 200 |
| **DIN 69871 ISO – 50** | 27 | **TT69871.50.PF27.58.35** | 58 | 21 | 35 |
| **DIN 69871 ISO – 50** | 27 | **TT69871.50.PF27.58.45** | 58 | 21 | 45 |
| **DIN 69871 ISO – 50** | 27 | **TT69871.50.PF27.58.100** | 58 | 21 | 100 |
| **DIN 69871 ISO – 50** | 27 | **TT69871.50.PF27.58.130** | 58 | 21 | 130 |
| **DIN 69871 ISO – 50** | 27 | **TT69871.50.PF27.58.160** | 58 | 21 | 160 |
| **DIN 69871 ISO – 50** | 27 | **TT69871.50.PF27.58.200** | 58 | 21 | 200 |
| **DIN 69871 ISO – 50** | 32 | **TT69871.50.PF32.66.35** | 66 | 24 | 35 |
| **DIN 69871 ISO – 50** | 32 | **TT69871.50.PF32.66.50** | 66 | 24 | 50 |
| **DIN 69871 ISO – 50** | 32 | **TT69871.50.PF32.66.100** | 66 | 24 | 100 |
| **DIN 69871 ISO – 50** | 32 | **TT69871.50.PF32.66.130** | 66 | 24 | 130 |
| **DIN 69871 ISO – 50** | 32 | **TT69871.50.PF32.66.160** | 66 | 24 | 160 |
| **DIN 69871 ISO – 50** | 32 | **TT69871.50.PF32.66.200** | 66 | 24 | 200 |
| **DIN 69871 ISO – 50** | 40 | **TT69871.50.PF40.80.50** | 80 | 27 | 50 |
| **DIN 69871 ISO – 50** | 40 | **TT69871.50.PF40.80.100** | 80 | 27 | 100 |
| **DIN 69871 ISO – 50** | 40 | **TT69871.50.PF40.80.130** | 80 | 27 | 130 |
| **DIN 69871 ISO – 50** | 40 | **TT69871.50.PF40.80.160** | 80 | 27 | 160 |

# PORTA FRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed dragging*

### ISO 40 DIN69871



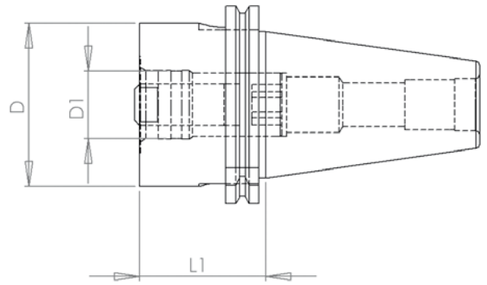



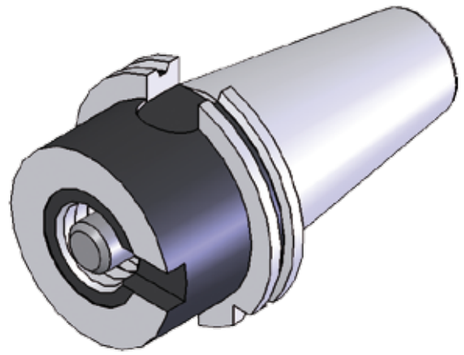
| ACCOPPIAMENTO | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| **DIN 69871 ISO - 40** | 40 | **TT69871.40.PF40.89.60** | 89 | 30 | 60 |
| **DIN 69871 ISO – 50** | 40 | **TT69871.50.PF40.89.70** | 89 | 30 | 70 |
| **DIN 69871 ISO – 50** | 60 | **TT69871.50.PF60.129.70** | 129 | 30 | 70 |



# PORTA UTENSILI
## *Modular Basic Holders*

### DIN69871 VARILOCK

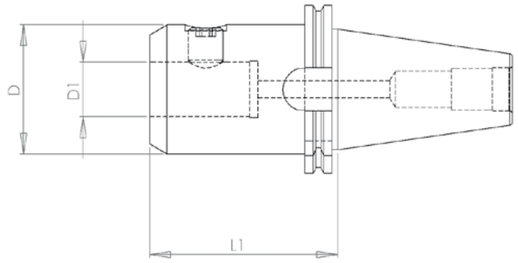


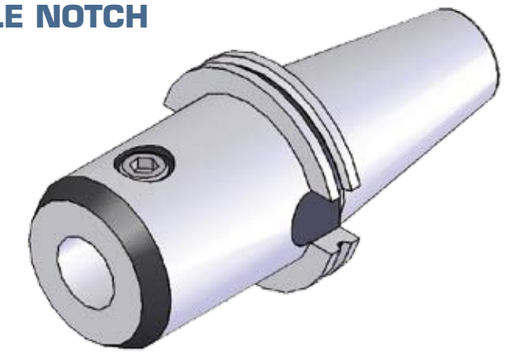



| ACCOPPIAMENTO | MISURA | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| **DIN 69871 ISO - 40** | V – 50 | **TT69871.40.V50.27** | 50 | 27 | 27 |
| **DIN 69871 ISO - 40** | V – 50 | **TT69871.40.V50.50** | 50 | 27 | 50 |
| **DIN 69871 ISO - 40** | V – 63 | **TT69871.40.V63.50** | 63 | 32 | 50 |
| **DIN 69871 ISO – 50** | V – 50 | **TT69871.50.V50.27** | 50 | 27 | 27 |
| **DIN 69871 ISO – 50** | V – 50 | **TT69871.50.V50.50** | 50 | 27 | 50 |
| **DIN 69871 ISO – 50** | V – 63 | **TT69871.50.V63.27** | 63 | 32 | 27 |
| **DIN 69871 ISO – 50** | V – 63 | **TT69871.50.V63.50** | 63 | 32 | 50 |
| **DIN 69871 ISO – 50** | V – 63 | **TT69871.50.V63.90** | 63 | 32 | 90 |
| **DIN 69871 ISO – 50** | V – 80 | **TT69871.50.V80.27** | 80 | 32 | 27 |
| **DIN 69871 ISO – 50** | V – 80 | **TT69871.50.V80.50** | 80 | 32 | 50 |
| **DIN 69871 ISO – 50** | V – 80 | **TT69871.50.V80.90** | 80 | 32 | 90 |

# PORTA UTENSILE
## *Short and Mills Holders*

### ISO 40 DIN69871 WELDON/WISTLE NOTCH



**LEGENDA/DISPONIBILITÀ**

○ versione weldon ◐ versione wistle notch ● entrambe

G 6,3 12000 G/MIN **EQUILIBRATO**

| | ACCOPPIAMENTO | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| ● | DIN 69871 ISO - 40 | TT69871.40.W06.25.50 | 25 | 6 | 50 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W06.25.100 | 25 | 6 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W06.25.160 | 25 | 6 | 160 |
| ● | DIN 69871 ISO - 40 | TT69871.40.W08.28.50 | 28 | 8 | 50 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W08.28.100 | 28 | 8 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W08.28.160 | 28 | 8 | 160 |
| ● | DIN 69871 ISO - 40 | TT69871.40.W10.35.50 | 35 | 10 | 50 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W10.35.100 | 35 | 10 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W10.35.160 | 35 | 10 | 160 |
| ● | DIN 69871 ISO - 40 | TT69871.40.W12.42.50 | 42 | 12 | 50 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W12.42.100 | 42 | 12 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W12.42.160 | 42 | 12 | 160 |
| ● | DIN 69871 ISO - 40 | TT69871.40.W14.44.50 | 44 | 14 | 50 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W14.44.100 | 44 | 14 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W14.44.160 | 44 | 14 | 160 |
| ○ | DIN 69871 ISO - 40 | TT69871.40.W16.48.35 | 48 | 16 | 35 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W16.48.63 | 48 | 16 | 63 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W16.48.100 | 48 | 16 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W16.48.160 | 48 | 16 | 160 |
| ● | DIN 69871 ISO - 40 | TT69871.40.W18.50.63 | 50 | 18 | 63 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W18.50.100 | 50 | 18 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W18.50.160 | 50 | 18 | 160 |
| ○ | DIN 69871 ISO - 40 | TT69871.40.W20.52.35 | 52 | 20 | 35 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W20.52.63 | 52 | 20 | 63 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W20.52.100 | 52 | 20 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W20.52.160 | 52 | 20 | 160 |
| ○ | DIN 69871 ISO - 40 | TT69871.40.W25.65.35 | 65 | 25 | 35 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W25.65.100 | 65 | 25 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W25.65.160 | 65 | 25 | 160 |
| ● | DIN 69871 ISO – 40 | TT69871.40.W32.72.100 | 72 | 32 | 100 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W32.72.160 | 72 | 32 | 160 |
| ○ | DIN 69871 ISO – 40 | TT69871.40.W40.80.120 | 80 | 40 | 120 |

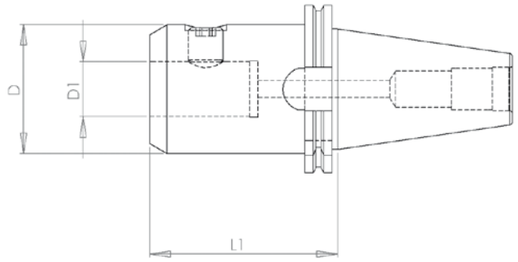
**ESEMPIO DI ORDINAZIONE**

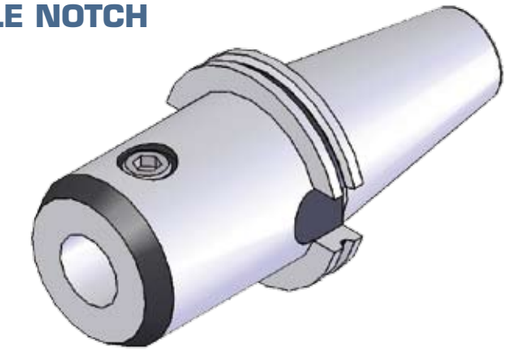
**ISO 40 - WELDON Ø20:** TT69871.40.**W20**.52.100

**ISO 40 - WISTLE NOTCH Ø20:** TT69871.40.**WN20**.52.100

# PORTA UTENSILE
## *Short and Mills Holders*

### ISO 50 DIN69871 WELDON/WISTLE NOTCH



**LEGENDA/DISPONIBILITÀ**

○ **versione weldon** ◐ **versione wistle notch** ● **entrambe** G 6,3 12000 G/MIN **EQUILIBRATO**

| | ACCOPPIAMENTO | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W06.25.63** | 25 | 6 | 63 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W06.25.100** | 25 | 6 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W06.25.130** | 25 | 6 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W06.25.160** | 25 | 6 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W06.25.200** | 25 | 6 | 200 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W08.28.63** | 28 | 8 | 63 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W08.28.100** | 28 | 8 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W08.28.130** | 28 | 8 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W08.28.160** | 28 | 8 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W08.28.200** | 28 | 8 | 200 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W10.35.63** | 35 | 10 | 63 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W10.35.100** | 35 | 10 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W10.35.130** | 35 | 10 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W10.35.160** | 35 | 10 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W10.35.200** | 35 | 10 | 200 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W12.42.63** | 42 | 12 | 63 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W12.42.100** | 42 | 12 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W12.42.130** | 42 | 12 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W12.42.160** | 42 | 12 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W12.42.200** | 42 | 12 | 200 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W14.44.63** | 44 | 14 | 63 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W14.44.100** | 44 | 14 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W14.44.130** | 44 | 14 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W14.44.160** | 44 | 14 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W14.44.200** | 44 | 14 | 200 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W16.48.35** | 48 | 16 | 35 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W16.48.63** | 48 | 16 | 63 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W16.48.100** | 48 | 16 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W16.48.130** | 48 | 16 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W16.48.160** | 48 | 16 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W16.48.200** | 48 | 16 | 200 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W18.50.63** | 50 | 18 | 63 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W18.50.100** | 50 | 18 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W18.50.130** | 50 | 18 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W18.50.160** | 50 | 18 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W18.50.200** | 50 | 18 | 200 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W20.52.35** | 52 | 20 | 35 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W20.52.63** | 52 | 20 | 63 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W20.52.100** | 52 | 20 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W20.52.130** | 52 | 20 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W20.52.160** | 52 | 20 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W20.52.200** | 52 | 20 | 200 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W25.65.35** | 65 | 25 | 35 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W25.65.80** | 65 | 25 | 80 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W25.65.100** | 65 | 25 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W25.65.130** | 65 | 25 | 130 |

| | ACCOPPIAMENTO | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W25.65.160** | 65 | 25 | 160 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W25.65.200** | 65 | 25 | 200 |
| | | | | | |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W32.72.35** | 72 | 32 | 35 |
| ● | **DIN 69871 ISO – 50** | **TT69871.50.W32.72.100** | 72 | 32 | 100 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W32.72.130** | 72 | 32 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W32.72.160** | 72 | 32 | 160 |
| | | | | | |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W40.80.112** | 80 | 40 | 112 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W40.80.130** | 80 | 40 | 130 |
| ○ | **DIN 69871 ISO – 50** | **TT69871.50.W40.80.160** | 80 | 40 | 160 |
| ◐ | **DIN 69871 ISO – 50** | **TT69871.50.WN40.80.100** | 80 | 40 | 100 |

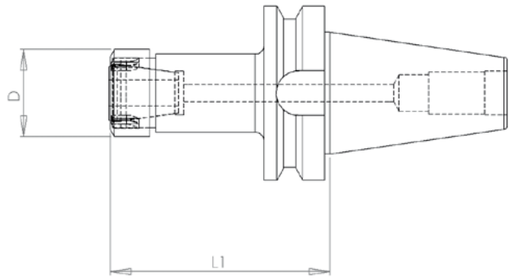
**MANDRINI ISO 50 DIN69871 WELDON/WISTLE NOTCH**

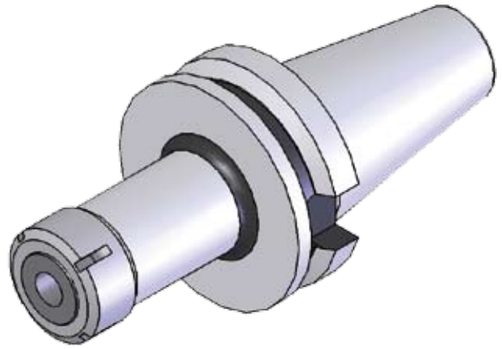
**ESEMPIO DI ORDINAZIONE**
**ISO 50 - WELDON Ø20:** TT69871.50.**W20**.52.100
**ISO 50 - WISTLE NOTCH Ø20:** TT69871.50.**WN20**.52.100



# PORTA UTENSILE ATTACCO PORTA PINZE
## *Collet Chucks Toolholders*

### MAS BT 40 ER



G 6,3 12000 G/MIN **EQUILIBRATO**

| ACCOPP. | ER | CODICE DI ORDINAZIONE | D | L1 |
|---|---|---|---|---|
| **MAS BT – 40** | ER 11 Slim | **TTBT40.ER11.16.100** | 16 | 100 |
| **MAS BT – 40** | ER 11 Slim | **TTBT40.ER11.16.130** | 16 | 130 |
| | | | | |
| **MAS BT – 40** | ER 16 Slim | **TTBT40.ER16.22.100** | 22 | 100 |
| **MAS BT – 40** | ER 16 Slim | **TTBT40.ER16.22.130** | 22 | 130 |
| **MAS BT – 40** | ER 16 Slim | **TTBT40.ER16.22.160** | 22 | 160 |
| **MAS BT – 40** | ER 16 Slim | **TTBT40.ER16.22.200** | 22 | 200 |
| | | | | |
| **MAS BT – 40** | ER 20 Slim | **TTBT40.ER20.28.130** | 28 | 130 |
| **MAS BT – 40** | ER 20 Slim | **TTBT40.ER20.28.160** | 28 | 160 |
| **MAS BT – 40** | ER 20 Slim | **TTBT40.ER20.28.200** | 28 | 200 |
| | | | | |
| **MAS BT – 40** | ER 25 Slim | **TTBT40.ER25.35.130** | 35 | 130 |
| **MAS BT – 40** | ER 25 Slim | **TTBT40.ER25.35.160** | 35 | 160 |
| **MAS BT – 40** | ER 25 Slim | **TTBT40.ER25.35.200** | 35 | 200 |
| | | | | |
| **MAS BT – 40** | ER 16 | **TTBT40.ER16.32.070** | 32 | 70 |
| **MAS BT – 40** | ER 16 | **TTBT40.ER16.32.100** | 32 | 100 |
| **MAS BT – 40** | ER 16 | **TTBT40.ER16.32.130** | 32 | 130 |
| **MAS BT – 40** | ER 16 | **TTBT40.ER16.32.160** | 32 | 160 |
| **MAS BT – 40** | ER 16 | **TTBT40.ER16.32.200** | 32 | 200 |

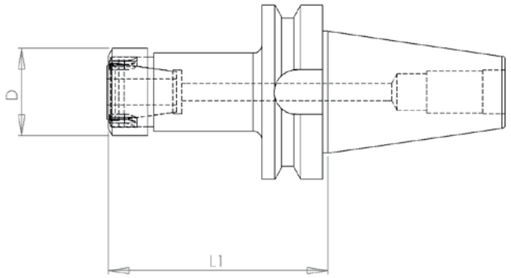
| ACCOPP. | ER | CODICE DI ORDINAZIONE | D | L1 |
|---|---|---|---|---|
| **MAS BT – 40** | ER 20 | **TTBT40.ER20.35.070** | 35 | 70 |
| **MAS BT – 40** | ER 20 | **TTBT40.ER20.35.100** | 35 | 100 |
| **MAS BT – 40** | ER 20 | **TTBT40.ER20.35.130** | 35 | 130 |
| **MAS BT – 40** | ER 20 | **TTBT40.ER20.35.160** | 35 | 160 |
| **MAS BT – 40** | ER 20 | **TTBT40.ER20.35.200** | 35 | 200 |
| **MAS BT – 40** | ER 25 | **TTBT40.ER25.42.070** | 42 | 70 |
| **MAS BT – 40** | ER 25 | **TTBT40.ER25.42.100** | 42 | 100 |
| **MAS BT – 40** | ER 25 | **TTBT40.ER25.42.130** | 42 | 130 |
| **MAS BT – 40** | ER 25 | **TTBT40.ER25.42.160** | 42 | 160 |
| **MAS BT – 40** | ER 25 | **TTBT40.ER25.42.200** | 42 | 200 |
| **MAS BT – 40** | ER 32 | **TTBT40.ER32.50.070** | 50 | 70 |
| **MAS BT – 40** | ER 32 | **TTBT40.ER32.50.100** | 50 | 100 |
| **MAS BT – 40** | ER 32 | **TTBT40.ER32.50.130** | 50 | 130 |
| **MAS BT – 40** | ER 32 | **TTBT40.ER32.50.160** | 50 | 160 |
| **MAS BT – 40** | ER 32 | **TTBT40.ER32.50.200** | 50 | 200 |
| **MAS BT – 40** | ER 40 | **TTBT40.ER40.63.070** | 63 | 70 |
| **MAS BT – 40** | ER 40 | **TTBT40.ER40.63.100** | 63 | 100 |
| **MAS BT – 40** | ER 40 | **TTBT40.ER40.63.130** | 63 | 130 |
| **MAS BT – 40** | ER 40 | **TTBT40.ER40.63.160** | 63 | 160 |
| **MAS BT – 40** | ER 40 | **TTBT40.ER40.63.200** | 63 | 200 |

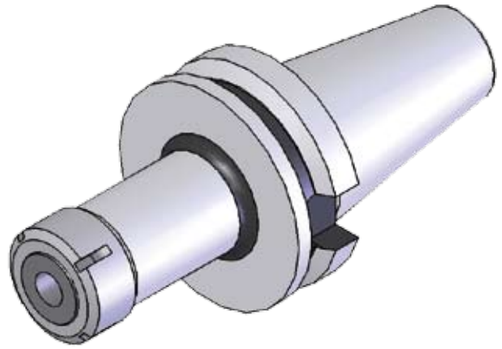




# PORTA UTENSILI
# ATTACCO PORTA PINZE
## *Collet Chucks Toolholders*

## MAS BT 50 ER



G 6,3 12000 G/MIN **EQUILIBRATO**

| ACCOPP. | ER | CODICE DI ORDINAZIONE | D | L1 |
|---|---|---|---|---|
| **MAS BT – 50** | ER 16 Slim | **TTBT50.ER16.22.100** | 22 | 100 |
| **MAS BT – 50** | ER 16 Slim | **TTBT50.ER16.22.130** | 22 | 130 |
| **MAS BT – 50** | ER 16 Slim | **TTBT50.ER16.22.160** | 22 | 160 |
| **MAS BT – 50** | ER 16 Slim | **TTBT50.ER16.22.200** | 22 | 200 |
| **MAS BT – 50** | ER 20 Slim | **TTBT50.ER20.28.130** | 28 | 130 |
| **MAS BT – 50** | ER 20 Slim | **TTBT50.ER20.28.160** | 28 | 160 |
| **MAS BT – 50** | ER 20 Slim | **TTBT50.ER20.28.200** | 28 | 200 |
| **MAS BT – 50** | ER 25 Slim | **TTBT50.ER25.35.130** | 35 | 130 |
| **MAS BT – 50** | ER 25 Slim | **TTBT50.ER25.35.160** | 35 | 160 |
| **MAS BT – 50** | ER 25 Slim | **TTBT50.ER25.35.200** | 35 | 200 |
| **MAS BT – 50** | ER 16 | **TTBT50.ER16.32.080** | 32 | 80 |
| **MAS BT – 50** | ER 16 | **TTBT50.ER16.32.100** | 32 | 100 |
| **MAS BT – 50** | ER 16 | **TTBT50.ER16.32.130** | 32 | 130 |
| **MAS BT – 50** | ER 16 | **TTBT50.ER16.32.160** | 32 | 160 |
| **MAS BT – 50** | ER 16 | **TTBT50.ER16.32.200** | 32 | 200 |
| **MAS BT – 50** | ER 20 | **TTBT50.ER20.35.080** | 35 | 80 |
| **MAS BT – 50** | ER 20 | **TTBT50.ER20.35.100** | 35 | 100 |

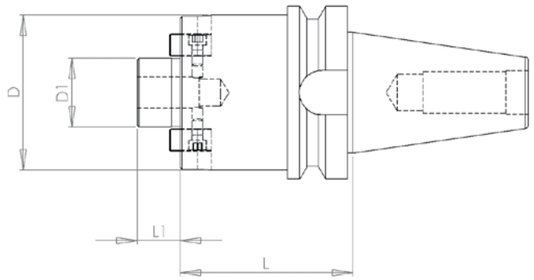
| ACCOPP. | ER | CODICE DI ORDINAZIONE | D | L1 |
|---|---|---|---|---|
| **MAS BT – 50** | ER 20 | **TTBT50.ER20.35.130** | 35 | 130 |
| **MAS BT – 50** | ER 20 | **TTBT50.ER20.35.160** | 35 | 160 |
| **MAS BT – 50** | ER 20 | **TTBT50.ER20.35.200** | 35 | 200 |
| **MAS BT – 50** | ER 25 | **TTBT50.ER25.42.080** | 42 | 80 |
| **MAS BT – 50** | ER 25 | **TTBT50.ER25.42.100** | 42 | 100 |
| **MAS BT – 50** | ER 25 | **TTBT50.ER25.42.130** | 42 | 130 |
| **MAS BT – 50** | ER 25 | **TTBT50.ER25.42.160** | 42 | 160 |
| **MAS BT – 50** | ER 25 | **TTBT50.ER25.42.200** | 42 | 200 |
| **MAS BT – 50** | ER 32 | **TTBT50.ER32.50.080** | 50 | 80 |
| **MAS BT – 50** | ER 32 | **TTBT50.ER32.50.100** | 50 | 100 |
| **MAS BT – 50** | ER 32 | **TTBT50.ER32.50.130** | 50 | 130 |
| **MAS BT – 50** | ER 32 | **TTBT50.ER32.50.160** | 50 | 160 |
| **MAS BT – 50** | ER 32 | **TTBT50.ER32.50.200** | 50 | 200 |
| **MAS BT – 50** | ER 40 | **TTBT50.ER40.63.080** | 63 | 80 |
| **MAS BT – 50** | ER 40 | **TTBT50.ER40.63.100** | 63 | 100 |
| **MAS BT – 50** | ER 40 | **TTBT50.ER40.63.130** | 63 | 130 |
| **MAS BT – 50** | ER 40 | **TTBT50.ER40.63.160** | 63 | 160 |
| **MAS BT – 50** | ER 40 | **TTBT50.ER40.63.200** | 63 | 200 |
| **MAS BT – 50** | ER 50 | **TTBT50.ER50.78.100** | 78 | 100 |

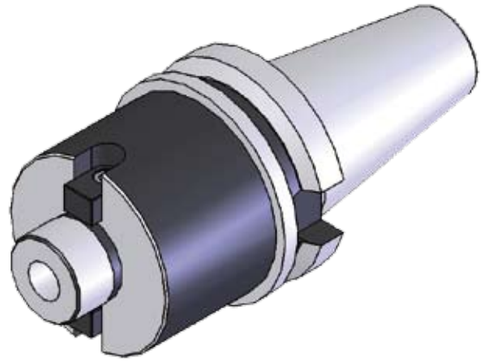




# PORTA FRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed Dragging*

### MAS BT 40



G 6,3 12000 G/MIN **EQUILIBRATO**

| ACCOPP. | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| **MAS BT – 40** | 16 | **TTBT40.PF16.38.35** | 38 | 17 | 35 |
| **MAS BT – 40** | 16 | **TTBT40.PF16.38.50** | 38 | 17 | 50 |
| **MAS BT – 40** | 16 | **TTBT40.PF16.38.100** | 38 | 17 | 100 |
| **MAS BT – 40** | 16 | **TTBT40.PF16.38.130** | 38 | 17 | 130 |
| **MAS BT – 40** | 16 | **TTBT40.PF16.38.160** | 38 | 17 | 160 |
| **MAS BT – 40** | 16 | **TTBT40.PF16.38.200** | 38 | 17 | 200 |
| **MAS BT – 40** | 22 | **TTBT40.PF22.48.35** | 48 | 19 | 35 |
| **MAS BT – 40** | 22 | **TTBT40.PF22.48.55** | 48 | 19 | 55 |
| **MAS BT – 40** | 22 | **TTBT40.PF22.48.100** | 48 | 19 | 100 |
| **MAS BT – 40** | 22 | **TTBT40.PF22.48.130** | 48 | 19 | 130 |
| **MAS BT – 40** | 22 | **TTBT40.PF22.48.160** | 48 | 19 | 160 |
| **MAS BT – 40** | 22 | **TTBT40.PF22.48.200** | 48 | 19 | 200 |
| **MAS BT – 40** | 27 | **TTBT40.PF27.58.35** | 58 | 21 | 35 |
| **MAS BT – 40** | 27 | **TTBT40.PF27.58.55** | 58 | 21 | 55 |
| **MAS BT – 40** | 27 | **TTBT40.PF27.58.100** | 58 | 21 | 100 |
| **MAS BT – 40** | 27 | **TTBT40.PF27.58.130** | 58 | 21 | 130 |
| **MAS BT – 40** | 27 | **TTBT40.PF27.58.160** | 58 | 21 | 160 |
| **MAS BT – 40** | 27 | **TTBT40.PF27.58.200** | 58 | 21 | 200 |

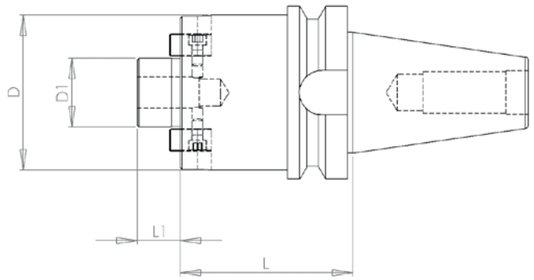
| ACCOPP. | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| **MAS BT – 40** | 32 | **TTBT40.PF32.66.45** | 66 | 24 | 45 |
| **MAS BT – 40** | 32 | **TTBT40.PF32.66.60** | 66 | 24 | 60 |
| **MAS BT – 40** | 32 | **TTBT40.PF32.66.100** | 66 | 24 | 100 |
| **MAS BT – 40** | 32 | **TTBT40.PF32.66.130** | 66 | 24 | 130 |
| **MAS BT – 40** | 32 | **TTBT40.PF32.66.160** | 66 | 24 | 160 |
| **MAS BT – 40** | 40 | **TTBT40.PF40.80.60** | 80 | 27 | 60 |
| **MAS BT – 40** | 40 | **TTBT40.PF40.80.100** | 80 | 27 | 100 |
| **MAS BT – 40** | 40 | **TTBT40.PF40.80.130** | 80 | 27 | 130 |
| **MAS BT – 40** | 40 | **TTBT40.PF40.80.160** | 80 | 27 | 160 |

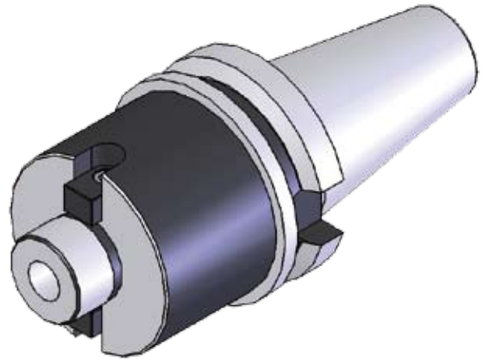




# PORTAFRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed Dragging*

### MAS BT 50



G 6,3 12000 G/MIN **EQUILIBRATO**

| ACCOPP. | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| **MAS BT – 50** | 16 | **TTBT50.PF16.38.46** | 38 | 17 | 46 |
| **MAS BT – 50** | 16 | **TTBT50.PF16.38.75** | 38 | 17 | 75 |
| **MAS BT – 50** | 16 | **TTBT50.PF16.38.100** | 38 | 17 | 100 |
| **MAS BT – 50** | 16 | **TTBT50.PF16.38.130** | 38 | 17 | 130 |
| **MAS BT – 50** | 16 | **TTBT50.PF16.38.160** | 38 | 17 | 160 |
| **MAS BT – 50** | 16 | **TTBT50.PF16.38.200** | 38 | 17 | 200 |
| **MAS BT – 50** | 22 | **TTBT50.PF22.48.46** | 48 | 19 | 46 |
| **MAS BT – 50** | 22 | **TTBT50.PF22.48.75** | 48 | 19 | 75 |
| **MAS BT – 50** | 22 | **TTBT50.PF22.48.100** | 48 | 19 | 100 |
| **MAS BT – 50** | 22 | **TTBT50.PF22.48.130** | 48 | 19 | 130 |
| **MAS BT – 50** | 22 | **TTBT50.PF22.48.160** | 48 | 19 | 160 |
| **MAS BT – 50** | 22 | **TTBT50.PF22.48.200** | 48 | 19 | 200 |
| **MAS BT – 50** | 27 | **TTBT50.PF27.58.46** | 58 | 21 | 46 |
| **MAS BT – 50** | 27 | **TTBT50.PF27.58.75** | 58 | 21 | 75 |
| **MAS BT – 50** | 27 | **TTBT50.PF27.58.100** | 58 | 21 | 100 |
| **MAS BT – 50** | 27 | **TTBT50.PF27.58.130** | 58 | 21 | 130 |
| **MAS BT – 50** | 27 | **TTBT50.PF27.58.160** | 58 | 21 | 160 |
| **MAS BT – 50** | 27 | **TTBT50.PF27.58.200** | 58 | 21 | 200 |

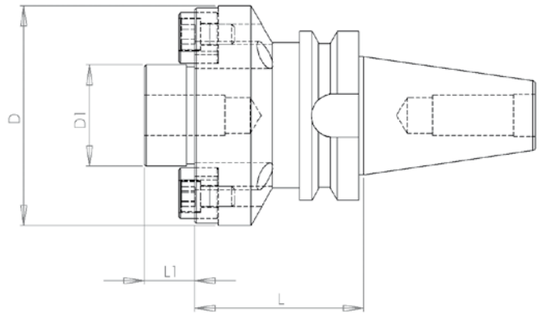
| ACCOPP. | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| **MAS BT – 50** | 32 | **TTBT50.PF32.66.46** | 66 | 24 | 46 |
| **MAS BT – 50** | 32 | **TTBT50.PF32.66.75** | 66 | 24 | 75 |
| **MAS BT – 50** | 32 | **TTBT50.PF32.66.100** | 66 | 24 | 100 |
| **MAS BT – 50** | 32 | **TTBT50.PF32.66.130** | 66 | 24 | 130 |
| **MAS BT – 50** | 32 | **TTBT50.PF32.66.160** | 66 | 24 | 160 |
| **MAS BT – 50** | 32 | **TTBT50.PF32.66.200** | 66 | 24 | 200 |
| **MAS BT – 50** | 40 | **TTBT50.PF40.80.75** | 80 | 27 | 75 |
| **MAS BT – 50** | 40 | **TTBT50.PF40.80.100** | 80 | 27 | 100 |
| **MAS BT – 50** | 40 | **TTBT50.PF40.80.130** | 80 | 27 | 130 |
| **MAS BT – 50** | 40 | **TTBT50.PF40.80.160** | 80 | 27 | 160 |

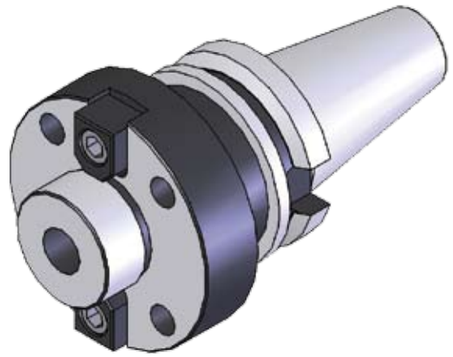




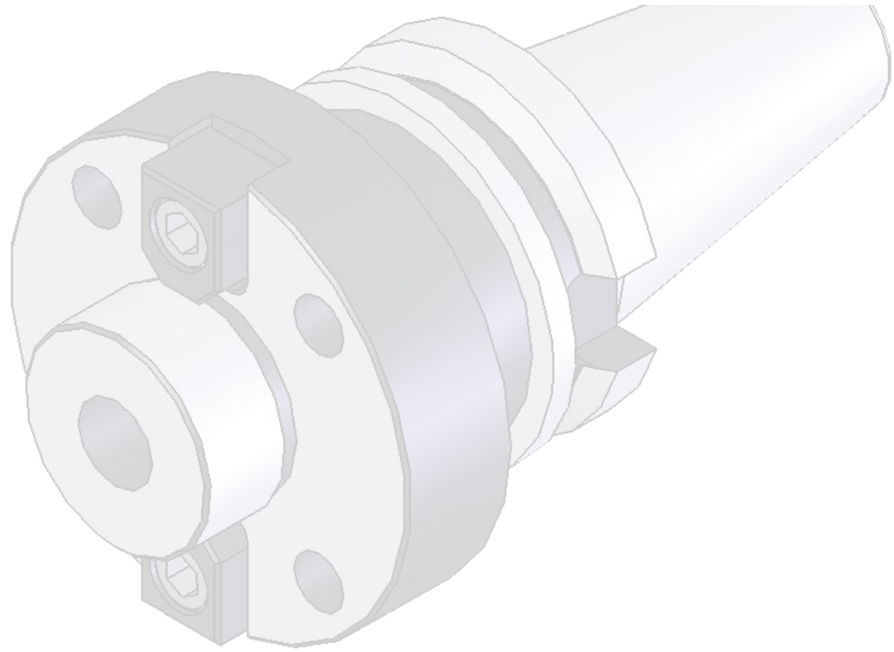
# PORTAFRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed Dragging*

### MAS BT 40/50



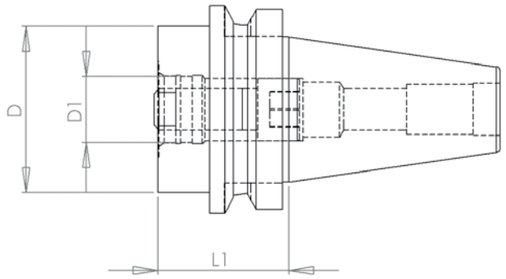



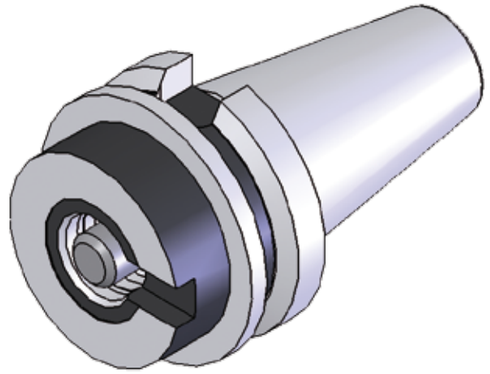
| ACCOPP. | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| **MAS BT - 40** | 40 | **TTBT40.PF40.89.60** | 89 | 30 | 60 |
| **MAS BT – 50** | 40 | **TTBT50.PF40.89.70** | 89 | 30 | 70 |
| **MAS BT – 50** | 60 | **TTBT50.PF60.129.80** | 129 | 30 | 80 |



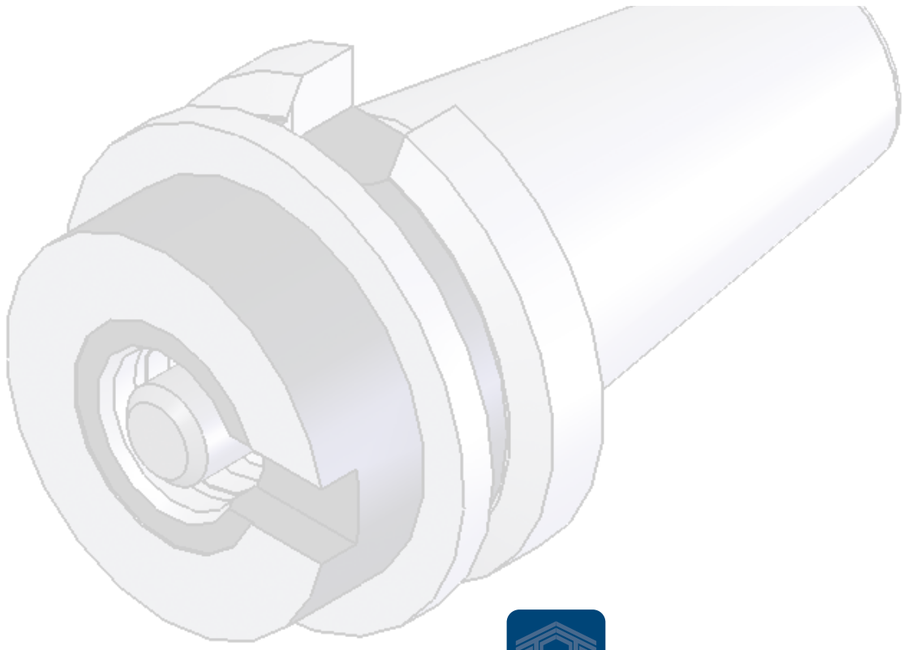
# PORTA UTENSILE
## *Modular Basic Holders*

### MAS BT VARILOCK



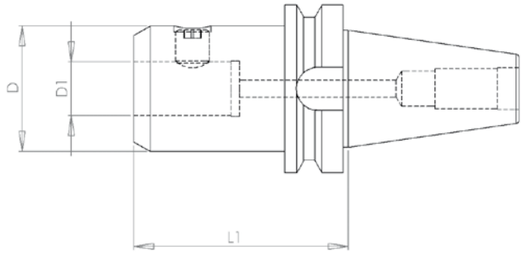
| ACCOPP. | MISURA | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| **MAS BT - 40** | V – 50 | **TTBT40.V50.50** | 50 | 27 | 50 |
| **MAS BT - 40** | V – 63 | **TTBT40.V63.50** | 63 | 32 | 50 |
| **MAS BT – 50** | V – 50 | **TTBT50.V50.50** | 50 | 27 | 50 |
| **MAS BT – 50** | V – 63 | **TTBT50.V63.50** | 63 | 32 | 50 |
| **MAS BT – 50** | V – 80 | **TTBT50.V80.50** | 80 | 32 | 50 |

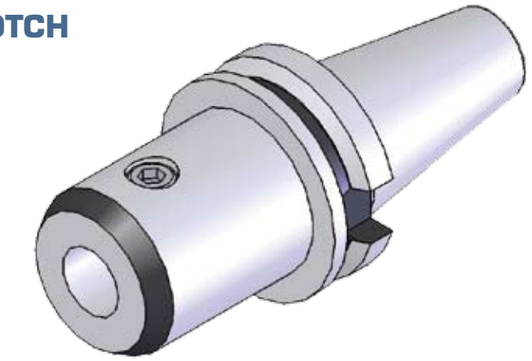




# PORTA UTENSILE
## *Short and Mills Holders*

### MAS BT 40 WELDON/WISTLE NOTCH



**LEGENDA/DISPONIBILITÀ**

○ **versione weldon** ◐ **versione wistle notch** ● **entrambe**

G 6,3 12000 G/MIN **EQUILIBRATO**

| | ACCOPP. | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| ◐ | **MAS BT40** | **TTBT40.WN06.25.50** | 25 | 6 | 50 |
| ○ | **MAS BT40** | **TTBT40.W06.25.60** | 25 | 6 | 60 |
| ● | **MAS BT40** | **TTBT40.W06.25.100** | 25 | 6 | 100 |
| ○ | **MAS BT40** | **TTBT40.W06.25.160** | 25 | 6 | 160 |
| ◐ | **MAS BT40** | **TTBT40.WN08.28.50** | 28 | 8 | 50 |
| ○ | **MAS BT40** | **TTBT40.W08.28.60** | 28 | 8 | 60 |
| ● | **MAS BT40** | **TTBT40.W08.28.100** | 28 | 8 | 100 |
| ○ | **MAS BT40** | **TTBT40.W08.28.160** | 28 | 8 | 160 |
| ◐ | **MAS BT40** | **TTBT40.WN10.35.63** | 35 | 10 | 63 |
| ○ | **MAS BT40** | **TTBT40.W10.35.65** | 35 | 10 | 65 |
| ● | **MAS BT40** | **TTBT40.W10.35.100** | 35 | 10 | 100 |
| ○ | **MAS BT40** | **TTBT40.W10.35.160** | 35 | 10 | 160 |
| ◐ | **MAS BT40** | **TTBT40.WN12.42.63** | 42 | 12 | 63 |
| ○ | **MAS BT40** | **TTBT40.W12.42.65** | 42 | 12 | 65 |
| ● | **MAS BT40** | **TTBT40.W12.42.100** | 42 | 12 | 100 |
| ○ | **MAS BT40** | **TTBT40.W12.42.160** | 42 | 12 | 160 |
| ◐ | **MAS BT40** | **TTBT40.W14.44.63** | 44 | 14 | 63 |
| ○ | **MAS BT40** | **TTBT40.W14.44.65** | 44 | 14 | 65 |
| ● | **MAS BT40** | **TTBT40.W14.44.100** | 44 | 14 | 100 |

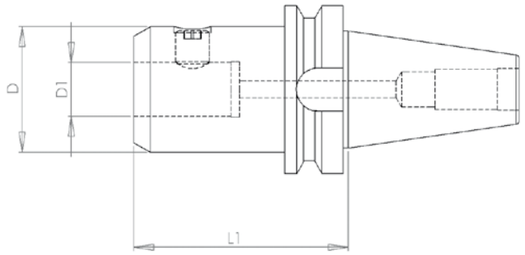
| | ACCOPP. | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| ○ | MAS BT40 | TTBT40.W14.44.160 | 44 | 14 | 160 |
| ○ | MAS BT40 | TTBT40.W16.48.35 | 48 | 16 | 35 |
| ◐ | MAS BT40 | TTBT40.W16.48.63 | 48 | 16 | 63 |
| ○ | MAS BT40 | TTBT40.W16.48.70 | 48 | 16 | 70 |
| ● | MAS BT40 | TTBT40.W16.48.100 | 48 | 16 | 100 |
| ○ | MAS BT40 | TTBT40.W16.48.160 | 48 | 16 | 160 |
| ◐ | MAS BT40 | TTBT40.W18.50.63 | 50 | 18 | 63 |
| ○ | MAS BT40 | TTBT40.W18.50.70 | 50 | 18 | 70 |
| ● | MAS BT40 | TTBT40.W18.50.100 | 50 | 18 | 100 |
| ○ | MAS BT40 | TTBT40.W18.50.160 | 50 | 18 | 160 |
| ○ | MAS BT40 | TTBT40.W20.52.35 | 52 | 20 | 35 |
| ◐ | MAS BT40 | TTBT40.W20.52.63 | 52 | 20 | 63 |
| ○ | MAS BT40 | TTBT40.W20.52.70 | 52 | 20 | 70 |
| ● | MAS BT40 | TTBT40.W20.52.100 | 52 | 20 | 100 |
| ○ | MAS BT40 | TTBT40.W20.52.160 | 52 | 20 | 160 |
| ○ | MAS BT40 | TTBT40.W25.65.35 | 65 | 25 | 35 |
| ● | MAS BT40 | TTBT40.W25.65.100 | 65 | 25 | 100 |
| ○ | MAS BT40 | TTBT40.W25.65.160 | 65 | 25 | 160 |
| ● | MAS BT40 | TTBT40.W32.72.100 | 72 | 32 | 100 |
| ○ | MAS BT40 | TTBT40.W32.72.160 | 72 | 32 | 160 |
| ○ | MAS BT40 | TTBT40.W40.80.120 | 80 | 40 | 120 |

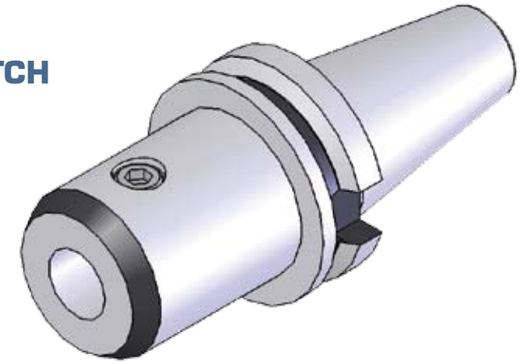
**ESEMPIO DI ORDINAZIONE**
**ISO 50 - WELDON Ø20:** TT69871.50.**W20**.52.100
**ISO 50 - WISTLE NOTCH Ø20:** TT69871.50.**WN20**.52.100



# PORTA UTENSILE
## *Short and Mills Holders*

## MAS BT 50 WELDON/WISTLE NOTCH



**LEGENDA/DISPONIBILITÀ**
○ **versione weldon** ◐ **versione wistle notch** ● **entrambe**

G 6,3 12000 G/MIN **EQUILIBRATO**

| | ACCOPP. | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| ● | MAS BT 50 | TTBT50.W06.25.63 | 25 | 6 | 63 |
| ● | MAS BT 50 | TTBT50.W06.25.100 | 25 | 6 | 100 |
| ○ | MAS BT 50 | TTBT50.W06.25.130 | 25 | 6 | 130 |
| ○ | MAS BT 50 | TTBT50.W06.25.160 | 25 | 6 | 160 |
| ○ | MAS BT 50 | TTBT50.W06.25.200 | 25 | 6 | 200 |
| ● | MAS BT 50 | TTBT50.W08.28.63 | 28 | 8 | 63 |
| ● | MAS BT 50 | TTBT50.W08.28.100 | 28 | 8 | 100 |
| ○ | MAS BT 50 | TTBT50.W08.28.130 | 28 | 8 | 130 |
| ○ | MAS BT 50 | TTBT50.W08.28.160 | 28 | 8 | 160 |
| ○ | MAS BT 50 | TTBT50.W08.28.200 | 28 | 8 | 200 |
| ● | MAS BT 50 | TTBT50.W10.35.63 | 35 | 10 | 63 |
| ● | MAS BT 50 | TTBT50.W10.35.100 | 35 | 10 | 100 |
| ○ | MAS BT 50 | TTBT50.W10.35.130 | 35 | 10 | 130 |
| ○ | MAS BT 50 | TTBT50.W10.35.160 | 35 | 10 | 160 |
| ○ | MAS BT 50 | TTBT50.W10.35.200 | 35 | 10 | 200 |
| ● | MAS BT 50 | TTBT50.W12.42.80 | 42 | 12 | 80 |
| ● | MAS BT 50 | TTBT50.W12.42.100 | 42 | 12 | 100 |
| ○ | MAS BT 50 | TTBT50.W12.42.130 | 42 | 12 | 130 |
| ○ | MAS BT 50 | TTBT50.W12.42.160 | 42 | 12 | 160 |
| ○ | MAS BT 50 | TTBT50.W12.42.200 | 42 | 12 | 200 |

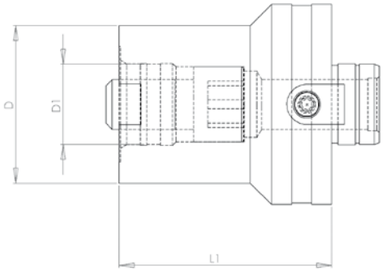
| | ACCOPP. | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| ● | MAS BT 50 | TTBT50.W14.44.80 | 44 | 14 | 80 |
| ● | MAS BT 50 | TTBT50.W14.44.100 | 44 | 14 | 100 |
| ○ | MAS BT 50 | TTBT50.W14.44.130 | 44 | 14 | 130 |
| ○ | MAS BT 50 | TTBT50.W14.44.160 | 44 | 14 | 160 |
| ○ | MAS BT 50 | TTBT50.W14.44.200 | 44 | 14 | 200 |
| ○ | MAS BT 50 | TTBT50.W16.48.35 | 48 | 16 | 35 |
| ● | MAS BT 50 | TTBT50.W16.48.80 | 48 | 16 | 80 |
| ● | MAS BT 50 | TTBT50.W16.48.100 | 48 | 16 | 100 |
| ○ | MAS BT 50 | TTBT50.W16.48.130 | 48 | 16 | 130 |
| ○ | MAS BT 50 | TTBT50.W16.48.160 | 48 | 16 | 160 |
| ○ | MAS BT 50 | TTBT50.W16.48.200 | 48 | 16 | 200 |
| ● | MAS BT 50 | TTBT50.W18.50.80 | 50 | 18 | 80 |
| ● | MAS BT 50 | TTBT50.W18.50.100 | 50 | 18 | 100 |
| ○ | MAS BT 50 | TTBT50.W18.50.130 | 50 | 18 | 130 |
| ○ | MAS BT 50 | TTBT50.W18.50.160 | 50 | 18 | 160 |
| ○ | MAS BT 50 | TTBT50.W18.50.200 | 50 | 18 | 200 |
| ○ | MAS BT 50 | TTBT50.W20.52.35 | 52 | 20 | 35 |
| ● | MAS BT 50 | TTBT50.W20.52.80 | 52 | 20 | 80 |
| ● | MAS BT 50 | TTBT50.W20.52.100 | 52 | 20 | 100 |
| ○ | MAS BT 50 | TTBT50.W20.52.130 | 52 | 20 | 130 |
| ○ | MAS BT 50 | TTBT50.W20.52.160 | 52 | 20 | 160 |
| ○ | MAS BT 50 | TTBT50.W20.52.200 | 52 | 20 | 200 |
| ○ | MAS BT 50 | TTBT50.W25.65.35 | 65 | 25 | 35 |
| ● | MAS BT 50 | TTBT50.W25.65.100 | 65 | 25 | 100 |
| ○ | MAS BT 50 | TTBT50.W25.65.130 | 65 | 25 | 130 |
| ○ | MAS BT 50 | TTBT50.W25.65.160 | 65 | 25 | 160 |
| ○ | MAS BT 50 | TTBT50.W25.65.200 | 65 | 25 | 200 |
| ○ | MAS BT 50 | TTBT50.W32.72.35 | 72 | 32 | 35 |
| ● | MAS BT 50 | TTBT50.W32.72.105 | 72 | 32 | 105 |
| ○ | MAS BT 50 | TTBT50.W32.72.130 | 72 | 32 | 130 |
| ○ | MAS BT 50 | TTBT50.W32.72.160 | 72 | 32 | 160 |
| ◐ | MAS BT 50 | TTBT50.W40.80.105 | 80 | 40 | 105 |
| ○ | MAS BT 50 | TTBT50.W40.80.120 | 80 | 40 | 120 |
| ○ | MAS BT 50 | TTBT50.W40.80.130 | 80 | 40 | 130 |
| ○ | MAS BT 50 | TTBT50.W40.80.160 | 80 | 40 | 160 |



**ESEMPIO DI ORDINAZIONE**
**ISO 50 - WELDON Ø20:** TT69871.50.**W20**.52.100
**ISO 50 - WISTLE NOTCH Ø20:** TT69871.50.**WN20**.52.100

## RIDUZIONI MODULARI
## *Modular Adapters*

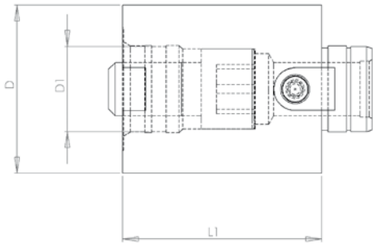
### VARILOCK

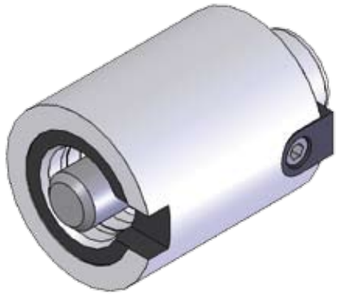



| MISURA A | MISURA B | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| **V – 63** | V – 50 | **TT V63.50.60** | 50 | 27 | 60 |
| **V – 80** | V – 63 | **TT V80.63.80** | 63 | 32 | 80 |

## PROLUNGHE MODULARI
## *Modular Extension Adapters*

### VARILOCK

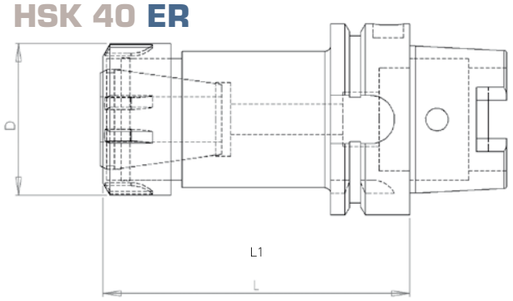


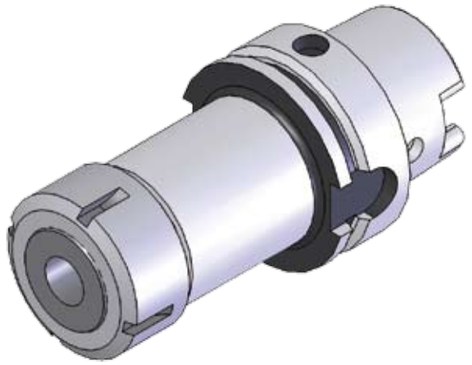



| MISURA A | MISURA B | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| **V – 50** | V – 50 | **TT V50.50.60** | 50 | 27 | 60 |
| **V – 50** | V – 50 | **TT V50.50.100** | 50 | 27 | 100 |
| **V – 63** | V – 63 | **TT V63.63.80** | 63 | 32 | 80 |
| **V – 63** | V – 63 | **TT V63.63.120** | 63 | 32 | 120 |
| **V – 80** | V – 80 | **TT V80.80.80** | 80 | 32 | 80 |
| **V – 80** | V – 80 | **TT V80.80.120** | 80 | 32 | 120 |

# PORTA UTENSILE
# ATTACCO PORTAPINZE
## *Collet Chucks Toolholders*

### HSK 40 ER



G 6,3 12000 G/MIN **EQUILIBRATO**

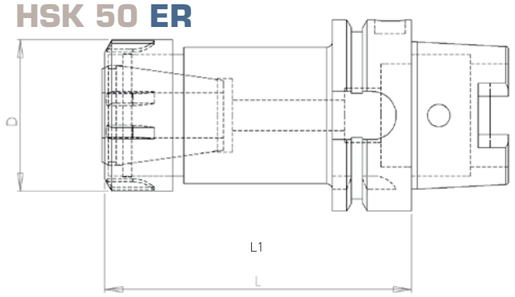
| ACCOPP. | ER | CODICE DI ORDINAZIONE | | D | L1 |
|---|---|---|---|---|---|
| | | FORMA A | FORMA E | | |
| **HSK – 40** | ER 11 Slim | **TTHSK40A.ER11.16.100** | **TTHSK40E.ER11.16.100** | 16 | 100 |
| **HSK – 40** | ER 16 Slim | **TTHSK40A.ER16.22.100** | **TTHSK40E.ER16.22.100** | 22 | 100 |
| **HSK – 40** | ER 16 Slim | **TTHSK40A.ER16.22.130** | **TTHSK40E.ER16.22.130** | 22 | 130 |
| **HSK – 40** | ER 16 | **TTHSK40A.ER16.32.100** | **TTHSK40E.ER16.32.100** | 32 | 100 |
| **HSK – 40** | ER 25 | **TTHSK40A.ER25.42.100** | **TTHSK40E.ER25.42.100** | 42 | 100 |
| **HSK – 40** | ER 25 | **TTHSK40A.ER25.42.130** | **TTHSK40E.ER25.42.130** | 42 | 130 |

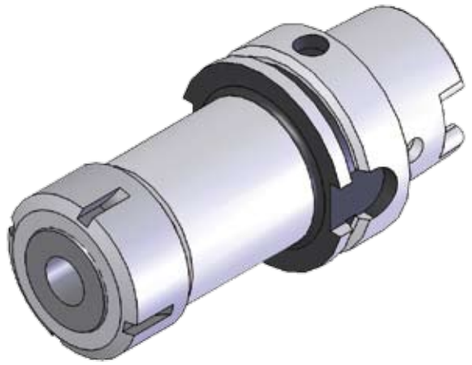




# PORTA UTENSILE
# ATTACCO PORTAPINZE
## *Collet Chucks Toolholders*

### HSK 50 ER



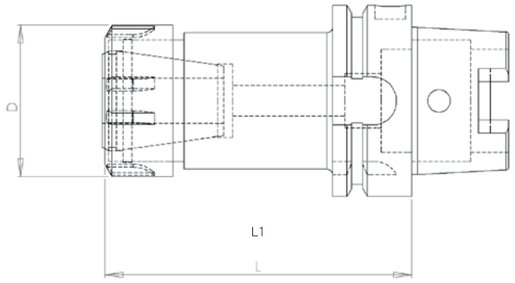



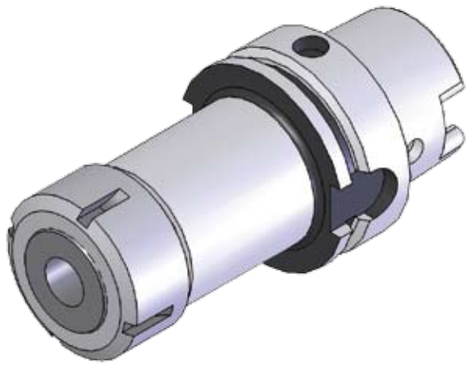
G 6,3 12000 G/MIN **EQUILIBRATO**

| ACCOPP. | ER | CODICE DI ORDINAZIONE | | | D | L1 |
|---|---|---|---|---|---|---|
| | | FORMA A | FORMA E | FORMA F | | |
| **HSK – 50** | ER 11 Slim | **TTHSK50A. ER11.16.100** | **TTHSK50E. ER11.16.100** | **TTHSK50F. ER11.16.100** | 16 | 100 |
| **HSK – 50** | ER 16 Slim | **TTHSK50A. ER16.22.100** | **TTHSK50E. ER16.22.100** | **TTHSK50F. ER16.22.100** | 22 | 100 |
| **HSK – 50** | ER 16 Slim | **TTHSK50A. ER16.22.160** | **TTHSK50E. ER16.22.160** | **TTHSK50F. ER16.22.160** | 22 | 160 |
| **HSK – 50** | ER 16 | **TTHSK50A. ER16.32.100** | **TTHSK50E. ER16.32.100** | **TTHSK50F. ER16.32.100** | 32 | 100 |
| **HSK – 50** | ER 20 | **TTHSK50A. ER20.35.100** | **TTHSK50E. ER20.35.100** | **TTHSK50F. ER20.35.100** | 35 | 100 |
| **HSK – 50** | ER 25 | **TTHSK50A. ER25.42.100** | **TTHSK50E. ER25.42.100** | **TTHSK50F. ER25.42.100** | 42 | 100 |
| **HSK – 50** | ER 25 | **TTHSK50A. ER25.42.160** | **TTHSK50E. ER25.42.160** | **TTHSK50F. ER25.42.160** | 42 | 160 |
| **HSK – 50** | ER 32 | **TTHSK50A. ER32.50.100** | **TTHSK50E. ER32.50.100** | **TTHSK50F. ER32.50.100** | 50 | 100 |
| **HSK – 50** | ER 32 | **TTHSK50A. ER32.50.160** | **TTHSK50E. ER32.50.160** | | 50 | 160 |
| **HSK – 50** | ER 40 | **TTHSK50A. ER40.63.100** | **TTHSK50E. ER40.63.100** | | 63 | 100 |

# PORTA UTENSILE
# ATTACCO PORTAPINZE
## *Collet Chucks Toolholders*

### HSK 63 ER



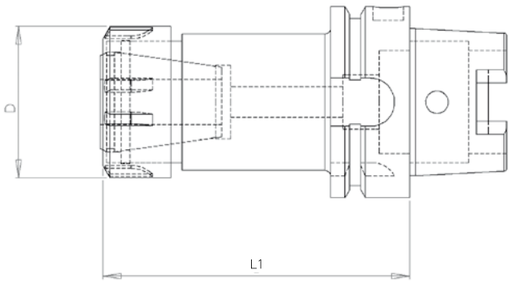



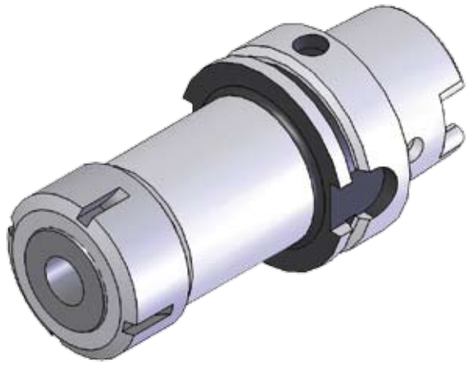
G 6,3 12000 G/MIN **EQUILIBRATO**

| ACCOPP. | ER | CODICE DI ORDINAZIONE | | | D | L1 |
|---|---|---|---|---|---|---|
| | | FORMA A | FORMA E | FORMA F | | |
| **HSK – 63** | ER 11 Slim | **TTHSK63A. ER11.16.100** | **TTHSK63E. ER11.16.100** | **TTHSK63F. ER11.16.100** | 16 | 100 |
| **HSK – 63** | ER 11 Slim | **TTHSK63A. ER11.16.160** | **TTHSK63E. ER11.16.160** | **TTHSK63F. ER11.16.160** | 16 | 160 |
| **HSK – 63** | ER 16 Slim | **TTHSK63A. ER16.22.100** | **TTHSK63E. ER16.22.100** | **TTHSK63F. ER16.22.100** | 22 | 100 |
| **HSK – 63** | ER 16 Slim | **TTHSK63A. ER16.22.160** | **TTHSK63E. ER16.22.160** | **TTHSK63F. ER16.22.160** | 22 | 160 |
| **HSK – 63** | ER 20 Slim | **TTHSK63A. ER20.28.100** | **TTHSK63E. ER20.28.100** | **TTHSK63F. ER20.28.100** | 28 | 100 |
| **HSK – 63** | ER 20 Slim | **TTHSK63A. ER20.28.160** | **TTHSK63E. ER20.28.160** | **TTHSK63F. ER20.28.160** | 28 | 160 |
| **HSK – 63** | ER 25 Slim | **TTHSK63A. ER25.35.100** | **TTHSK63E. ER25.35.100** | **TTHSK63F. ER25.35.100** | 35 | 100 |
| **HSK – 63** | ER 25 Slim | **TTHSK63A. ER25.35.160** | **TTHSK63E. ER25.35.160** | **TTHSK63F. ER25.35.160** | 35 | 160 |
| **HSK – 63** | ER 16 | **TTHSK63A. ER16.32.100** | **TTHSK63E. ER16.32.100** | **TTHSK63F. ER16.32.100** | 32 | 100 |
| **HSK – 63** | ER 16 | **TTHSK63A. ER16.32.160** | **TTHSK63E. ER16.32.160** | **TTHSK63F. ER16.32.160** | 32 | 160 |
| **HSK – 63** | ER 20 | **TTHSK63A. ER20.35.100** | **TTHSK63E. ER20.35.100** | **TTHSK63F. ER20.35.100** | 35 | 100 |
| **HSK – 63** | ER 20 | **TTHSK63A. ER20.35.160** | **TTHSK63E. ER20.35.160** | **TTHSK63F. ER20.35.160** | 35 | 160 |
| **HSK – 63** | ER 25 | **TTHSK63A. ER25.42.100** | **TTHSK63E. ER25.42.100** | **TTHSK63F. ER25.42.100** | 42 | 100 |
| **HSK – 63** | ER 25 | **TTHSK63A. ER25.42.160** | **TTHSK63E. ER25.42.160** | **TTHSK63F. ER25.42.160** | 42 | 160 |
| **HSK – 63** | ER 32 | **TTHSK63A. ER32.50.100** | **TTHSK63E. ER32.50.100** | **TTHSK63F. ER32.50.100** | 50 | 100 |
| **HSK – 63** | ER 32 | **TTHSK63A. ER32.50.160** | **TTHSK63E. ER32.50.160** | **TTHSK63F. ER32.50.160** | 50 | 160 |
| **HSK – 63** | ER 40 | **TTHSK63A. ER40.63.100** | **TTHSK63E. ER40.63.100** | **TTHSK63F. ER40.63.100** | 63 | 100 |
| **HSK – 63** | ER 40 | **TTHSK63A. ER40.63.160** | **TTHSK63E. ER40.63.160** | | 63 | 160 |

# PORTA UTENSILE
# ATTACCO PORTAPINZE
## *Collet Chucks Toolholders*

### HSK 80 ER



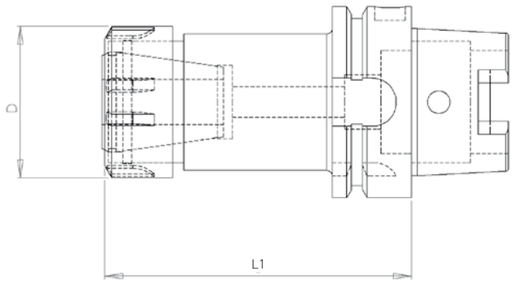
G 6,3 12000 G/MIN **EQUILIBRATO**

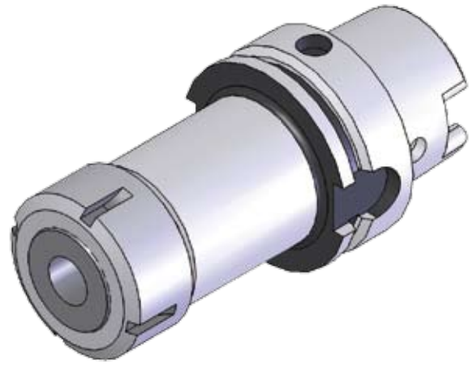
| ACCOPP. | ER | CODICE DI ORDINAZIONE | D | L1 |
|---|---|---|---|---|
| | | **FORMA A** | | |
| **HSK – 80** | ER 16 Slim | **TTHSK80A.ER16.22.100** | 22 | 100 |
| **HSK – 80** | ER 16 Slim | **TTHSK80A.ER16.22.160** | 22 | 160 |
| **HSK – 80** | ER 16 | **TTHSK80A.ER16.32.100** | 32 | 100 |
| **HSK – 80** | ER 20 | **TTHSK80A.ER20.35.100** | 35 | 100 |
| **HSK – 80** | ER 25 | **TTHSK80A.ER25.42.100** | 42 | 100 |
| **HSK – 80** | ER 25 | **TTHSK80A.ER25.42.160** | 42 | 160 |
| **HSK – 80** | ER 32 | **TTHSK80A.ER32.50.100** | 50 | 100 |
| **HSK – 80** | ER 32 | **TTHSK80A.ER32.50.160** | 50 | 160 |
| **HSK – 80** | ER 40 | **TTHSK80A.ER40.63.100** | 63 | 100 |
| **HSK – 80** | ER 40 | **TTHSK80A.ER40.63.160** | 63 | 160 |



# PORTA UTENSILE
# ATTACCO PORTAPINZE
## *Collet Chucks Toolholders*

### HSK 100 ER



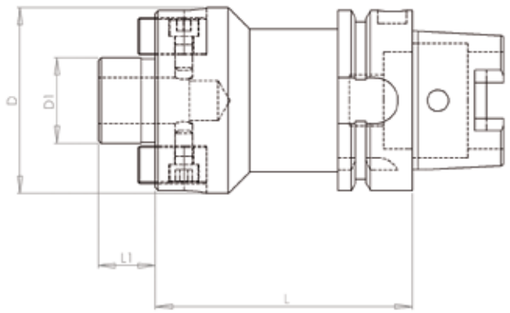



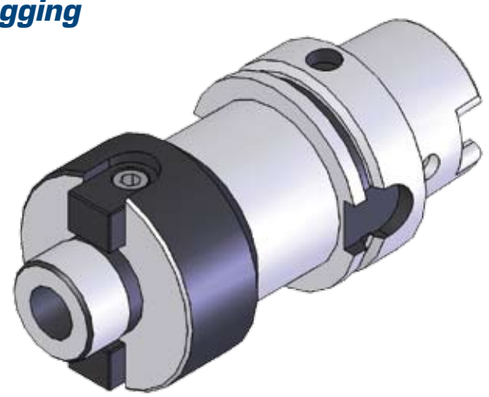
G 6,3 12000 G/MIN **EQUILIBRATO**

| ACCOPP. | ER | CODICE DI ORDINAZIONE | D | L1 |
|---|---|---|---|---|
| | | **FORMA A** | | |
| **HSK – 100** | ER 16 Slim | **TTHSK100A.ER16.22.100** | 22 | 100 |
| **HSK – 100** | ER 16 Slim | **TTHSK100A.ER16.22.160** | 22 | 160 |
| **HSK – 100** | ER 16 | **TTHSK100A.ER16.32.100** | 32 | 100 |
| **HSK – 100** | ER 20 | **TTHSK100A.ER20.35.100** | 35 | 100 |
| **HSK – 100** | ER 25 | **TTHSK100A.ER25.42.100** | 42 | 100 |
| **HSK – 100** | ER 25 | **TTHSK100A.ER25.42.160** | 42 | 160 |
| **HSK – 100** | ER 32 | **TTHSK100A.ER32.50.100** | 50 | 100 |
| **HSK – 100** | ER 32 | **TTHSK100A.ER32.50.160** | 50 | 160 |
| **HSK – 100** | ER 40 | **TTHSK100A.ER40.63.100** | 63 | 100 |
| **HSK – 100** | ER 40 | **TTHSK100A.ER40.63.160** | 63 | 160 |

# PORTAFRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed Dragging*

### HSK 100



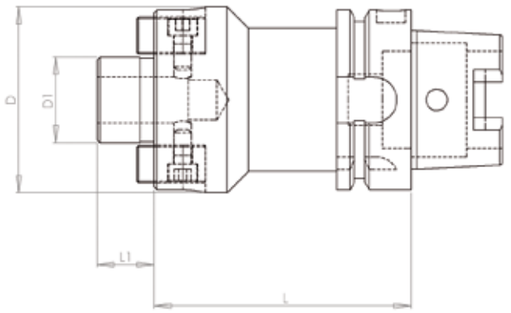
| ACCOPPIAMENTO | D1 | CODICE DI ORDINAZIONE | | | D | L1 | L |
|---|---|---|---|---|---|---|---|
| | | FORMA A | FORMA E | FORMA F | | | |
| **HSK – 50** | 16 | **TTHSK50A. PF16.32.50** | **TTHSK50E. PF16.32.50** | **TTHSK50F. PF16.32.50** | 32 | 17 | 50 |
| **HSK – 50** | 22 | **TTHSK50A. PF22.40.50** | **TTHSK50E. PF22.40.50** | **TTHSK50F. PF22.40.50** | 40 | 19 | 50 |
| **HSK – 50** | 27 | **TTHSK50A. PF27.48.60** | **TTHSK50E. PF27.48.60** | **TTHSK50F. PF27.48.60** | 48 | 21 | 60 |

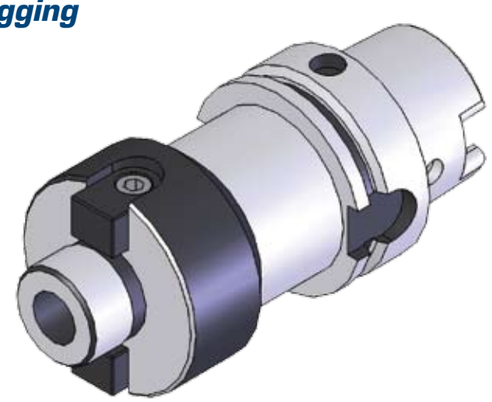




# PORTAFRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed Dragging*

### HSK 63

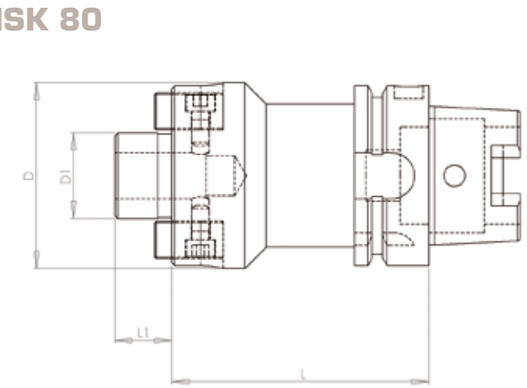


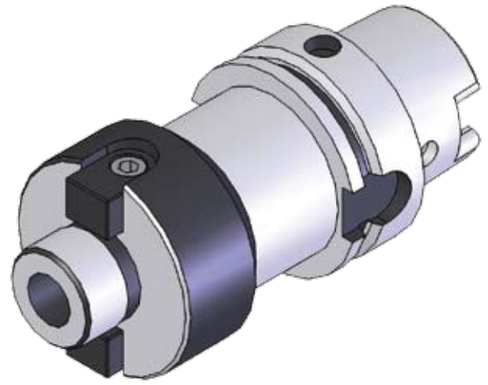



| ACCOPPIAMENTO | D1 | CODICE DI ORDINAZIONE | | | D | L1 | L |
|---|---|---|---|---|---|---|---|
| | | FORMA A | FORMA E | FORMA F | | | |
| **HSK – 63** | 16 | **TTHSK63A. PF16.32.50** | **TTHSK63E. PF16.32.50** | **TTHSK63F. PF16.32.50** | 32 | 17 | 50 |
| **HSK – 63** | 16 | **TTHSK50A. PF22.40.100** | | | 32 | 17 | 100 |
| **HSK – 63** | 16 | **TTHSK63A. PF16.32.160** | | | 32 | 17 | 160 |
| **HSK – 63** | 22 | **TTHSK63A. PF22.40.50** | **TTHSK63E. PF22.40.50** | **TTHSK63F. PF22.40.50** | 40 | 19 | 50 |
| **HSK – 63** | 22 | **TTHSK63A. PF22.40.100** | | | 40 | 19 | 100 |
| **HSK – 63** | 22 | **TTHSK63A. PF22.40.160** | | | 40 | 19 | 160 |
| **HSK – 63** | 27 | **TTHSK63A. PF27.48.60** | **TTHSK63E. PF27.48.60** | **TTHSK63F. PF27.48.60** | 48 | 21 | 60 |
| **HSK – 63** | 27 | **TTHSK63A. PF27.48.100** | | | 48 | 21 | 100 |
| **HSK – 63** | 27 | **TTHSK63A. PF27.48.160** | | | 48 | 21 | 160 |
| **HSK – 63** | 32 | **TTHSK63A. PF32.58.60** | **TTHSK63E. PF32.58.60** | **TTHSK63F. PF32.58.60** | 58 | 24 | 60 |
| **HSK – 63** | 32 | **TTHSK63A. PF32.58.50** | | | 58 | 24 | 100 |
| **HSK – 63** | 32 | **TTHSK63A. PF32.58.50** | | | 58 | 24 | 160 |
| **HSK – 63** | 40 | **TTHSK63A. PF40.70.60** | | **TTHSK63F. PF40.70.60** | 70 | 40 | 60 |
| **HSK – 63** | 40 | **TTHSK63A. PF40.70.100** | | | 70 | 40 | 100 |

# PORTAFRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed Dragging*

### HSK 80



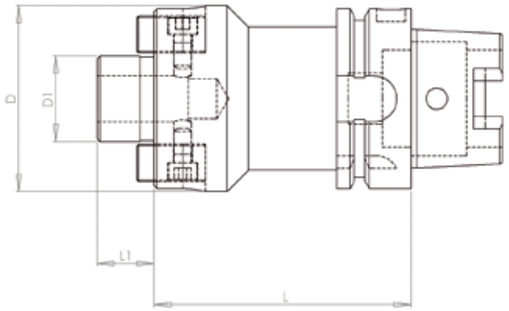



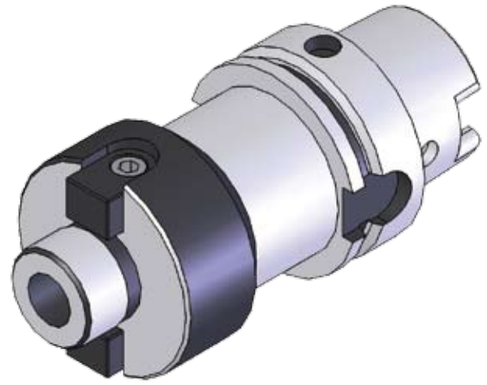
| ACCOPPIAMENTO | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| | | FORMA A | | | |
| HSK – 80 | 16 | TTHSK80A.PF16.32.50 | 32 | 17 | 50 |
| HSK – 80 | 22 | TTHSK80A.PF22.40.50 | 40 | 19 | 50 |
| HSK – 80 | 27 | TTHSK80A.PF27.48.50 | 48 | 21 | 50 |
| HSK – 80 | 32 | TTHSK80A.PF32.58.60 | 58 | 24 | 60 |
| HSK – 80 | 40 | TTHSK80A.PF40.70.60 | 70 | 40 | 60 |



# PORTAFRESA CON TRASCINAMENTO FISSO
## *Milling Cutters Holders with Fixed Dragging*

### HSK 100

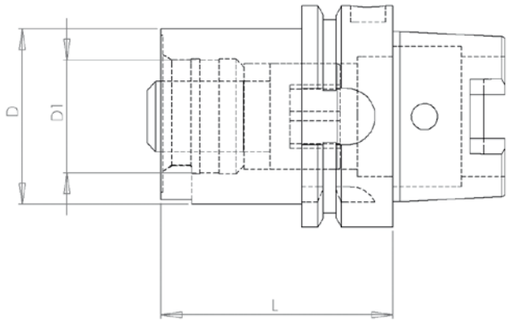


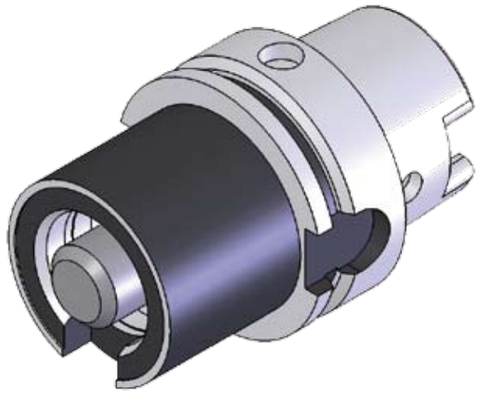



| ACCOPPIAMENTO | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| | | FORMA A | | | |
| HSK – 100 | 16 | TTHSK100A.PF16.32.50 | 32 | 17 | 50 |
| HSK – 100 | 22 | TTHSK100A.PF22.40.50 | 40 | 19 | 50 |
| HSK – 100 | 27 | TTHSK100A.PF27.48.50 | 48 | 21 | 50 |
| HSK – 100 | 32 | TTHSK100A.PF32.58.50 | 58 | 24 | 50 |
| HSK – 100 | 40 | TTHSK100A.PF40.70.60 | 70 | 40 | 60 |

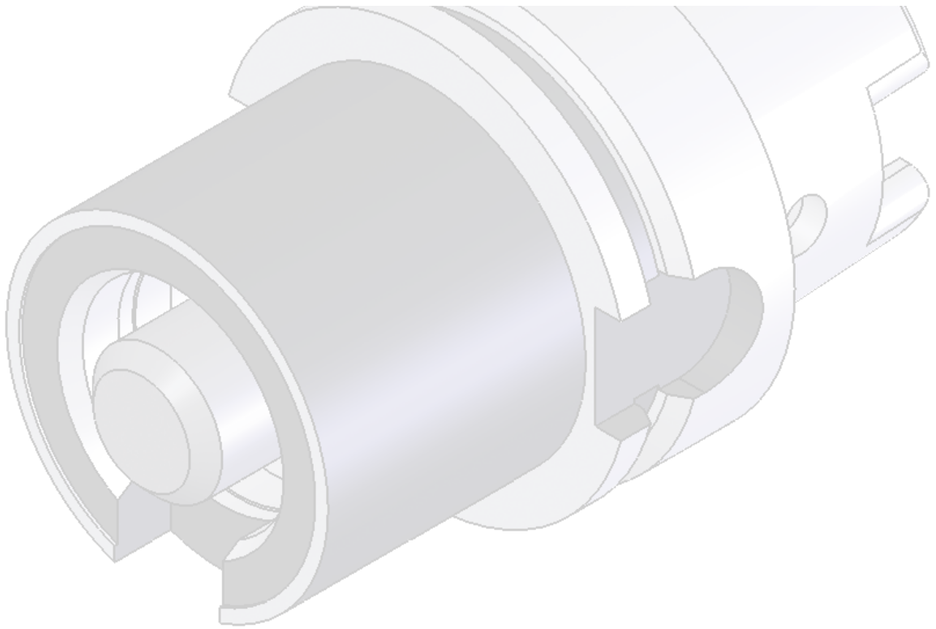
# PORTA UTENSILE
## *Modular Basic Holders*

### HSK VARILOCK



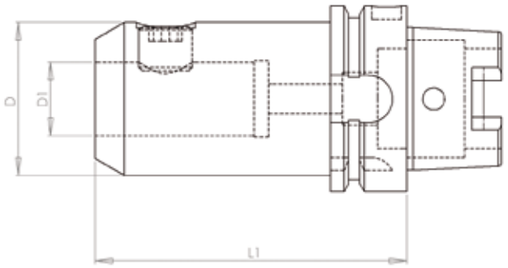
| ACCOPPIAMENTO | D1 | CODICE DI ORDINAZIONE | D | L1 | L |
|---|---|---|---|---|---|
| | | FORMA A | | | |
| **HSK-63** | V-50 | **TTHSK63.V50.75** | 50 | 27 | 75 |
| **HSK-63** | V-63 | **TTHSK63.V63.82** | 63 | 32 | 82 |
| **HSK-100** | V-50 | **TTHSK100.V50.80** | 50 | 27 | 80 |
| **HSK-100** | V-63 | **TTHSK100.V63.90** | 63 | 32 | 90 |
| **HSK-100** | V-80 | **TTHSK100.V80.90** | 80 | 32 | 90 |





# PORTA UTENSILE
## *Short and Mills Holders*

### HSK 40 WELDON/WISTLE NOTCH




**LEGENDA/DISPONIBILITÀ**

○ **versione weldon** ◐ **versione wistle notch** ● **entrambe**

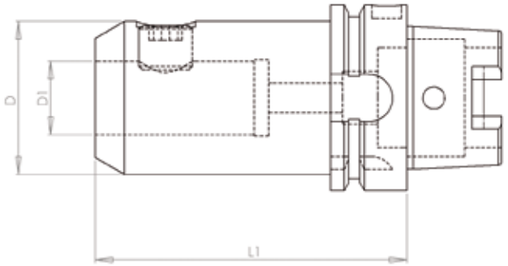
G 6,3 12000 G/MIN **EQUILIBRATO**

| | ACCOPP. | CODICE DI ORDINAZIONE | | D | D1 | L1 |
|---|---|---|---|---|---|---|
| | | FORMA A | FORMA E | | | |
| ● | **HSK – 40** | **TTHSK40A.W06.25.60** | **TTHSK40E.W06.25.60** | 25 | 6 | 60 |
| ● | **HSK – 40** | **TTHSK40A.W08.28.60** | **TTHSK40E.W08.28.60** | 28 | 8 | 60 |
| ● | **HSK – 40** | **TTHSK40A.W10.35.65** | **TTHSK40E.W10.35.65** | 35 | 10 | 65 |
| ● | **HSK – 40** | **TTHSK40A.W12.42.70** | **TTHSK40E.W12.42.70** | 42 | 12 | 70 |
| ● | **HSK – 40** | **TTHSK40A.W14.44.70** | **TTHSK40E.W14.44.70** | 44 | 14 | 70 |
| ● | **HSK – 40** | **TTHSK40A.W16.48.70** | **TTHSK40E.W16.48.70** | 48 | 16 | 70 |
| ● | **HSK – 40** | **TTHSK40A.W18.50.70** | **TTHSK40E.W18.50.70** | 50 | 18 | 70 |
| ● | **HSK – 40** | **TTHSK40A.W20.52.70** | **TTHSK40E.W20.52.70** | 52 | 20 | 70 |

**ESEMPIO DI ORDINAZIONE**
**HSK 40 - WELDON Ø20:** TTHSK40A.**W20**.52.70
**HSK 40 - WISTLE NOTCH Ø20:** TTHSK40A.**WN20**.52.70

# PORTA UTENSILE
## *Short and Mills Holders*

## HSK 50 WELDON/WISTLE NOTCH




**LEGENDA/DISPONIBILITÀ**

○ versione weldon ◐ versione wistle notch ● entrambe

G 6,3 12000 G/MIN **EQUILIBRATO**

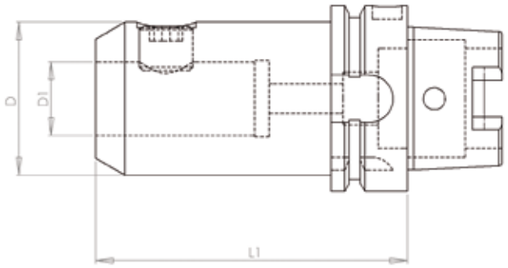
| | ACCOPPIAMENTO | CODICE DI ORDINAZIONE | | | D | D1 | L1 |
|---|---|---|---|---|---|---|---|
| | | FORMA A | FORMA E | FORMA F | | | |
| ● | HSK – 50 | TTHSK50A. W06.25.65 | TTHSK50E. W06.25.65 | TTHSK50F. W06.25.65 | 25 | 6 | 65 |
| ● | HSK – 50 | TTHSK50A. W08.28.65 | TTHSK50E. W08.28.65 | TTHSK50F. W08.28.65 | 28 | 8 | 65 |
| ● | HSK – 50 | TTHSK50A. W10.35.65 | TTHSK50E. W10.35.65 | TTHSK50F. W10.35.65 | 35 | 10 | 65 |
| ● | HSK – 50 | TTHSK50A. W12.42.80 | TTHSK50E. W12.42.80 | TTHSK50F. W12.42.80 | 42 | 12 | 80 |
| ● | HSK – 50 | TTHSK50A. W14.44.80 | TTHSK50E. W14.44.80 | TTHSK50F. W14.44.80 | 44 | 14 | 80 |
| ● | HSK – 50 | TTHSK50A. W16.48.80 | TTHSK50E. W16.48.80 | TTHSK50F. W16.48.80 | 48 | 16 | 80 |
| ● | HSK – 50 | TTHSK50A. W18.50.80 | TTHSK50E. W18.50.80 | TTHSK50F. W18.50.80 | 50 | 18 | 80 |
| ● | HSK – 50 | TTHSK50A. W20.52.80 | TTHSK50E. W20.52.80 | TTHSK50F. W20.52.80 | 52 | 20 | 80 |
| ○ | HSK – 50 | TTHSK50A. W25.65.105 | TTHSK50E. W25.65.105 | | 65 | 25 | 105 |

**ESEMPIO DI ORDINAZIONE**
**HSK 50 - WELDON Ø20:** TTHSK50A.**W20**.52.70
**HSK 50 - WISTLE NOTCH Ø20:** TTHSK50A.**WN20**.52.70



# PORTA UTENSILE
## *Short and Mills Holders*

## HSK 63 WELDON/WISTLE NOTCH




**LEGENDA/DISPONIBILITÀ**

○ versione weldon ◐ versione wistle notch ● entrambe

G 6,3 12000 G/MIN **EQUILIBRATO**

| | ACCOPPIAMENTO | CODICE DI ORDINAZIONE | | | D | D1 | L1 |
|---|---|---|---|---|---|---|---|
| | | FORMA A | FORMA E | FORMA F | | | |
| ● | HSK – 63 | TTHSK63A. W06.25.65 | TTHSK63E. W06.25.65 | TTHSK63F. W06.25.65 | 25 | 6 | 65 |
| ○ | HSK – 63 | TTHSK63A. W06.25.160 | | | 25 | 6 | 160 |
| ● | HSK – 63 | TTHSK63A. W08.28.65 | TTHSK63E. W08.28.65 | TTHSK63F. W08.28.65 | 28 | 8 | 65 |
| ○ | HSK – 63 | TTHSK63A. W08.28.160 | | | 28 | 8 | 160 |
| ● | HSK – 63 | TTHSK63A. W10.35.65 | TTHSK63E. W10.35.65 | TTHSK63F. W10.35.65 | 35 | 10 | 65 |
| ○ | HSK – 63 | TTHSK63A. W10.35.160 | | | 35 | 10 | 160 |
| ● | HSK – 63 | TTHSK63A. W12.42.80 | TTHSK63E. W12.42.80 | TTHSK63F. W12.42.80 | 42 | 12 | 80 |
| ○ | HSK – 63 | TTHSK63A. W12.42.160 | | | 42 | 12 | 160 |
| ● | HSK – 63 | TTHSK63A. W14.44.80 | TTHSK63E. W14.44.80 | TTHSK63F. W14.44.80 | 44 | 14 | 80 |
| ○ | HSK – 63 | TTHSK63A. W14.44.160 | | | 44 | 14 | 160 |
| ● | HSK – 63 | TTHSK63A. W16.48.80 | TTHSK63E. W16.48.80 | TTHSK63F. W16.48.80 | 48 | 16 | 80 |

| | ACCOPPIAMENTO | CODICE DI ORDINAZIONE | | | D | D1 | L1 |
|---|---|---|---|---|---|---|---|
| ○ | HSK – 63 | TTHSK63A.W16.48.160 | | | 48 | 16 | 160 |
| ● | HSK – 63 | TTHSK63A.W18.50.80 | TTHSK63E.W18.50.80 | TTHSK63F.W18.50.80 | 50 | 18 | 80 |
| ○ | HSK – 63 | TTHSK63A.W18.50.160 | | | 50 | 18 | 160 |
| ● | HSK – 63 | TTHSK63A.W20.52.80 | TTHSK63E.W20.52.80 | TTHSK63F.W20.52.80 | 52 | 20 | 80 |
| ○ | HSK – 63 | TTHSK63A.W20.52.160 | | | 52 | 20 | 160 |
| ● | HSK – 63 | TTHSK63A.W25.65.110 | TTHSK63E.W25.65.110 | TTHSK63F.W25.65.110 | 65 | 25 | 110 |
| ○ | HSK – 63 | TTHSK63A.W25.65.160 | | | 65 | 25 | 160 |
| ● | HSK – 63 | TTHSK63A.W32.72.110 | TTHSK63E.W32.72.110 | TTHSK63F.W32.72.110 | 72 | 32 | 110 |
| ○ | HSK – 63 | TTHSK63A.W32.72.160 | | | 72 | 32 | 160 |

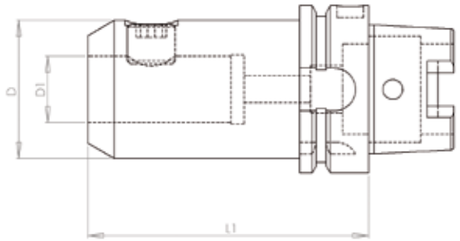


**ESEMPIO DI ORDINAZIONE**
**HSK 63 - WELDON Ø25:** TTHSK63A.**W25**.52.70
**HSK 63 - WISTLE NOTCH Ø25:** TTHSK63A.**WN25**.52.70



# PORTA UTENSILE
## *Short and Mills Holders*

## HSK 80 WELDON/WISTLE NOTCH



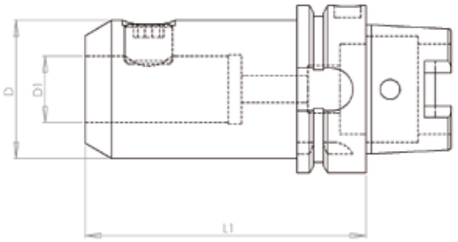

**LEGENDA/DISPONIBILITÀ**
○ versione weldon ◐ versione wistle notch ● entrambe

| | ACCOPPIAMENTO | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| | | FORMA A | | | |
| ● | HSK – 80 | TTHSK80A.W06.25.80 | 25 | 6 | 80 |
| ● | HSK – 80 | TTHSK80A.W08.28.80 | 28 | 8 | 80 |
| ● | HSK – 80 | TTHSK80A.W10.35.80 | 35 | 10 | 80 |
| ● | HSK – 80 | TTHSK80A.W12.42.80 | 42 | 12 | 80 |
| ● | HSK – 80 | TTHSK80A.W14.44.80 | 44 | 14 | 80 |
| ● | HSK – 80 | TTHSK80A.W16.48.100 | 48 | 16 | 100 |
| ● | HSK – 80 | TTHSK80A.W18.50.100 | 50 | 18 | 100 |
| ● | HSK – 80 | TTHSK80A.W20.52.100 | 52 | 20 | 100 |
| ● | HSK – 80 | TTHSK80A.W25.65.100 | 65 | 25 | 100 |
| ● | HSK – 80 | TTHSK80A.W32.72.100 | 72 | 32 | 100 |

**ESEMPIO DI ORDINAZIONE**
**HSK 80 - WELDON Ø20:** TTHSK80A.**W20**.52.100
**HSK 80 - WISTLE NOTCH Ø20:** TTHSK80A.**WN20**.52.100

# PORTA UTENSILE
## *Short and Mills Holders*

## HSK 100 WELDON/WISTLE NOTCH




### LEGENDA/DISPONIBILITÀ

○ versione weldon ◐ versione wistle notch ● entrambe

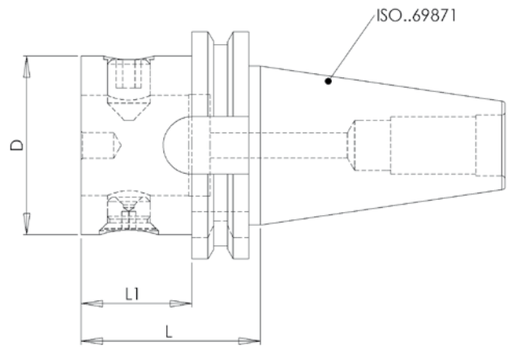
| | ACCOPPIAMENTO | CODICE DI ORDINAZIONE | D | D1 | L1 |
|---|---|---|---|---|---|
| | | **FORMA A** | | | |
| ● | **HSK – 100** | **TTHSK100A.W06.25.80** | 25 | 6 | 80 |
| ○ | **HSK – 100** | **TTHSK100A.W06.25.160** | 25 | 6 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W08.28.80** | 28 | 8 | 80 |
| ○ | **HSK – 100** | **TTHSK100A.W08.28.160** | 28 | 8 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W10.35.80** | 35 | 10 | 80 |
| ○ | **HSK – 100** | **TTHSK100A.W10.35.160** | 35 | 10 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W12.42.80** | 42 | 12 | 80 |
| ○ | **HSK – 100** | **TTHSK100A.W12.42.160** | 42 | 12 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W14.44.80** | 44 | 14 | 80 |
| ○ | **HSK – 100** | **TTHSK100A.W14.44.160** | 44 | 14 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W16.48.100** | 48 | 16 | 100 |
| ○ | **HSK – 100** | **TTHSK100A.W16.48.160** | 48 | 16 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W18.50.100** | 50 | 18 | 100 |
| ○ | **HSK – 100** | **TTHSK100A.W18.50.160** | 50 | 18 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W20.52.100** | 52 | 20 | 100 |
| ○ | **HSK – 100** | **TTHSK100A.W20.52.160** | 52 | 20 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W25.65.100** | 65 | 25 | 100 |
| ○ | **HSK – 100** | **TTHSK100A.W25.65.160** | 65 | 25 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W32.72.100** | 72 | 32 | 100 |
| ○ | **HSK – 100** | **TTHSK100A.W32.72.160** | 72 | 32 | 160 |
| ● | **HSK – 100** | **TTHSK100A.W40.80.100** | 80 | 40 | 100 |
| ○ | **HSK – 100** | **TTHSK100A.W40.80.160** | 80 | 40 | 160 |

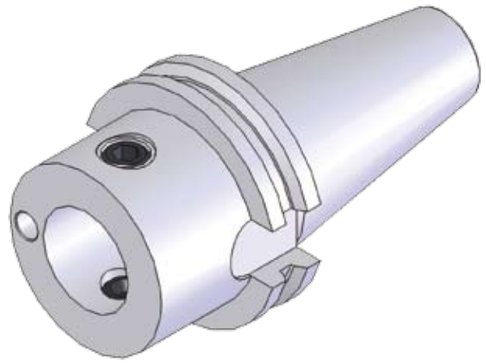


**ESEMPIO DI ORDINAZIONE**
**HSK 100 - WELDON Ø20:** TTHSK100A.**W20**.52.100
**HSK 100 - WISTLE NOTCH Ø20:** TTHSK100A.**WN20**.52.100

# PORTA UTENSILE TTS
## *Toolholders tts*

### ISO DIN69871 TTS



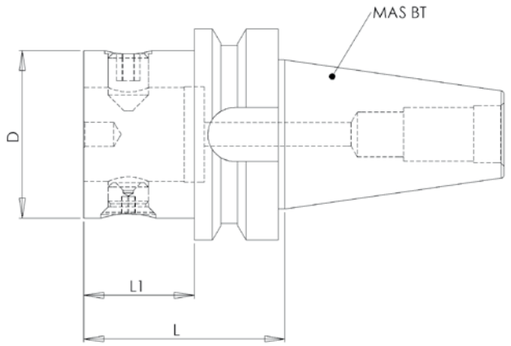
| ACCOPPIAMENTO | MISURA | CODICE DI ORDINAZIONE | D | L | L1 |
|---|---|---|---|---|---|
| **DIN 69871 ISO 40** | TTS-32 | **DIN69871.40.TTS32.50** | 32 | 50 | 19 |
| **DIN 69871 ISO 40** | TTS-40 | **DIN69871.40.TTS40.50** | 40 | 50 | 19 |
| **DIN 69871 ISO 40** | TTS-50 | **DIN69871.40.TTS50.50** | 50 | 50 | 30 |
| **DIN 69871 ISO 50** | TTS-32 | **DIN69871.50.TTS32.60** | 32 | 60 | 20 |
| **DIN 69871 ISO 50** | TTS-40 | **DIN69871.50.TTS40.60** | 40 | 60 | 20 |
| **DIN 69871 ISO 50** | TTS-50 | **DIN69871.50.TTS50.60** | 50 | 60 | 22 |

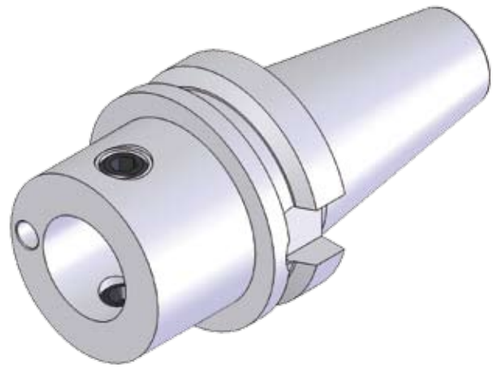




# PORTA UTENSILE TTS
## *Toolholders tts*

### MAS BT TTS

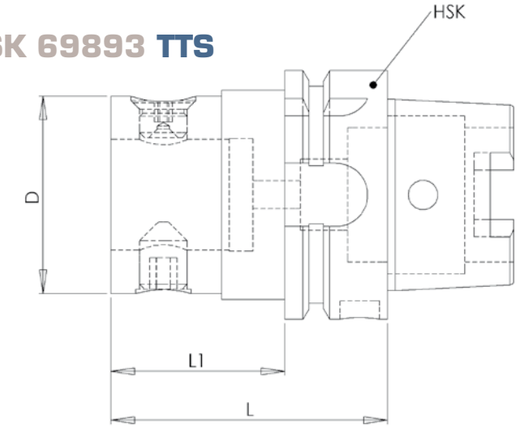


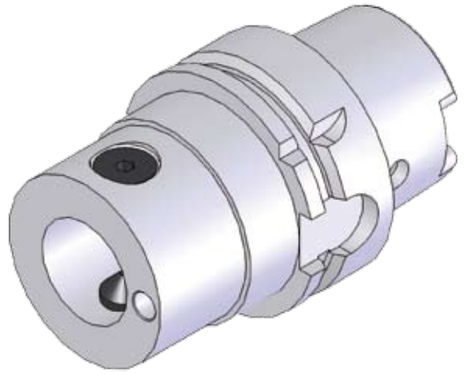



| ACCOPPIAMENTO | MISURA | CODICE DI ORDINAZIONE | D | L | L1 |
|---|---|---|---|---|---|
| **MAS BT 40** | TTS-32 | **TTBT40.TTS32.60** | 32 | 60 | 33 |
| **MAS BT 40** | TTS-40 | **TTBT40.TTS40.60** | 40 | 60 | 33 |
| **MAS BT 40** | TTS-50 | **TTBT40.TTS50.60** | 50 | 60 | 33 |
| **MAS BT 50** | TTS-32 | **TTBT50.TTS32.70** | 32 | 70 | 24 |
| **MAS BT 50** | TTS-40 | **TTBT50.TTS40.70** | 40 | 70 | 24 |
| **MAS BT 50** | TTS-50 | **TTBT50.TTS50.70** | 50 | 70 | 24 |

# PORTA UTENSILE TTS
## *Toolholders tts*

### HSK 69893 TTS



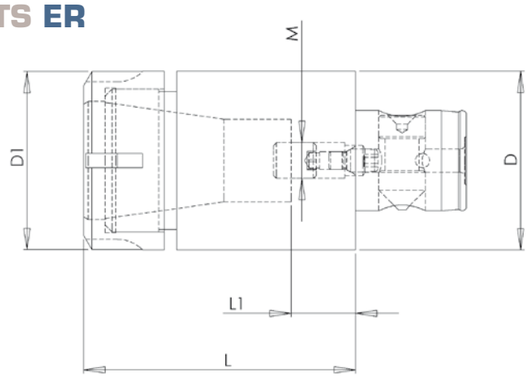
| ACCOPPIAMENTO | MISURA | CODICE DI ORDINAZIONE | D | L | L1 |
|---|---|---|---|---|---|
| **HSK 63 A** | TTS-32 | **TTHSK63A.TTS32.50** | 32 | 50 | 24 |
| **HSK 63 A** | TTS-40 | **TTHSK63A.TTS40.60** | 40 | 60 | 34 |
| **HSK 63 A** | TTS-50 | **TTHSK63A.TTS50.70** | 50 | 70 | 44 |
| **HSK 63 A** | TTS-63 | **TTHSK63A.TTS63.80** | 63 | 80 | - |
| **HSK 100 A** | TTS-50 | **TTHSK100A.TTS50.80** | 50 | 80 | 51 |
| **HSK 100 A** | TTS-63 | **TTHSK100A.TTS63.80** | 63 | 80 | 51 |
| **HSK 100 A** | TTS-80 | **TTHSK100A.TTS80.90** | 80 | 90 | 61 |





# ADATTATORI TTS
## *Adapters tts*

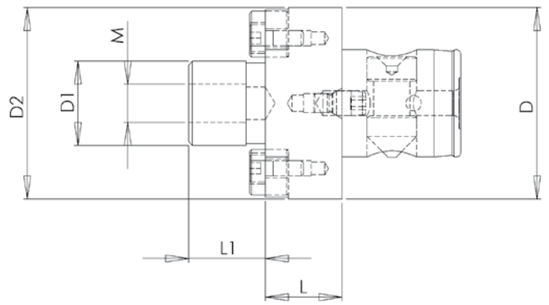
### TTS ER

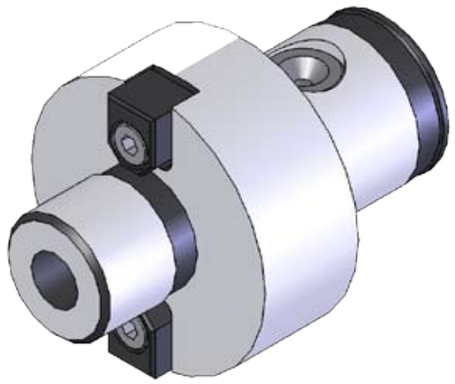



| CODICE | D | ER | D1 | L | L1 | M |
|---|---|---|---|---|---|---|
| **TTS.25.ER16** | 25 | ER 16 | 28 | 56,5 - 60,1 | 9 | M5 |
| **TTS.32.ER20** | 32 | ER 20 | 34 | 72 – 75 | 14 | M6 |
| **TTS.40.ER25** | 40 | ER 25 | 42 | 85 – 88 | 16 | M8X1 |
| **TTS.50.ER32** | 50 | ER 32 | 50 | 97 – 100 | 18 | M10X1 |
| **TTS.63.ER40** | 63 | ER 40 | 63 | 113 – 116 | 23 | M12X1 |

# ADATTATORI TTS PORTAFRESE
## *Milling cutters holder tts adapters*

### TTS PFA



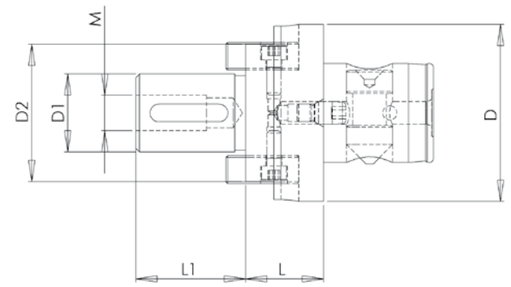



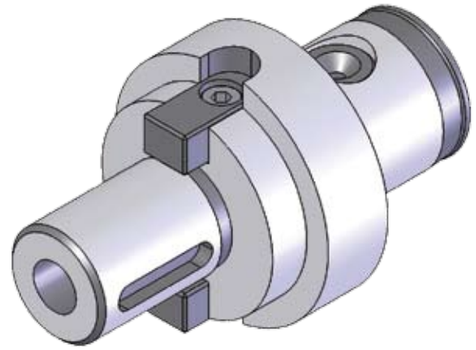
| CODICE | D | D1 | D2 | L | L1 | M |
|---|---|---|---|---|---|---|
| **TTS.50.PFA16.17** | 50 | 16 | 50 | 20 | 17 | M8 |
| **TTS.50.PFA22.19** | 50 | 22 | 50 | 20 | 19 | M10 |
| **TTS.50.PFA27.21** | 50 | 27 | 50 | 20 | 21 | M12 |
| **TTS.50.PFA32.24** | 50 | 32 | 50 | 20 | 24 | M16 |
| **TTS.63.PFA22.19** | 63 | 22 | 63 | 22 | 19 | M10 |
| **TTS.63.PFA27.21** | 63 | 27 | 63 | 22 | 21 | M12 |
| **TTS.63.PFA32.24** | 63 | 32 | 63 | 22 | 24 | M16 |
| **TTS.63.PFA40.27** | 63 | 40 | 80 | 22 | 27 | M20 |
| **TTS.80.PFA27.21** | 80 | 27 | 80 | 25 | 21 | M12 |
| **TTS.80.PFA32.24** | 80 | 32 | 80 | 25 | 24 | M16 |
| **TTS.80.PFA40.27** | 80 | 40 | 80 | 25 | 27 | M20 |
| **TTS.100.PFA32.24** | 100 | 32 | 100 | 25 | 24 | M16 |
| **TTS.100.PFA40.27** | 100 | 40 | 100 | 25 | 27 | M20 |



ADATTATORI TTS PORTAFRESE
*Milling cutters holder tts adapters*

### TTS PFB

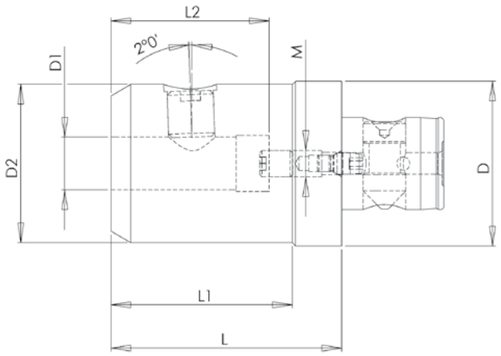


| CODICE | D | D1 | D2 | L | L1 | M |
|---|---|---|---|---|---|---|
| **TTS.50.PFB16.27** | 50 | 16 | 32 | 22 | 27 | M8 |
| **TTS.50.PFB22.31** | 50 | 22 | 40 | 22 | 31 | M10 |
| **TTS.63.PFB16.27** | 63 | 16 | 32 | 26 | 27 | M8 |
| **TTS.63.PFB22.31** | 63 | 22 | 40 | 26 | 31 | M10 |
| **TTS.63.PFB27.33** | 63 | 27 | 48 | 26 | 33 | M12 |
| **TTS.80.PFB22.31** | 80 | 22 | 40 | 33 | 31 | M10 |
| **TTS.80.PFB27.33** | 80 | 27 | 48 | 33 | 33 | M12 |
| **TTS.80.PFB32.38** | 80 | 32 | 58 | 33 | 38 | M16 |
| **TTS.80.PFB40.41** | 80 | 40 | 70 | 33 | 41 | M20 |

# ADATTATORI TTS
## *Adapters tts*

### TTS WELDON

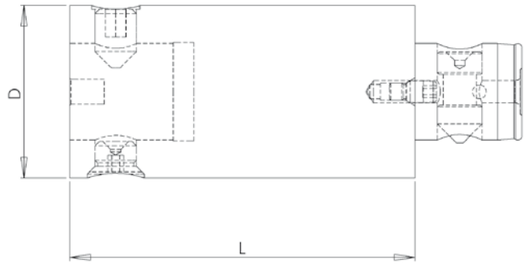



| CODICE | D | D1 | D2 | L | L1 | L2 | M |
|---|---|---|---|---|---|---|---|
| **TTS.32.WD6.55** | 32 | 6 | 25 | 55 | 40 | 36 | M6 |
| **TTS.32.WD8.55** | 32 | 8 | 28 | 55 | 40 | 36 | M8 |
| **TTS.32.WD10.60** | 32 | 10 | 35 | 60 | - | 40 | M10 |
| **TTS.32.WD12.42** | 32 | 12 | 42 | 65 | - | 45 | M12 |
| **TTS.40.WD6.55** | 40 | 6 | 25 | 55 | 35 | 36 | M6 |
| **TTS.40.WD8.55** | 40 | 8 | 28 | 55 | 35 | 36 | M8 |
| **TTS.40.WD10.60** | 40 | 10 | 35 | 60 | 45 | 40 | M10 |
| **TTS.40.WD12.65** | 40 | 12 | 42 | 65 | - | 45 | M12 |
| **TTS.40.WD16.70** | 40 | 16 | 48 | 70 | - | 48 | M14 |
| **TTS.50.WD6.55** | 50 | 6 | 25 | 55 | 30 | 36 | M6 |
| **TTS.50.WD8.55** | 50 | 8 | 28 | 55 | 30 | 36 | M8 |
| **TTS.50.WD10.60** | 50 | 10 | 35 | 60 | 40 | 40 | M10 |
| **TTS.50.WD12.65** | 50 | 12 | 42 | 65 | 50 | 45 | M12 |
| **TTS.50.WD16.70** | 50 | 16 | 48 | 70 | 55 | 48 | M14 |
| **TTS.50.WD20.75** | 50 | 20 | 52 | 75 | - | 50 | M16 |
| **TTS.50.WD25.75** | 50 | 25 | 52 | 75 | - | 50 | M16 |
| **TTS.63.WD10.60** | 63 | 10 | 35 | 60 | 35 | 40 | M10 |
| **TTS.63.WD12.65** | 63 | 12 | 42 | 65 | 45 | 45 | M12 |
| **TTS.63.WD16.70** | 63 | 16 | 48 | 70 | 50 | 48 | M14 |
| **TTS.63.WD20.75** | 63 | 20 | 52 | 75 | 55 | 50 | M16 |
| **TTS.63.WD25.80** | 63 | 25 | 65 | 80 | - | 56 | M18 |

***n.b.: altre versioni disponibili su richiesta***

# PROLUNGHE MODULARI TTS
## *Modular extension tts adapters*

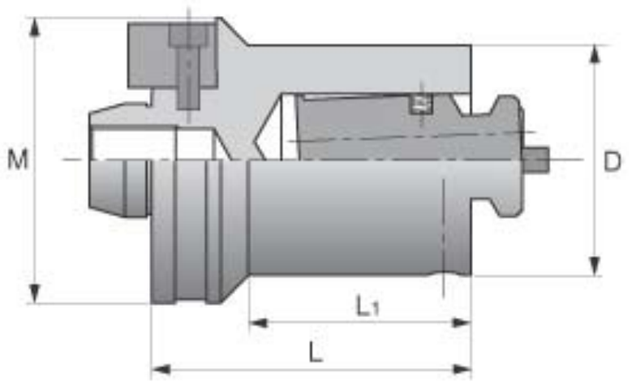
### TTS TTS




| CODICE | MISURA | D | L |
|---|---|---|---|
| **TTS.32.32.035** | TTS 32 | 32 | 35 |
| **TTS.32.32.050** | TTS 32 | 32 | 50 |
| **TTS.32.32.070** | TTS 32 | 32 | 70 |
| **TTS.40.40.040** | TTS 40 | 40 | 40 |
| **TTS.40.40.060** | TTS 40 | 40 | 60 |
| **TTS.40.40.090** | TTS 40 | 40 | 90 |
| **TTS.50.50.050** | TTS 50 | 50 | 50 |
| **TTS.50.50.100** | TTS 50 | 50 | 100 |
| **TTS.50.50.150** | TTS 50 | 50 | 150 |
| **TTS.63.63.060** | TTS 63 | 63 | 60 |
| **TTS.63.63.085** | TTS 63 | 63 | 85 |
| **TTS.63.63.125** | TTS 63 | 63 | 125 |
| **TTS.63.63.190** | TTS 63 | 63 | 190 |

# ADATTATORI PORTA TESTINA CODA DI RONDINE
## *Dovetail head holders adapters*

### VARILOCK

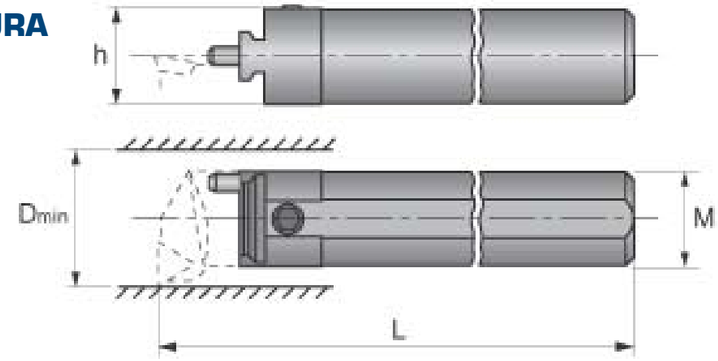



| CODICE | MISURA | L | D | M | L1 |
|---|---|---|---|---|---|
| **TTM.50.82.24** | V-50 | 82 | 24 | 50 | 55,5 |
| **TTM.50.76.32** | V-50 | 76 | 32 | 50 | 51,5 |
| **TTM.50.70.40** | V-50 | 70 | 40 | 50 | 48 |
| **TTM.50.60.50** | V-50 | 60 | 50 | 50 | _ |
| **TTM.63.70.40** | V-63 | 70 | 40 | 63 | 41,5 |
| **TTM.63.60.50** | V-63 | 60 | 50 | 63 | 34,5 |
| **TTM.63.87.63** | V-63 | 87 | 63 | 63 | _ |
| **TTM.80.60.50** | V-80 | 60 | 50 | 80 | 29,5 |
| **TT.M80.87.63** | V-80 | 87 | 63 | 80 | 60 |
| **TTM.80.70.80** | V-80 | 70 | 80 | 80 | _ |

**versione speciale su richiesta**
***special version by request***

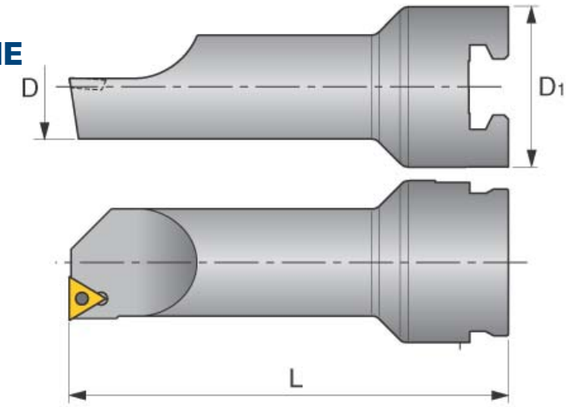


# BARRE DI ALESATURA
## *Boring toolbars*




| CODICE | L | M | H | Dmin |
|---|---|---|---|---|
| **TTMA.25.210** | 210 | 25 | 23 | 32 |
| **TTMA.32.250** | 250 | 32 | 30 | 40 |
| **TTMA.40.320** | 320 | 40 | 37 | 50 |
| **TTMA.50.450** | 450 | 50 | 47 | 63 |
| **TTMA.60.600** | 600 | 60 | 57 | 80 |
| **TTMA.63.600** | 600 | 63 | 60 | 80 |
| **TTMA.80.750** | 750 | 80 | 76 | 100 |

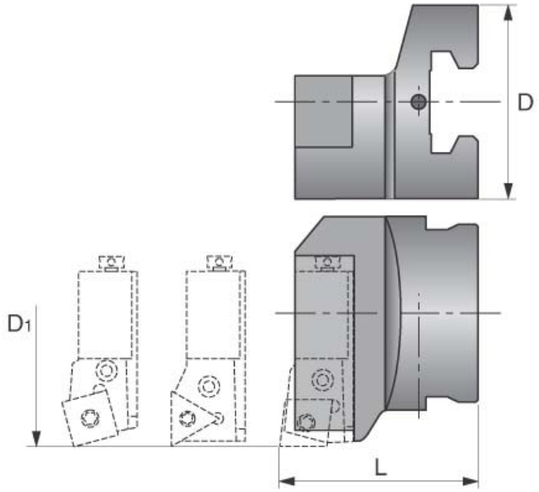
# TESTINA A CODA DI RONDINE
## *Dovetail heads*



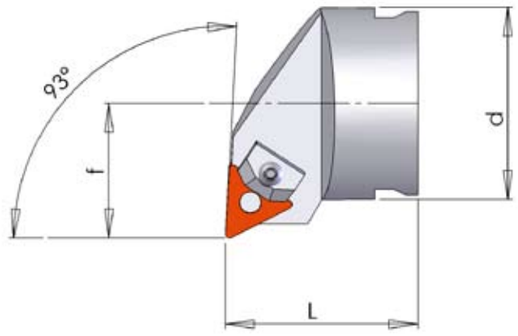

| CODICE | L | A | Dmin | Dmax | inserto |
|---|---|---|---|---|---|
| **TTMD.32.19.11** | 32 | 65 | 15 | 19 | TC .. 1102 .. |
| **TTMD.32.25.11** | 32 | 75 | 19 | 25 | TC .. 1102 .. |
| **TTMD.32.32.11** | 32 | 90 | 25 | 32 | TC .. 1102 .. |
| **TTMD.32.42.16** | 32 | 115 | 32 | 42 | TC .. 16T3 .. |

## TESTINA PORTA CARTUCCIA
### *Cartridge holder heads*

| CODICE | L | A | Dmin | Dmax |
|---|---|---|---|---|
| **TTMC.80.180.16** | 80 | 90 | 140 | 180 |
| **TTMC.80.260.16** | 80 | 90 | 220 | 260 |
| **TTMC.80.180.25** | 80 | 90 | 140 | 180 |
| **TTMC.80.220.25** | 80 | 90 | 180 | 220 |
| **TTMC.80.260.25** | 80 | 90 | 260 | 300 |
| **TTMC.80.300.25** | 80 | 90 | 260 | 300 |



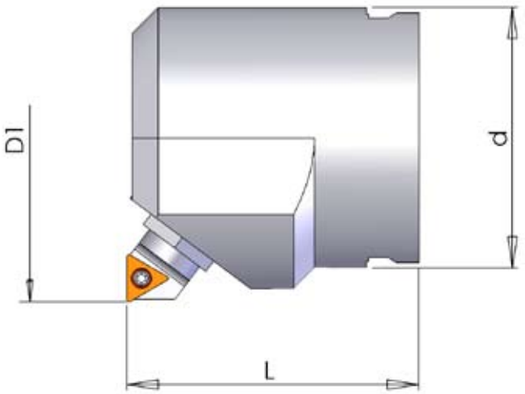

## TESTINA REGOLABILI
### *Adjustable heads*




| CODICE | d | L | f | Dmin | Dmax | inserto | leva | vite | sottoplac | spina | boccola |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **TTMR.M32 95° CN12 TR** | 32 | 34 | 22 | 40 | 56 | CN .. 1204 .. | LV 43 | VTL 43 | GPCN 12 | SPE 30 | |
| **TTMR.M40 95° CN12 TR** | 40 | 40 | 28 | 50 | 72 | CN .. 1204 .. | LV 43 | VTL 43 | GPCN 12 | SPE 30 | |
| **TTMR.M50 95° CN12 TR** | 50 | 50 | 36 | 63 | 90 | CN .. 1204 .. | LV 43 | VTL 43 | GPCN 12 | SPE 30 | |
| **TTMR.M63 95° CN12 TR** | 63 | 63 | 45 | 80 | 112 | CN .. 1204 .. | LV 43 | VTL 43 | GPCN 12 | SPE 30 | |
| **TTMR.M63 95° CN16 TR** | 63 | 63 | 45 | 80 | 112 | CN .. 1606.. | LV 52 | VTL 52 | GPCN 16 | SPE 50 | |
| **TTMR.M80 95° CN16 TR** | 80 | 80 | 56 | 100 | 142 | CN .. 1606.. | LV 52 | VTL 52 | GPCN 16 | SPE 50 | |
| **TTMR.M63 95° CN19 TR** | 63 | 63 | 45 | 80 | 112 | CN .. 1906.. | LV 60 | VTL 60 | GPCN 19 | SPE 60 | |
| **TTMR.M80 95° CN19 TR** | 80 | 80 | 56 | 100 | 142 | CN .. 1906.. | LV 60 | VTL 60 | GPCN 19 | SPE 60 | |
| **TTMR.M32 75° SN12 TR** | 32 | 34 | 22 | 40 | 56 | SN .. 1204.. | LV 43 | VTL 43 | GPSN 12 | SPE 30 | |
| **TTMR.M40 75° SN12 TR** | 40 | 40 | 28 | 50 | 72 | SN .. 1204.. | LV 43 | VTL 43 | GPSN 12 | SPE 30 | |
| **TTMR.M50 75° SN12 TR** | 50 | 50 | 36 | 63 | 90 | SN .. 1204.. | LV 43 | VTL 43 | GPSN 12 | SPE 30 | |
| **TTMR.M63 75° SN12 TR** | 63 | 63 | 45 | 80 | 112 | SN .. 1204.. | LV 43 | VTL 43 | GPSN 12 | SPE 30 | |
| **TTMR.M63 75° SN15 TR** | 63 | 63 | 45 | 80 | 112 | SN .. 1606.. | LV 52 | VTL 52 | GPSN 15 | SPE 50 | |
| **TTMR.M80 75° SN15 TR** | 80 | 80 | 56 | 100 | 142 | SN .. 1606.. | LV 52 | VTL 52 | GPSN 15 | SPE 50 | |
| **TTMR.M63 75° SN19 TR** | 63 | 63 | 45 | 80 | 112 | SN .. 1906.. | LV 60 | VTL 60 | GPSN 19 | SPE 60 | |
| **TTMR.M80 75° SN19 TR** | 80 | 80 | 56 | 100 | 142 | SN .. 1906.. | LV 60 | VTL 60 | GPSN 19 | SPE 60 | |
| **TTMR.M40 93° TN16 TR** | 40 | 40 | 28 | 50 | 72 | TN .. 1604.. | LV 30 | VTL 30 | GPTN 16 | SPE 20 | |
| **TTMR.M50 93° TN16 TR** | 50 | 50 | 36 | 63 | 90 | TN .. 1604.. | LV 30 | VTL 30 | GPTN 16 | SPE 20 | |
| **TTMR.M63 93° TN16 TR** | 63 | 63 | 45 | 80 | 112 | TN .. 1604.. | LV 30 | VTL 30 | GPTN 16 | SPE 20 | |
| **TTMR.M63 93° TN22 TR** | 63 | 63 | 45 | 80 | 112 | TN .. 2204.. | LV 43 | VTL 43 | GPTN 22 | SPE 30 | |
| **TTMR.M80 93° TN22 TR** | 80 | 80 | 56 | 100 | 142 | TN .. 2204.. | LV 43 | VTL 43 | GPTN 22 | SPE 30 | |
| **TTMR.M25 91° TC11 TR** | 25 | 28 | 18 | 32 | 44 | TC .. 1102.. | | VTX 25 | | | |
| **TTMR.M32 91° TC16 TR** | 32 | 34 | 22 | 40 | 56 | TC .. 16T3 .. | | VTX 35 | GSTC 16 | | BO 3550 |
| **TTMR.M40 91° TC16 TR** | 40 | 40 | 28 | 50 | 72 | TC .. 16T3 .. | | VTX 35 | GSTC 16 | | BO 3550 |

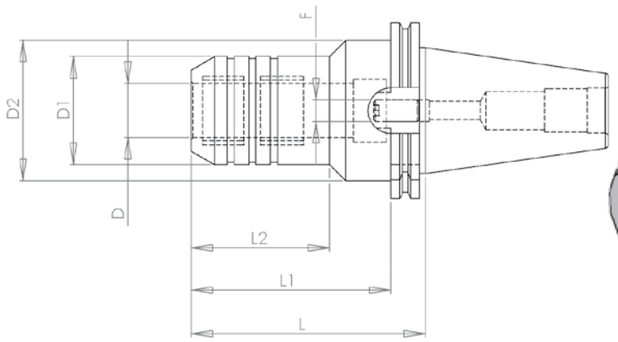
## TESTINE MICRO REGISTRABILI
### *Fine adjustable heads*

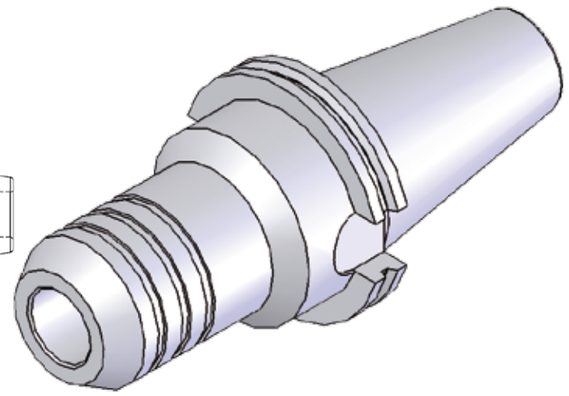
| CODICE | D | Dmin | Dmax | L |
|---|---|---|---|---|
| **TTMRC.24.25.40** | 24 | 25 | 37 | 40 |
| **TTMRC.32.25.91** | 32 | 25 | 37 | 91 |
| **TTMRC.25.32.36** | 25 | 32 | 44 | 36 |
| **TTMRC.32.40.45** | 32 | 40 | 56 | 45 |
| **TTMRC.40.50.56** | 40 | 50 | 72 | 56 |
| **TTMRC.50.63.56** | 50 | 63 | 90 | 56 |
| **TTMRC.63.80.72** | 63 | 80 | 112 | 72 |
| **TTMRC.80.100.80** | 80 | 100 | 142 | 80 |
| **TTMRC.80.130.90** | 80 | 130 | 160 | 90 |
| **TTMRC.80.160.90** | 80 | 160 | 190 | 90 |
| **TTMRC.80.190.90** | 80 | 190 | 220 | 90 |
| **TTMRC.80.220.90** | 80 | 220 | 250 | 90 |



# MANDRINO IDRAULICO
## *Hydraulics Holders*

### ISO 69871



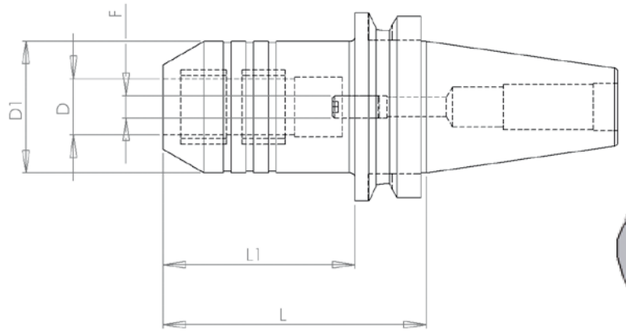



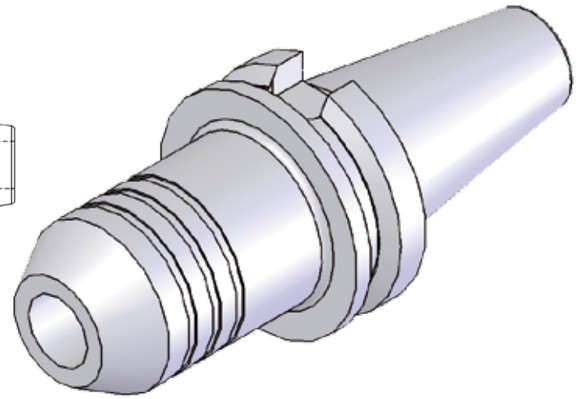
| ACCOPPIAMENTO | CODICE DI ORDINAZIONE FORMA A + B | D | L | L1 | L2 | D1 | D2 | F |
|---|---|---|---|---|---|---|---|---|
| **ISO 40** | **TTSK40AB.MI006.80** | 6 | 80,5 | 61,5 | 29,5 | 26 | 49,5 | M5 |
| **ISO 40** | **TTSK40AB.MI008.80** | 8 | 80,5 | 61,5 | 30 | 28 | 49,5 | M6 |
| **ISO 40** | **TTSK40AB.MI010.80** | 10 | 80,5 | 61,5 | 31 | 30 | 49,5 | M8x1 |
| **ISO 40** | **TTSK40AB.MI012.80** | 12 | 80,5 | 61,5 | 31,5 | 32 | 49,5 | M10x1 |
| **ISO 40** | **TTSK40AB.MI016.80** | 16 | 80,5 | 61,5 | 33 | 38 | 49,5 | M10x1 |
| **ISO 40** | **TTSK40AB.MI020.64** | 20 | 64,5 | 45,5 | - | - | 49,5 | M16x1 |
| **ISO 40** | **TTSK40AB.MI020.80** | 20 | 80,5 | 61,5 | 34 | 42 | 49,5 | M16x1 |
| **ISO 40** | **TTSK40AB.MI025.80** | 25 | 80,5 | - | 24,5 | 55 | 66 | M16x1 |
| **ISO 40** | **TTSK40AB.MI032.80** | 32 | 80,5 | - | 25,5 | 63 | 80 | M16x1 |
| **ISO 50** | **TTSK50AB.MI020.81** | 20 | 110 | - | 34 | 42 | 49,5 | M16x1 |
| **ISO 50** | **TTSK50AB.MI032.81** | 32 | 81 | - | - | 72 | - | M16x1 |
| **BT 50** | **TTBT50AB.MI032.90** | 32 | 90 | 52 | 72 | | | M16x1 |



# MANDRINO IDRAULICO
## *Hydraulics Holders*

### MAS 403 BT

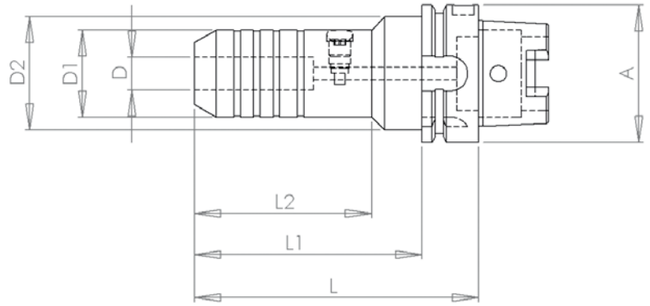


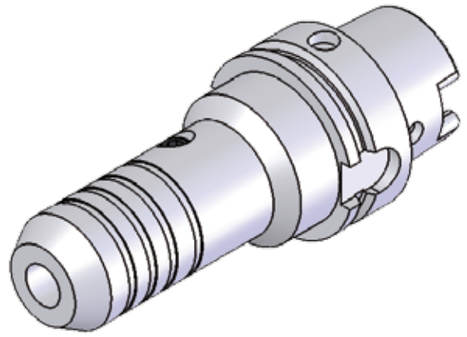



| ACCOPPIAMENTO | CODICE DI ORDINAZIONE FORMA A + B | D | L | L1 | L2 | D1 | D2 | F |
|---|---|---|---|---|---|---|---|---|
| **BT 40** | **TTBT40AB.MI006.90** | 6 | 90 | - | 43 | 26 | 45 | M16x1 |
| **BT 40** | **TTBT40AB.MI008.90** | 8 | 90 | - | 43,5 | 28 | 45 | M16x1 |
| **BT 40** | **TTBT40AB.MI010.90** | 10 | 90 | - | 44 | 30 | 45 | M16x1 |
| **BT 40** | **TTBT40AB.MI012.90** | 12 | 90 | - | 44,5 | 32 | 45 | M16x1 |
| **BT 40** | **TTBT40AB.MI016.90** | 16 | 90 | - | 47,5 | 38 | 45 | M16x1 |
| **BT 40** | **TTBT40AB.MI020.72** | 20 | 72,5 | - | - | 49,5 | 49,5 | M16x1 |
| **BT 40** | **TTBT40AB.MI020.90** | 20 | 90 | - | 47,5 | 42 | 45 | M16x1 |
| **BT 50** | **TTBT50AB.MI012.105** | 12 | 105 | - | 40 | 32 | 45 | M16x1 |
| **BT 50** | **TTBT50AB.MI020.90** | 20 | 90 | - | 40 | 42 | 45 | M16x1 |
| **BT 50** | **TTBT50AB.MI032.90** | 32 | 90 | - | - | 72 | 72 | M16x1 |
| **ISO 50** | **TTSK50AB.MI032.81** | 32 | 81 | - | - | 72 | - | M16x1 |
| **BT 50** | **TTBT50AB.MI032.90** | 32 | 90 | 52 | 72 | | | M16x1 |

# MANDRINO IDRAULICO
## *Hydraulics Holders*

### HSK



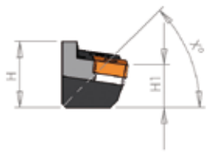



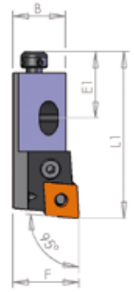
| ACCOPP. | CODICE DI ORDINAZIONE | | D | L | L1 | L2 | D1 | D2 | F |
|---|---|---|---|---|---|---|---|---|---|
| | FORMA A | FORMA E | | | | | | | |
| HSK – 40 | TTHSK40A.MI006.70 | TTHSK40E.MI006.70 | 6 | 70 | - | - | 26 | - | M5 |
| HSK – 40 | TTHSK40A.MI008.70 | TTHSK40E.MI008.70 | 8 | 70 | - | - | 28 | - | M6 |
| HSK – 40 | TTHSK40A.MI010.75 | TTHSK40E.MI010.75 | 10 | 75 | - | - | 30 | - | M8x1 |
| HSK – 40 | TTHSK40A.MI012.80 | TTHSK40E.MI012.80 | 12 | 80 | - | - | 32 | - | M8x1 |
| HSK – 50 | TTHSK50A.MI006.70 | TTHSK50E.MI006.70 | 6 | 70 | - | - | 26 | - | M5 |
| HSK – 50 | TTHSK50A.MI008.70 | TTHSK50E.MI008.70 | 8 | 70 | - | - | 28 | - | M6 |
| HSK – 50 | TTHSK50A.MI010.75 | TTHSK50E.MI010.75 | 10 | 75 | - | - | 30 | - | M8x1 |
| HSK – 50 | TTHSK50A.MI012.85 | TTHSK50E.MI012.85 | 12 | 85 | - | - | 32 | - | M10x1 |
| HSK – 50 | TTHSK50A.MI014.90 | | 14 | 90 | - | - | 34 | - | M10x1 |
| HSK – 50 | TTHSK50A.MI016.90 | TTHSK50E.MI016.90 | 16 | 90 | - | - | 53 | - | M12x1 |
| HSK – 50 | TTHSK50A.MI018.90 | | 18 | 90 | - | - | 42 | - | M12x1 |
| HSK – 50 | TTHSK50A.MI020.90 | TTHSK50E.MI020.90 | 20 | 90 | - | - | 60 | - | M16x1 |
| HSK – 63 | TTHSK63A.MI006.70 | | 6 | 70 | - | - | 26 | - | M5 |
| HSK – 63 | TTHSK63A.MI008.70 | | 8 | 70 | - | - | 28 | - | M6 |
| HSK – 63 | TTHSK63A.MI010.80 | | 10 | 80 | - | - | 30 | - | M8x1 |
| HSK – 63 | TTHSK63A.MI012.85 | | 12 | 85 | - | - | 32 | - | M10x1 |
| HSK – 63 | TTHSK63A.MI014.85 | | 14 | 85 | - | - | 34 | - | M10x1 |
| HSK – 63 | TTHSK63A.MI016.90 | | 16 | 90 | - | - | 38 | - | M12x1 |
| HSK – 63 | TTHSK63A.MI018.90 | | 18 | 90 | - | - | 40 | - | M12x1 |
| HSK – 63 | TTHSK63A.MI020.90 | | 20 | 90 | - | - | 42 | - | M16x1 |
| HSK – 63 | TTHSK63A.MI025.120 | | 25 | 120 | - | - | 57 | - | M16x1 |
| HSK – 63 | TTHSK63A.MI032.125 | | 32 | 125 | - | - | 64 | - | M16x1 |
| HSK – 80 | TTHSK80A.MI006.70 | | 6 | 70 | - | - | 26 | - | M5 |
| HSK – 80 | TTHSK80A.MI008.70 | | 8 | 70 | - | - | 28 | - | M6 |
| HSK – 80 | TTHSK80A.MI010.80 | | 10 | 80 | - | - | 30 | - | M8x1 |
| HSK – 80 | TTHSK80A.MI012.85 | | 12 | 85 | - | - | 32 | - | M10x1 |
| HSK – 80 | TTHSK80A.MI014.85 | | 14 | 85 | - | - | 34 | - | M10x1 |
| HSK – 80 | TTHSK80A.MI016.85 | | 16 | 85 | - | - | 38 | - | M12x1 |
| HSK – 80 | TTHSK80A.MI018.95 | | 18 | 95 | - | - | 40 | - | M12x1 |
| HSK – 80 | TTHSK80A.MI020.95 | | 20 | 95 | - | - | 42 | - | M16x1 |
| HSK – 80 | TTHSK80A.MI025.110 | | 25 | 110 | - | - | 57 | - | M16x1 |
| HSK – 80 | TTHSK80A.MI032.125 | | 32 | 125 | - | - | 64 | - | M16x1 |
| HSK – 100 | TTHSK100A.MI006.75 | | 6 | 75 | - | - | 26 | - | M5 |
| HSK – 100 | TTHSK100A.MI008.75 | | 8 | 75 | - | - | 28 | - | M6 |
| HSK – 100 | TTHSK100A.MI010.90 | | 10 | 90 | - | - | 30 | - | M8x1 |
| HSK – 100 | TTHSK100A.MI012.95 | | 12 | 95 | - | - | 32 | - | M10x1 |
| HSK – 100 | TTHSK100A.MI014.95 | | 14 | 95 | - | - | 34 | - | M10x1 |
| HSK – 100 | TTHSK100A.MI016.100 | | 16 | 100 | - | - | 38 | - | M12x1 |
| HSK – 100 | TTHSK100A.MI018.100 | | 18 | 100 | - | - | 40 | - | M12x1 |
| HSK – 100 | TTHSK100A.MI020.105 | | 20 | 105 | - | - | 42 | - | M16x1 |
| HSK – 100 | TTHSK100A.MI025.110 | | 25 | 110 | - | - | 57 | - | M16x1 |
| HSK – 100 | TTHSK100A.MI032.110 | | 32 | 110 | - | - | 64 | - | M16x1 |

# CARTUCCE
## *Cartridges*

### BLOCCAGGIO A LEVA

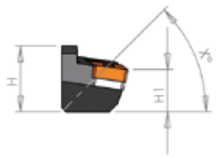
PCLNR/L..CA





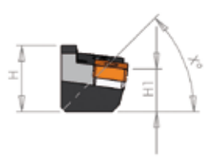
16CA..X°=45°
20CA..X°=45°

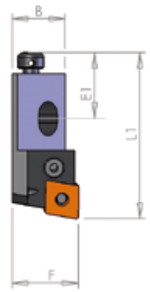
PCFNR/L..CA



12CA..X°=20°
16CA..X°=45°
20CA..X°=45°

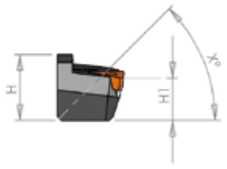
PCGNR/L..CA

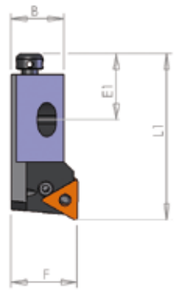




16CA..X°=45°
20CA..X°=45°

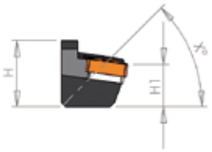
PTGNR/L..CA

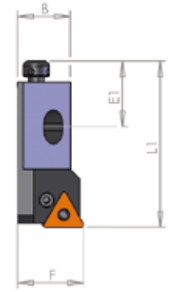




12CA..X°=20°
16CA..X°=45°
20CA..X°=45°

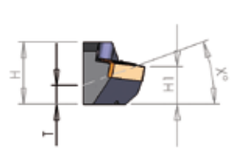
PTFNR/L..CA

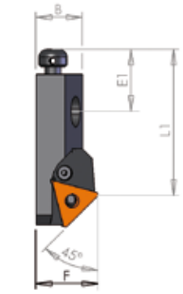




12CA..X°=20°
16CA..X°=45°
20CA..X°=45°

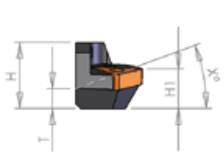
PTSNR/L..CA

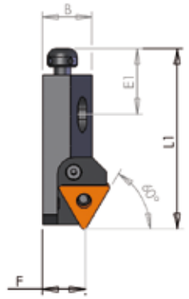




12CA..X°=20°
16CA..X°=45°

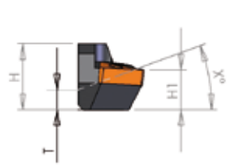
PTTNR/L..CA

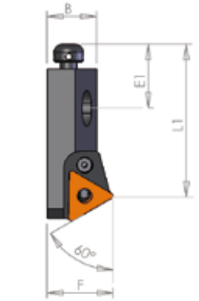




12CA..X°=20°
16CA..X°=45°

PTWNR/L..CA



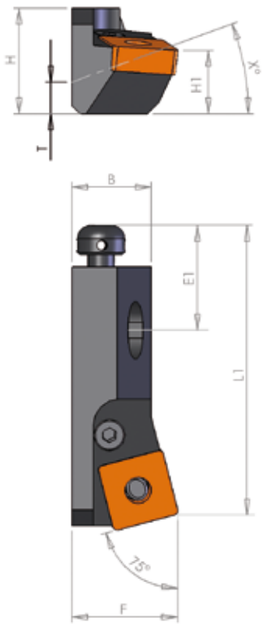


12CA..X°=20°
16CA..X°=45°

| ARTICOLO | INSERTO | DIAMETRO MINIMO | H1 | F | B | L1 | H | E1 | T |
|---|---|---|---|---|---|---|---|---|---|
| **PCLNR/L 16 CA-12** | CN..1204.. | 55 | 16 | 25 | 20 | 63 | 25 | 25 | - |
| **PCLNR/L 20 CA-12** | CN..1204.. | 70 | 20 | 25 | 20 | 70 | 30 | 30 | - |
| **PCFNR/L 12 CA-12** | CN..1204.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **PCFNR/L 16 CA-12** | CN..1204.. | 55 | 16 | 25 | 20 | 63 | 25 | 25 | - |
| **PCFNR/L 20 CA-12** | CN..1204.. | 70 | 20 | 25 | 20 | 70 | 30 | 30 | - |
| **PCGNR/L 16 CA-12** | CN..1204.. | 55 | 16 | 25 | 20 | 63 | 25 | 25 | - |
| **PCGNR/L 20 CA-16** | CN..1606.. | 70 | 20 | 25 | 20 | 70 | 30 | 19,5 | - |
| **PTGNR/L 12CA-16** | TN..1604.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **PTGNR/L 16CA-16** | TN..1604.. | 60 | 16 | 25 | 20 | 63 | 25 | 25 | - |
| **PTGNR/L 20CA-22** | TN..2204.. | 70 | 20 | 25 | 20 | 70 | 30 | 30 | - |
| **PTFNR/L 12CA-16** | TN..1604.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **PTFNR/L 16CA-16** | TN..1604.. | 55 | 16 | 25 | 20 | 63 | 25 | 25 | - |
| **PTFNR/L 20CA-16** | TN..1604.. | 70 | 20 | 25 | 20 | 70 | 30 | 30 | - |
| **PTSNR/L 12 CA-16** | TN..1604.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **PTSNR/L 16 CA-16** | TN..1604.. | 55 | 16 | 25 | 20 | 53 | 25 | 25 | - |
| **PTTNR/L 12CA-16** | TN..1604.. | 50 | 12 | 13 | 15 | 55 | 20 | 20 | 6 |
| **PTTNR/L 16CA-16** | TN..1604.. | 60 | 16 | 15 | 20 | 63 | 25 | 25 | - |
| **PTTNR/L 20CA-22** | TN..2204.. | 70 | 20 | 15 | 20 | 70 | 30 | 30 | - |
| **PTWNR/L 12CA-16** | TN..1604.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **PTWNR/L 16CA-16** | TN..1604.. | 55 | 16 | 25 | 20 | 53 | 25 | 25 | - |
| **PTWNR/L 20CA-22** | TN..2204.. | 70 | 20 | 25 | 20 | 70 | 30 | 30 | - |

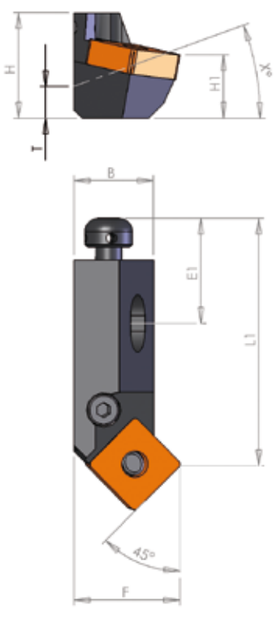
## BLOCCAGGIO A LEVA

PSKNR/L..CA



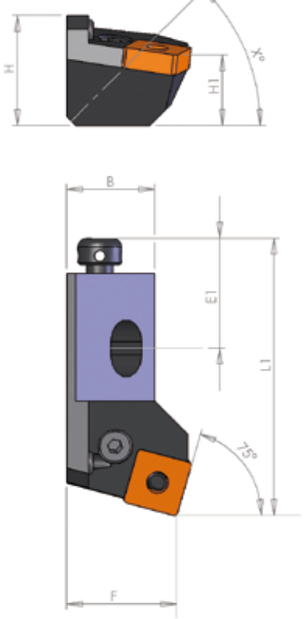
12CA..X°=20°
16CA..X°=45°

PSSNR/L..CA



12CA..X°=20°
16CA..X°=45°

PSRNR/L..CA



16CA..X°=45°

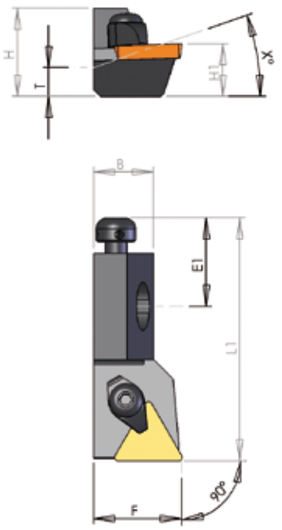
| ARTICOLO | INSERTO | DIAMETRO MINIMO | H1 | F | B | L1 | H | E1 | T |
|---|---|---|---|---|---|---|---|---|---|
| **PCLNR/L 16 CA-12** | CN..1204.. | 55 | 16 | 25 | 20 | 63 | 25 | 25 | - |
| **PCLNR/L 20 CA-12** | CN..1204.. | 70 | 20 | 25 | 20 | 70 | 30 | 30 | - |
| **PCFNR/L 16 CA-12** | CN..1204.. | 55 | 16 | 25 | 20 | 63 | 25 | 25 | - |
| **PCFNR/L 20 CA-12** | CN..1204.. | 70 | 20 | 25 | 20 | 70 | 30 | 30 | - |
| **PCGNR/L 16 CA-12** | CN..1204.. | 55 | 16 | 25 | 20 | 63 | 25 | 25 | - |
| **PCGNR/L 20 CA-16** | CN..1606.. | 70 | 20 | 25 | 20 | 70 | 30 | 19,5 | - |



**CARTUCCE**
***Cartridges***

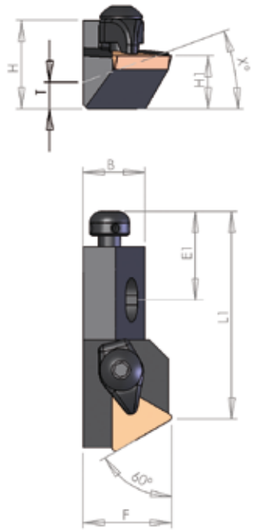
## BLOCCAGGIO A STAFFA

CTFPR/L..CA



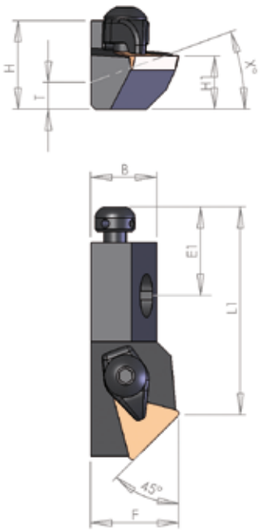
10CA...X=20°
12CA...X=20°

CTWPR/L..CA



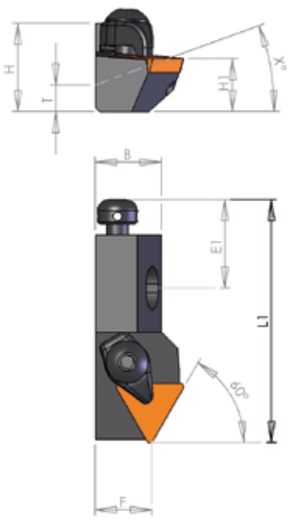
10CA...X=20°
12CA...X=20°

CTSPR/L..CA



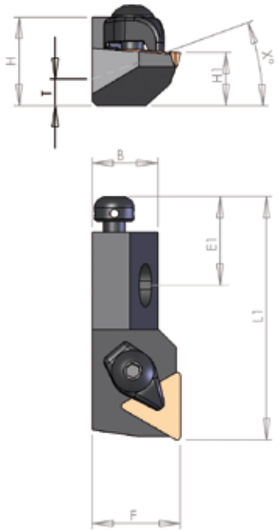
10CA...X=20°
12CA...X=20°

CTTPR/L..CA



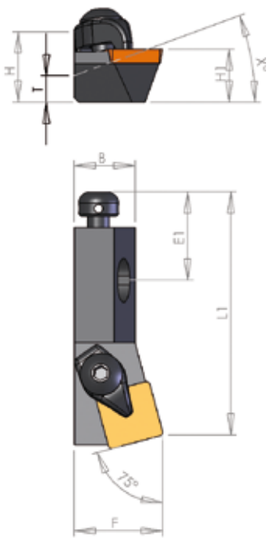
10CA...X=20°
12CA...X=20°

CTGPR/L..CA



10CA...X=20°
12CA...X=20°

CSKPR/L..CA



10CA...X=20°
12CA...X=20°

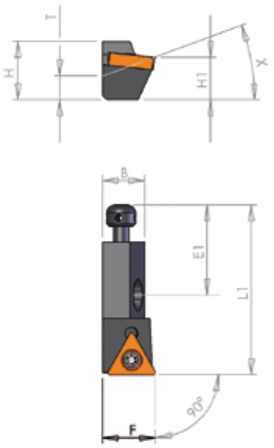
| ARTICOLO | INSERTO | DIAMETRO MINIMO | H1 | F | B | L1 | H | E1 | T |
|---|---|---|---|---|---|---|---|---|---|
| **CTFPR/L 10CA-11** | TP..1103.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **CTFPR/L 12CA-16** | TP..1603.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **CTWPR/L 10CA-11** | TP..1103.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **CTWPR/L 12CA-16** | TP..1603.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **CTSPR/L 10CA-11** | TP..1103.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **CTSPR/L 12CA-16** | TP..1603.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **CTTPR/L 10CA-11** | TP..1103.. | 40 | 10 | 9 | 11 | 50 | 15 | 20 | 5 |
| **CTTPR/L 12CA-16** | TP..1603.. | 50 | 12 | 13 | 15 | 55 | 20 | 20 | 6 |
| **CTGPR/L 10CA-11** | TP..1103.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **CTGPR/L 12CA-16** | TP..1603.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **CSKPR/L 10CA-11** | SP..0903.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **CSKPR/L 12CA-16** | SP..1203.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |



# CARTUCCE
## *Cartridges*

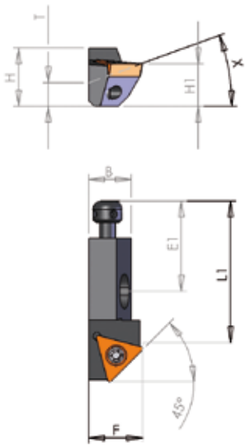
### BLOCCAGGIO A VITE

STF.R/L..CA..



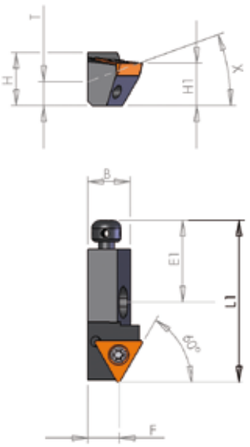

08CA...X=20°
10CA...X=20°
12CA...X=20°
16CA...X=45°

STS.R/L..CA..



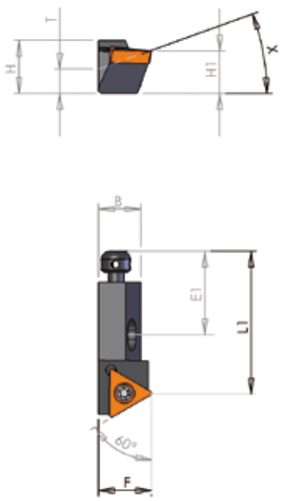

08CA...X=20°
10CA...X=20°
12CA...X=20°

STT.R/L..CA..



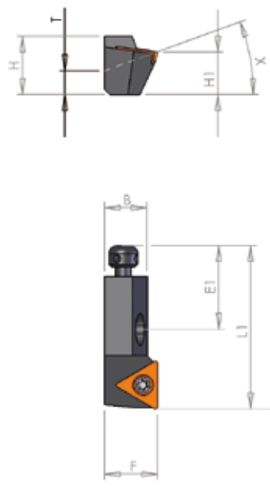

08CA...X=20°
10CA...X=20°
12CA...X=20°

STW.R/L..CA..



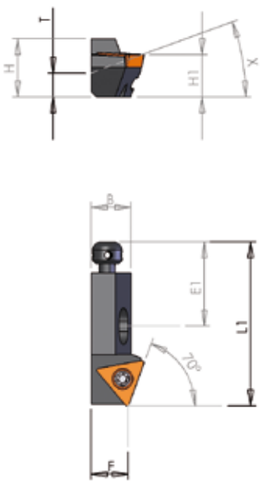

08CA...X=20°
10CA...X=20°
12CA...X=20°

STG.R/L..CA..




08CA...X=20°
10CA...X=20°
12CA...X=20°

STX.R/L..CA..

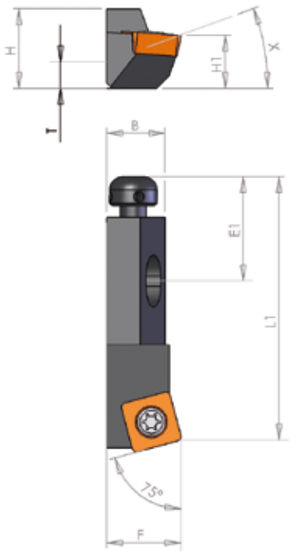



08CA...X=20°
10CA...X=20°
12CA...X=20°

| ARTICOLO | INSERTO | DIAMETRO MINIMO | H1 | F | B | L1 | H | E1 | T |
|---|---|---|---|---|---|---|---|---|---|
| **STFCR/L 08CA-09** | TC..0902.. | 25 | 8 | 10 | 8 | 32 | 11 | 17 | 4,5 |
| **STFCR/L 10CA-11** | TC..1102.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **STFCR/L 12CA-16** | TC..16T3.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **STFCR/L 16CA-16** | TC..16T3.. | 55 | 16 | 25 | 20 | 63 | 21 | 25 | - |
| **STFPR/L 08CA-09** | TP..0902.. | 25 | 8 | 10 | 8 | 32 | 11 | 17 | 4,5 |
| **STFPR/L 10CA-11** | TP..1102.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **STFPR/L 12CA-16** | TP..16T3.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **STSCR/L 08CA-09** | TC..0902.. | 25 | 8 | 10 | 8 | 28 | 11 | 17 | 4,5 |
| **STSCR/L 10CA-11** | TC..1102.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **STSCR/L 12CA-16** | TC..16T3.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **STSPR/L 08CA-09** | TP..0902.. | 25 | 8 | 10 | 8 | 28 | 11 | 17 | 4,5 |
| **STSPR/L 10CA-11** | TP..1102.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **STSPR/L 12CA-16** | TP..16T3.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **STTCR/L 08CA-09** | TC..0902.. | 25 | 8 | 6 | 7,5 | 32 | 11 | 17 | 4,5 |
| **STTCR/L 10CA-11** | TC..1102.. | 40 | 10 | 9 | 11 | 50 | 15 | 20 | 5 |
| **STTCR/L 12CA-16** | TC..16T3.. | 50 | 12 | 13 | 15 | 55 | 20 | 20 | 6 |
| **STTPR/L 08CA-09** | TP..0902.. | 25 | 8 | 6 | 7,5 | 32 | 11 | 17 | 4,5 |
| **STTPR/L 10CA-11** | TP..1102.. | 40 | 10 | 9 | 11 | 50 | 15 | 20 | 5 |
| **STTPR/L 12CA-16** | TP..16T3.. | 50 | 12 | 13 | 15 | 55 | 20 | 20 | 6 |
| **STWCR/L 08CA-09** | TC..0902.. | 25 | 8 | 10 | 8 | 28 | 11 | 17 | 4,5 |
| **STWCR/L 10CA-11** | TC..1102.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **STWCR/L 12CA-16** | TC..16T3.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **STWCR/L 16CA-16** | TC..16T3.. | 50 | 16 | 25 | 20 | 53 | 20 | 25 | - |
| **STWPR/L 08CA-09** | TP..0902.. | 25 | 8 | 10 | 8 | 28 | 11 | 17 | 4,5 |
| **STWPR/L 10CA-11** | TP..1102.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **STWPR/L 12CA-16** | TP..16T3.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **STGCR/L 08CA-09** | TC..0902.. | 25 | 8 | 10 | 7,5 | 32 | 11 | 17 | 4,5 |
| **STGCR/L 10CA-11** | TC..1102.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **STGCR/L 12CA-16** | TC..16T3.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **STGPR/L 08CA-09** | TP..0902.. | 25 | 8 | 10 | 7,5 | 32 | 11 | 17 | 4,5 |
| **STGPR/L 10CA-11** | TP..1102.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **STGPR/L 12CA-16** | TP..16T3.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **STXCR/L 08CA-09** | TC..0902.. | 25 | 8 | 7 | 7,5 | 32 | 11 | 17 | 4,5 |
| **STXCR/L 10CA-11** | TC..1102.. | 40 | 10 | 10,5 | 11 | 50 | 15 | 20 | 5 |
| **STXCR/L 12CA-16** | TC..16T3.. | 50 | 12 | 15 | 15 | 55 | 20 | 20 | 6 |
| **STXPR/L 08CA-09** | TP..0902.. | 25 | 8 | 7 | 7,5 | 32 | 11 | 17 | 4,5 |
| **STXPR/L 10CA-11** | TP..1102.. | 40 | 10 | 10,5 | 11 | 50 | 15 | 20 | 5 |
| **STXPR/L 12CA-16** | TP..16T3.. | 50 | 12 | 15 | 15 | 55 | 20 | 20 | 6 |

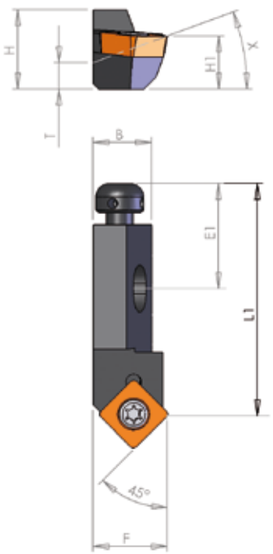
## BLOCCAGGIO A VITE

SSKCR/L..CA



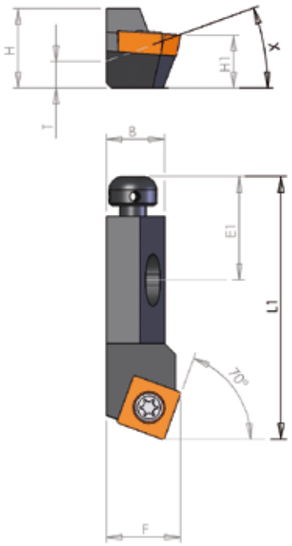

10CA...X=20°
12CA...X=20°

SSSCR/L..CA



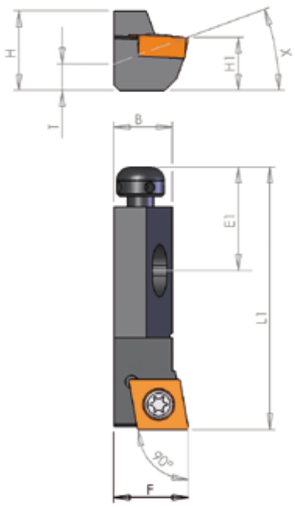

10CA...X=20°
12CA...X=20°

SSXCR/L..CA



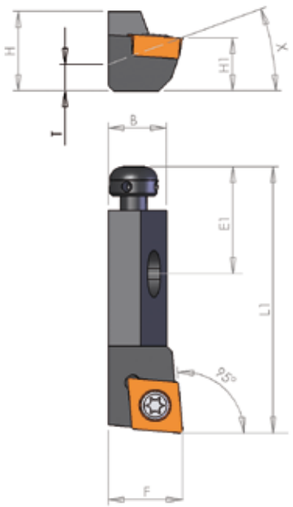

10CA...X=20°
12CA...X=20°

SCF.R/L..CA



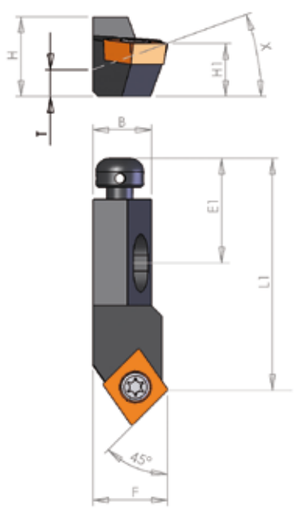

06CA...X=20°
08CA...X=20°
10CA...X=20°
12CA...X=20°

SCL.R/L..CA




06CA...X=20°
10CA...X=20°
12CA...X=20°

SCS.R/L..CA




06CA...X=20°
08CA...X=20°
10CA...X=20°
12CA...X=20°

| ARTICOLO | INSERTO | DIAMETRO MINIMO | H1 | F | B | L1 | H | E1 | T |
|---|---|---|---|---|---|---|---|---|---|
| **SSKCR 10CA-09** | SC..09T3.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **SSKCR/L 12CA-12** | SC..1204.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **SSKPR 10CA-09** | SP..09T3.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **SSKPR/L 12CA-12** | SP..1204.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **SSSCR/L 10CA-09** | SC..09T3.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **SSSCR/L 12CA-16** | SC..1204.. | 50 | 12 | 20 | 12 | 47 | 20 | 20 | 6 |
| **SSSPR/L 10CA-09** | SP..09T3.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **SSSPR/L 12CA-12** | SP..1204.. | 50 | 12 | 20 | 12 | 47 | 20 | 20 | 6 |
| **SSXCR/L 10CA-09** | SC..09T3.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **SSXCR/L 12CA-12** | SC..1204.. | 50 | 12 | 20 | 12 | 55 | 20 | 20 | 6 |
| **SSXPR/L 10CA-09** | SP..09T3.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **SSXPR/L 12CA-12** | SP..1204.. | 50 | 12 | 20 | 12 | 55 | 20 | 20 | 6 |
| **SCFCR/L 06CA-06** | CC..0602.. | 20 | 6 | 8 | 6 | 25 | 8,5 | 12 | 3,5 |
| **SCFCR/L 08CA-06** | CC..0602.. | 25 | 6 | 10 | 6,5 | 32 | 9,5 | 17 | 4,5 |
| **SCFCR/L 10CA-09** | CC..09T3.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **SCFCR/L 12CA-12** | CC..1204.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **SCFPR/L 06CA-05** | CP..0502.. | 15 | 6 | 8 | 5,5 | 25 | 7,5 | 12 | 3,5 |
| **SCFPR/L 08CA-06** | CP..0602.. | 25 | 8 | 10 | 6,5 | 32 | 9,5 | 17 | 4,5 |
| **SCFPR/L 10CA-09** | CP..09T3.. | 40 | 10 | 14 | 10 | 50 | 15 | 20 | 5 |
| **SCFPR/L 12CA-12** | CP..1204.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |
| **SCLCR/L 06CA-06** | CC..0602.. | 20 | 6 | 8 | 6 | 25 | 8,5 | 12 | 3,5 |
| **SCLCR/L 10CA-09** | CC..09T3.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **SCLCR/L 12CA-12** | CC..1204.. | 50 | 12 | 20 | 15 | 55 | 20 | 20 | 6 |

| ARTICOLO | INSERTO | DIAMETRO MINIMO | H1 | F | B | L1 | H | E1 | T |
|---|---|---|---|---|---|---|---|---|---|
| **SCLPR/L 06CA-05** | CP..0502.. | 20 | 6 | 8 | 5,5 | 25 | 7,5 | 12 | 3,5 |
| **SCLPR/L 08CA-06** | CP..0602.. | 25 | 6 | 10 | 6,5 | 32 | 9,5 | 17 | 4,5 |
| **SCLPR/L 10CA-09** | CP..09T3.. | 40 | 10 | 14 | 11 | 50 | 15 | 20 | 5 |
| **SCSCR/L 06CA-06** | CC..0602.. | 20 | 6 | 8 | 6 | 21 | 8,5 | 12 | 3,5 |
| **SCSCR/L 08CA-06** | CC..0602.. | 25 | 6 | 10 | 6,5 | 32 | 9,5 | 17 | 4,5 |
| **SCSCR/L 10CA-09** | CC..09T3.. | 40 | 10 | 14 | 11 | 44 | 15 | 20 | 5 |
| **SCSCR/L 12CA-12** | CC..1204.. | 50 | 12 | 20 | 15 | 47 | 20 | 20 | 6 |
| **SCSPR/L 06CA-05** | CC..0502.. | 20 | 6 | 8 | 6 | 21 | 7,5 | 12 | 3,5 |
| **SCSPR/L 08CA-06** | CC..0602.. | 25 | 6 | 10 | 6,5 | 32 | 9,5 | 17 | 4,5 |

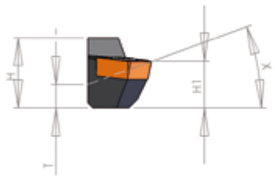




# CARTUCCE
## *Cartridges*

## BLOCCAGGIO A VITE

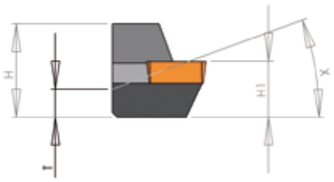
SCT.R/L..CA

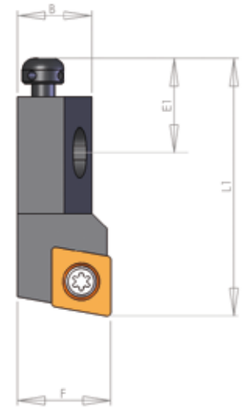




06CA...X=20°
08CA...X=20°
10CA...X=20°
12CA...X=20°

SCGCR/L..CA



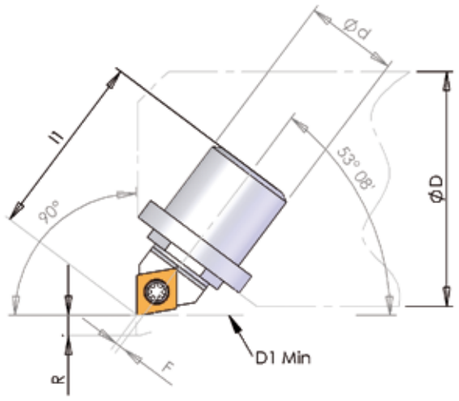

12CA...X=20°
20CA...X=45°

| ARTICOLO | INSERTO | DIAMETRO MINIMO | H1 | F | B | L1 | H | E1 | T |
|---|---|---|---|---|---|---|---|---|---|
| **SCTCR/L 06CA-06** | CC..0602.. | 20 | 6 | 5,5 | 6 | 25 | 8,5 | 12 | 3,5 |
| **SCTCR/L 08CA-06** | CC..0602.. | 25 | 8 | 7 | 6,5 | 32 | 9,5 | 17 | 4,5 |
| **SCTCR/L 10CA-09** | CC..09T3.. | 40 | 10 | 9 | 11 | 50 | 15 | 20 | 5 |
| **SCTCR/L 12CA-12** | CC..1204.. | 50 | 12 | 13 | 15 | 55 | 20 | 20 | 6 |
| **SCTPR/L 06CA-05** | CP..0502.. | 20 | 6 | 5,5 | 5,5 | 25 | 7,5 | 12 | 3,5 |
| **SCTPR/L 08CA-06** | CP..0602.. | 25 | 8 | 6 | 6,5 | 32 | 9,5 | 17 | 4,5 |
| **SCGCR/L 12CA-12** | CC..1204.. | 50 | 12 | 20 | 16 | 55 | 20 | 20 | 6 |
| **SCGCR/L 20CA-12** | CC..1204.. | 70 | 20 | 25 | 20 | 70 | 25 | 19,5 | 6 |

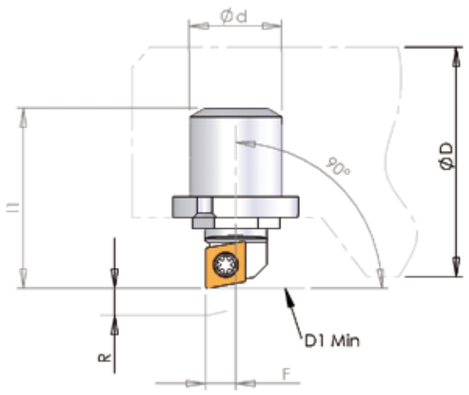
# UNITA' MICROREGISTRABILI
## *MICRO ADJUSTABLE CARTRIDGES*

# UNITA' MICROREGISTRABILI
## *Micro Adjustable Cartridges*

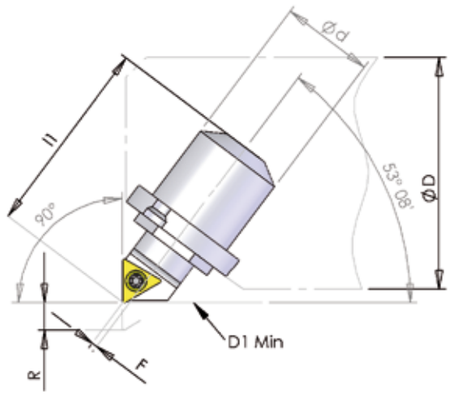
TTL348C - 3. -.....



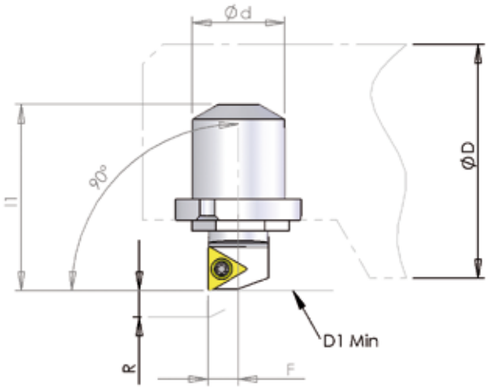

TTL348C - 1. - .....



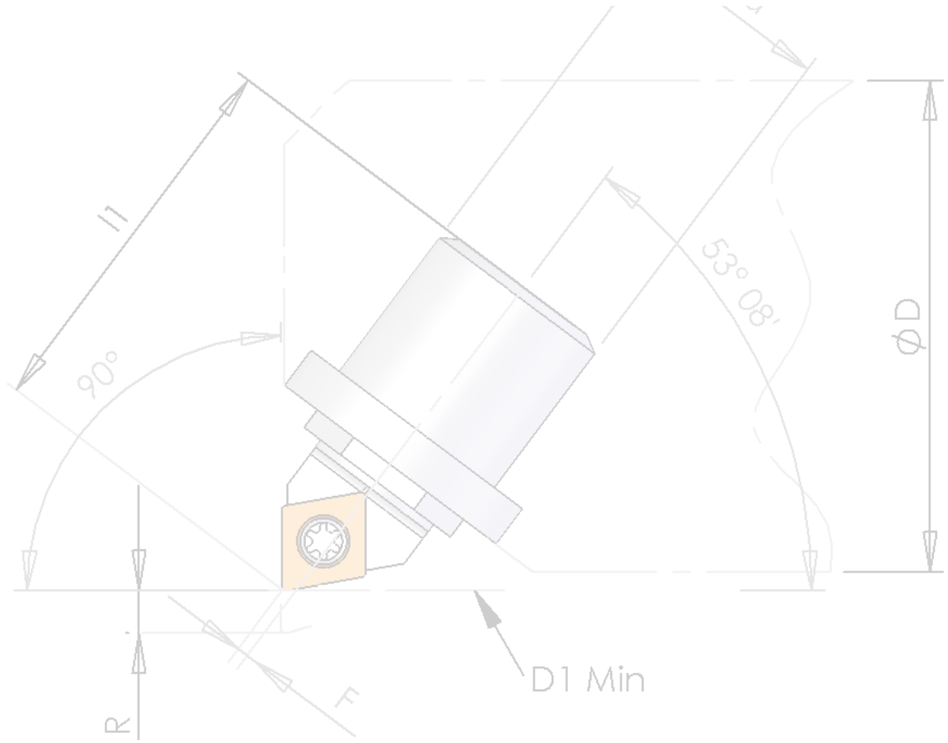

TTL148C - 3. - .....



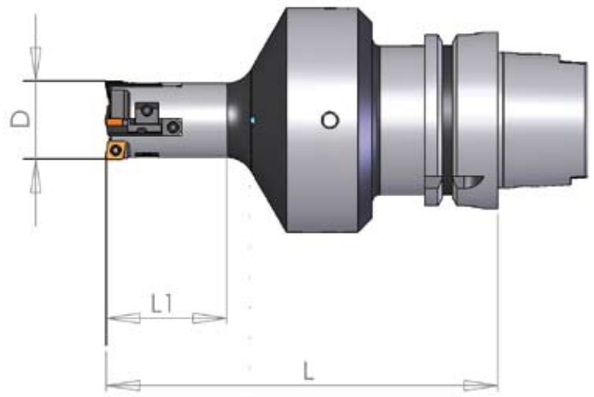

TTL148C - 1. - .....




| ARTICOLO | INSERTO | d | D1 | D | l1 | F | R |
|---|---|---|---|---|---|---|---|
| **TTL348C – 31 – 0602** | CC..0602.. | 16 | 25,4 | 22 | 25 | 0,36 | 1,52 |
| **TTL348C – 32 – 0602** | CC..0602.. | 20 | 33,1 | 28,5 | 32,4 | 1,07 | 2,24 |
| **TTL348C – 33 – 09T3** | CC..09T3.. | 22 | 42,6 | 38 | 43,6 | 1,3 | 2,8 |
| **TTL348C – 34 – 09T3** | CC..09T3.. | 32 | 60 | 55 | 63,2 | 1,56 | 4 |
| **TTL348C – 11 – 0602** | CC..0602.. | 16 | 27,6 | 22,6 | 24,3 | 5,1 | 1,9 |
| **TTL348C – 12 – 0602** | CC..0602.. | 20 | 37,1 | 34,1 | 31,5 | 6,3 | 2,9 |
| **TTL348C – 13 – 09T3** | CC..09T3.. | 22 | 49,1 | 46,5 | 42,8 | 7,2 | 3,5 |
| **TTL348C – 14 – 09T3** | CC..09T3.. | 32 | 69 | 67 | 62,1 | 10 | 5 |
| **TTL148C – 32 – 0902** | TC..0902.. | 20 | 33,1 | 28,5 | 32,4 | 1,07 | 2,24 |
| **TTL148C – 33 – 1102** | TC..1102.. | 22 | 42,6 | 38 | 43,6 | 1,3 | 2,8 |
| **TTL148C – 34 – 16T3** | TC..16T3.. | 32 | 60 | 55 | 63,2 | 1,56 | 4 |
| **TTL148C – 12 – 0902** | TC..0902.. | 20 | 37,1 | 34,5 | 32,45 | 6,3 | 2,9 |
| **TTL148C – 13 – 1102** | TC..1102.. | 22 | 49,1 | 46,5 | 42,8 | 7,2 | 3,5 |
| **TTL148C – 14 – 16T3** | TC..16T3.. | 32 | 69 | 67 | 62,1 | 10 | 5 |



# UTENSILI DI FINITURA SPEED TOOLS®
## *SUPERFINISHING TOOLS*




L'attacco in figura è solo di riferimento

| CODICE BARENO | D | TOLLERANZA RICHIESTA | L | L1 | Z | COD. CARTUCCIA | ATTACCO |
|---|---|---|---|---|---|---|---|
| **BA3AD66N.000** | 21 | + 0,021 / - 0 | 110 | - | 2 | CA3AD72Y.005 | HSK-63 |
| **BA3AD72X.000** | 24 | - 0,02 / - 0,041 | 167 | 90 | 2 | CA3AD825.000 | ISO 50 DIN 69871 |
| **BA3AD52E.000** | 26 | - 0,011 / - 0,024 | 80 | 30 | 2 | CA3AD64E.002 | ABS-63 |
| **BA3AE00D.000** | 28 | F6 ( + 0,033 / + 0,02) | 140 | 40 | 4 | CA3AD52G.002 | HSK-63 |
| **BA3AD52G.000** | 32 | + 0,056 / + 0,036 | 115 | 30,5 | 3 | CA3AD64E.002 | ABS-63 |
| **BA3AD64E.000** | 32 | + 0,055 / + 0,045 | 200 | 30,7 | 4+4 | CA3AD64E.002 | BT-50 |
| **BA3AD563.000** | 32 | + 0,056 / + 0,036 | 130 | 50 | 4 | CA3AD52G.002 | BT-40 |
| **BA3AD839.000** | 32 | - 0,02 / - 0,04 | 240 | 135 | 3+3 | CA3AD72Y.005 | ISO 50 DIN 69871 |
| **BA3AD71Y.000** | 37,25 | + 0,029 / + 0,014 | 276 | 190 | 4 | CA3AD71Y.002 | HSK-63 |
| **BA3AD52F.000** | 38 | + 0,064 / + 0,025 | 80 | 38 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD75M.000** | 38,4 | + 0,08 / + 0,06 | 160 | 100 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD51A.000** | 38,4 | + 0,05 / + 0,02 | 160 | 100 | 2 | CA3AD51A.002 | ABS-63 |
| **BA3AD72B.000** | 38,4 | + 0,08 / + 0,06 | 135 | 110 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD96R.000** | 40 | + 0 / - 0,03 | 80 | 45 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD642.000** | 42 | + 0,04 / + 0,02 | 290 | 110 | 5 | CA3AD808.000 | BT-50 |
| **BA3AD61T.000** | 42 | + 0 / - 0,03 | 100 | 70 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD61R.000** | 45 | + 0 / - 0,03 | 100 | 70 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD72Y.000** | 46 | + 0,06 / + 0,01 | 210 | 160 | 5 | CA3AD72Y.005 | HSK-63 |
| **BA3AD70M.000** | 47 | + 0,03 / - 0 | 115 | 95 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD73N.000** | 48 | + 0,03 / - 0 | 90 | 70 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD52D.000** | 52 | + 0,013 / - 0,006 | 100 | 40 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD74E.000** | 55 | + 0 / - 0,03 | 100 | 80 | 4 | CA3AD64E.002 | ABS-63 |
| **BA3AD38E.000** | 57 | + 0,05 / + 0,02 | 120 | 60 | 3 | CA3AD38E.002 | ABS-63 |
| **BA3AD49L.000** | 57 | + 0,05 / + 0,02 | 128 | 70 | 4 | CA3AD38E.002 | ABS-63 |
| **BA3AE12W.000** | 57 | + 0,05 / + 0,02 | 118 | 78 | 4 | CA3AD38E.002 | ABS-63 |
| **BA3AD61W.000** | 62 | + 0,016 / - 0 | 100 | 26,7 | 4+4 | CA3AD38E.002 | ABS-63 |
| **BA3AD49N.000** | 66,5 | + 0,06 / - 0 | 137 | 80 | 5 | CA3AD38E.002 | ABS-63 |
| **BA3AD713.000** | 67,56 | + 0,02 / - 0 | 220 | 110 | 5 | CA3AD713.002 | HSK-100 |
| **BA3AD70N.000** | 68 | + 0,01 / - 0,005 | 120 | - | 5 | CA3AD38E.002 | ABS-63 |
| **BA3AD714.000** | 71,56 | + 0,02 / - 0 | 220 | 110 | 5 | CA3AD714.002 | HSK-100 |
| **BA3AD752.000** | 72 | + 0,02 / - 0 | 130 | 40 | 5 | CA3AD52G.002 | BT-50 |
| **BA3AD49P.000** | 76 | + 0,02 / - 0 | 132 | 75 | 5 | CA3AD38E.002 | ABS-63 |
| **BA3AD548.000** | 92 | H7 | 300 | 200 | 5 | CA3AD38E.002 | BT-50 |
| **BA3AD92W.000** | 160 | + 0,03 / - 0,03 | 280 | - | 5 | CA3AD79E.000 | BT-50 |

**Disponibile anche con 2 o più diametri di lavoro.**
**E' possibile costruire bareni di finitura a più lavorazioni.**
**Prezzi disponibili su richiesta.**


Questa soluzione venne progettata per affrontare le problematiche durante la lavorazione di finitura delle sedi ingranaggi su corpi pompa in ghisa, successivamente visti i risultati ottenuti venne ampliato a tutte le lavorazioni di alesatura su componenti in ghisa e alluminio anche in presenza di taglio interrotto. Oggi questa soluzione è adottata dalle maggiori aziende operanti nei settori oleodinamico, automotive, motoriduttori e componenti idraulici.

### DATI TECNICI:

I nostri SPEED TOOLS sono composti da un sistema multitagliente di cartucce speciali regolabili assialmente e radialmente. Il numero di taglienti varia in base al diametro di lavoro e al tipo di materiale. Vengono utilizzati inserti in CBN per le lavorazioni di ghisa grigia e in PCD per particolari in alluminio. Il vantaggi con questo tipo di soluzione si riscontrano in un significativo miglioramento del tempo ciclo di lavoro, garantendo una velocità minima di taglio di circa 1000 M/min con un avanzamento di 0,1 mm per tagliente. Il valore di finitura ottenuto è pari ad una RA 0,4 con una tolleranza compresa nei 0,015 mm.

*Is the solution that was elaborated to solve the problems caused by the completion works regarding the operations of borings and the gears on bodies of pumps made of cast iron. Owing to the very good results that we got, this process has been widened to all types of boring works on components made of cast iron or aluminium, even in the presence of stopped cut. Today this solution has been adopted by the majority of the companies which works in the sectors of hydraulic, car industry, the motoreducers and the hydraulic components.*

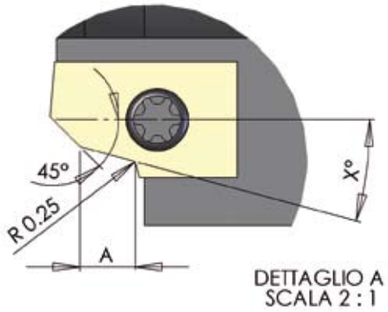
***TECHNICAL DATAS:***

*Our system SPEED TOOLS is composed of one multi-cutting system, composed of special cartridges which are axially and radially adjustable. The number of cutting-tools varies in function of the working diameter and the type of material. Some plates in CBN are used for the work of the cast iron and some in PCD particularly for the aluminium. The advantages of this type of solution reveal a significant improvement of the cycle times in guaranteeing a reduced cutting speed which is about 1000 meters/minute with an advance of 0,1 mm of the cutting-tool. The completion quality that is achieved is equivalent to RA 0,4 with a tolerance of 0,015 mm.*

# LAVORAZIONE SEDI VALVOLE
## *VALVES SITE DRILLING*

# BARENI SEDI VALVOLE SAE
*Boring Valvels site*

## SEDI SAE " METRICHE "
*metric sae*




L'attaco in figura è solo di riferimento

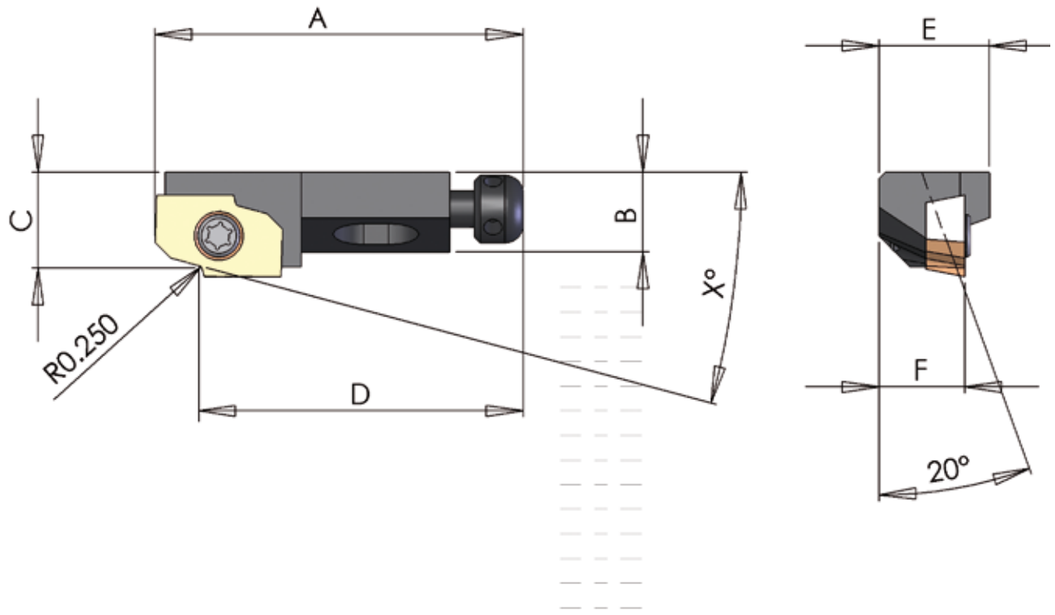
| CODICE | VALVOLA | D | E | L | d. | A | X° | F | G | Z |
|---|---|---|---|---|---|---|---|---|---|---|
| **TTSM10L25** | M10x1 | 20 | 11,1 | 25 | 50 | 1,8 | 12° | TT1812025 | SP..060204 | 1+1 |
| **TTSM12L25** | M12x1,5 | 25 | 13,8 | 25 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSM14L30** | M14x1,5 | 25 | 15,8 | 30 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSM16L30** | M16x1,5 | 30 | 17,8 | 30 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSM18L30** | M18x1,5 | 30 | 19,8 | 30 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSM20L35** | M20x1,5 | 35 | 21,8 | 35 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSM22L35** | M22x1,5 | 35 | 23,8 | 35 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSM27L40** | M27x2 | 44 | 29,4 | 40 | 50 | 3,3 | 15° | TT3315025 | SC..09T308 | 1+1 |
| **TTSM33L40** | M33x2 | 50 | 35,4 | 40 | 50 | 3,3 | 15° | TT3315025 | SC..09T308 | 1+1 |
| **TTSM42L50** | M42x2 | 60 | 44,4 | 50 | 63 | 3,3 | 15° | TT3315025 | SC..09T308 | 1+1 |
| **TTSM48L50** | M48x2 | 66 | 50,4 | 50 | 63 | 3,3 | 15° | TT3315025 | SC..09T308 | 1+1 |




# BARENI SEDI VALVOLE SAE
*Boring Valvels site*


## SEDI SAE " UN "

| CODICE | VALVOLA | D | E | L | d. | A | X° | F | G | Z |
|---|---|---|---|---|---|---|---|---|---|---|
| **TTSUN71620** | 7/16 – 20 | 22 | 12,4 | 25 | 50 | 1,8 | 12° | TT1812025 | SP..060204 | 1+1 |
| **TTSUN1220** | 1/2 – 20 | 24 | 14 | 30 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSUN91618** | 9/16 – 18 | 25 | 15,6 | 30 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSUN3416** | 3/4 – 16 | 30 | 20,6 | 30 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSUN7814** | 7/8 – 14 | 35 | 23,9 | 35 | 50 | 2,65 | 15° | TT26515025 | SP..060204 | 1+1 |
| **TTSUN111612** | 1" 1/16 – 12 | 42 | 29,2 | 40 | 50 | 3,5 | 15° | TT3515025 | SC..09T308 | 1+1 |
| **TTSUN131612** | 1" 3/16 – 12 | 45 | 32,3 | 40 | 50 | 3,5 | 15° | TT3515025 | SC..09T308 | 1+1 |
| **TTSUN151612** | 1" 5/16 – 12 | 50 | 35,5 | 40 | 50 | 3,5 | 15° | TT3515025 | SC..09T308 | 1+1 |
| **TTSUN15812** | 1" 5/8 – 12 | 60 | 43,5 | 50 | 63 | 3,5 | 15° | TT3515025 | SC..09T308 | 1+1 |
| **TTSUN17812** | 1" 7/8 – 12 | 65 | 49,8 | 50 | 63 | 3,5 | 15° | TT3515025 | SC..09T308 | 1+1 |




## CARTUCCE PER LAVORAZIONI SEDI VALVOLA “SAE”
### *Cartridges*

| CODICE | INSERTO | | A | B | C | D | E | F | X° |
|---|---|---|---|---|---|---|---|---|---|
| **TTSAE265** | TT26512025* | TT26515025* | 30 | 6,5 | 7,7 | 25,9 | 9 | 7 | 12° - 15° |
| **TTSAE33-35** | TT3315025* | TT3515025* | 40 | 9 | 11,4 | 34,3 | 12 | 9 | 15° |

*** E’ possibile montare anche la versione con rompitrucciolo**

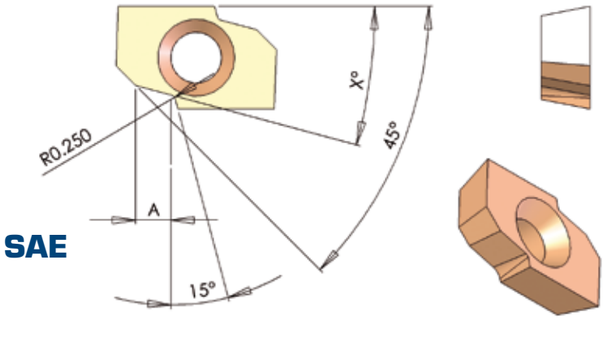
## CARTUCCE “MINI” PER LAVORAZIONI SEDI VALVOLA “SAE”
### *Cartridges Slim*

| CODICE | INSERTO | | A | B | C | D | E | F | X° |
|---|---|---|---|---|---|---|---|---|---|
| **TTMSAE265** | TT26512025* | TT26515025* | 28 | 6 | 7,7 | 23,9 | 8 | 6 | 12° - 15° |

*** E’ possibile montare anche la versione con rompitrucciolo**

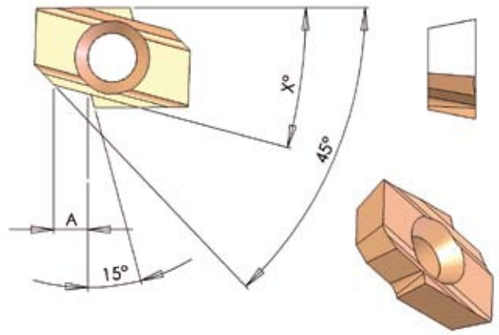
## INSERTI SEDI VALVOLA SAE
### *Inserts*

| CODICE | A | X° | PER SEDE VALVOLA “SAE” |
|---|---|---|---|
| **TT1812025** | 1,8 | 12° | M10x1 |
| **TT26512025** | 2,65 | 12° | 7/16-20 1/2-20 9/16-18 |
| **TT26515025** | 2,65 | 15° | M12x1,5 M14x1,5 M16x1,5 M18x1,5 |
| | | | M20x1,5 M22x1,5 3/4-16 UN 7/8-14 UN |
| **TT3315025** | 3,3 | 15° | M27x2 M33x2 M41x2 M48x2 |
| **TT3515025** | 3,5 | 15° | 1” 1/16-12 1” 3/16-12 1” 5/16-12 |
| | | | 1” 5/8-12 1” 7/8-12 |



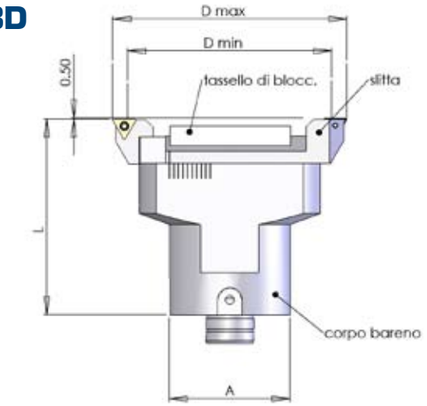

## INSERTI SEDI VALVOLA SAE CON ROMPITRUCCIOLO
### *Inserts*

| CODICE | A | X° | PER SEDE VALVOLA “SAE” |
|---|---|---|---|
| **TTR1812025** | 1,8 | 12° | M10x1 |
| **TTR26512025** | 2,65 | 12° | 7/16-20 1/2-20 9/16-18 |
| **TTR26515025** | 2,65 | 15° | M12x1,5 M14x1,5 M16x1,5 M18x1,5 |
| | | | M20x1,5 M22x1,5 3/4-16 UN 7/8-14 UN |
| **TTR3315025** | 3,3 | 15° | M27x2 M33x2 M41x2 M48x2 |
| **TTR3515025** | 3,5 | 15° | 1” 1/16-12 1” 3/16-12 1” 5/16-12 |
| | | | 1” 5/8-12 1” 7/8-12 |



# BARENI A DOPPIO UTENSILE
## *DOUBLE BORING TOOLS*

# BARENI A DOPPIO UTENSILE TTBD
## *Double boring tools ttbd*




| CODICE ORDINAZIONE | D MIN | D MAX | MISURA | L | SLITTA | BLOCCAGGIO |
|---|---|---|---|---|---|---|
| **TTBD.067.170.50** | 49 | 67 | V-50 | 170 | TTB...067... | TTBB.01 |
| **TTBD.84.170.50** | 66 | 84 | V-50 | 170 | TTB...084... | TTBB.02 |
| **TTBD.101.170.63** | 83 | 101 | V-63 | 170 | TTB...101... | TTBB.02 |
| **TTBD.125.170.63** | 100 | 125 | V-63 | 170 | TTB...125... | TTBB.03 |
| **TTBD.149.170.80** | 124 | 149 | V-80 | 170 | TTB...149... | TTBB.04 |
| **TTBD.175.170.80** | 148 | 175 | V-80 | 170 | TTB...175... | TTBB.05 |
| **TTBD.200.170.80** | 174 | 200 | V-80 | 170 | TTB...200... | TTBB.05 |
| **TTBD.225.180.80** | 198 | 225 | V-80 | 180 | TTB...225... | TTBB.06 |
| **TTBD.250.180.80** | 224 | 250 | V-80 | 180 | TTB...250... | TTBB.06 |

**versione speciale su richiesta**
***special version by request***

**esempio di ordinazione**
**TTBD.67.170.50** con slitta **TTBCC.067.09** bloccaggio **TTBB.01**

**Note tecniche:**
Il bareno a doppio utensile ha la possibilità di montare cartucce allineate oppure di montare la cartuccia più alta di 0,5 mm. E' possibile inoltre richiedere la personalizzazione del bareno e del tipo di attacco.

The double boring tools gives the possibility to assemble alligned car tridges or wiyh the cartridge 0,5 mm higher. It's possible have a personalized version of the double boring tools and the holder type.

# SLITTA PER BARENO A DOPPIO UTENSILE TTB CC
## *Cartridges for double boring tools ttb cc*

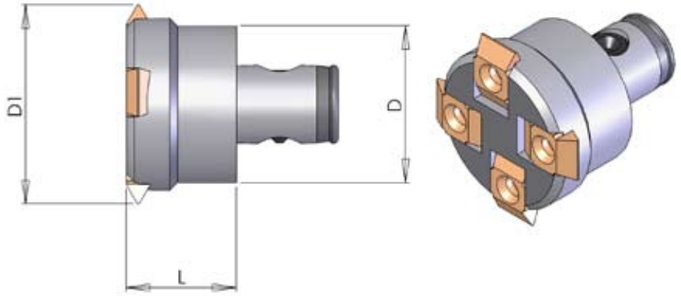

| CODICE ORDINAZIONE | D MIN | D MAX | INSERTO | VITE |
|---|---|---|---|---|
| **TTBCC.067.09** | 49 | 67 | CCMT09T3.. | TT3,5 |
| **TTBCC.084.09** | 66 | 84 | CCMT09T3.. | TT3,5 |
| **TTBCC.101.09** | 83 | 101 | CCMT09T3.. | TT3,5 |
| **TTBCC.125.12** | 100 | 125 | CCMT1204.. | TT4,5 |
| **TTBCC.149.12** | 124 | 149 | CCMT1204.. | TT4,5 |
| **TTBCC.175.12** | 148 | 175 | CCMT1204.. | TT4,5 |
| **TTBCC.200.12** | 174 | 200 | CCMT1204.. | TT4,5 |
| **TTBCC.225.12** | 198 | 225 | CCMT1204.. | TT4,5 |
| **TTBCC.250.12** | 224 | 250 | CCMT1204.. | TT4,5 |

# SLITTA PER BARENO A DOPPIO UTENSILE TTB TC
## *Cartridges for double boring tools ttb tc*


| CODICE ORDINAZIONE | D MIN | D MAX | INSERTO | VITE |
|---|---|---|---|---|
| **TTBTC.067.11** | 49 | 67 | TCMT1102... | TT2,5 |
| **TTBTC.084.16** | 66 | 84 | TCMT16T3... | TT3,5 |
| **TTBCT.101.16** | 83 | 101 | TCMT16T3... | TT3,5 |
| **TTBTC.125.22** | 100 | 125 | TCMT2204... | TT4,5 |
| **TTBTC.149.22** | 124 | 149 | TCMT2204... | TT4,5 |
| **TTBTC.175.22** | 148 | 175 | TCMT2204... | TT4,5 |
| **TTBTC.200.22** | 174 | 200 | TCMT2204... | TT4,5 |
| **TTBTC.225.22** | 198 | 225 | TCMT2204... | TT4,5 |
| **TTBTC.250.22** | 224 | 250 | TCMT2204... | TT4,5 |

# FRESE A FILETTARE
## *THREAD INDEXABLE MILLS*

## FRESE A FILETTARE TTFF
### *Thread indexable mills ttff*




| CODICE ORDINAZIONE | MISURA | D | D1 | L | Z | INSERTO | SEDE INSERTO |
|---|---|---|---|---|---|---|---|
| **TTFF.32.42.28.1** | TTS-32 | 32 | 42 | 28 | 4 | TT80N.... | 1° |
| **TTFF.32.42.28.2** | TTS-32 | 32 | 42 | 28 | 4 | TT80N.... | 2° |
| **TTFF.40.54.28.1** | TTS-40 | 40 | 54 | 28 | 4 | TT80N.... | 1° |
| **TTFF.40.54.28.2** | TTS-40 | 40 | 54 | 28 | 4 | TT80N.... | 2° |
| **TTFF.50.66.28.1** | TTS-50 | 50 | 66 | 28 | 6 | TT80S.... | 1° |
| **TTFF.50.66.28.2** | TTS-50 | 50 | 66 | 28 | 6 | TT80S.... | 2° |

Le frese a filettare TTFF sono disponibili con la sede inserto inclinata a 1° oppure a 2°. Occorre calcolare l'inclinazione del filetto con la seguente formula:

*The threading milling cutters are avaiable with the placement of the insert with an angle of 1° or 2° for a correct machining it is necessary to make use of the following formula:*

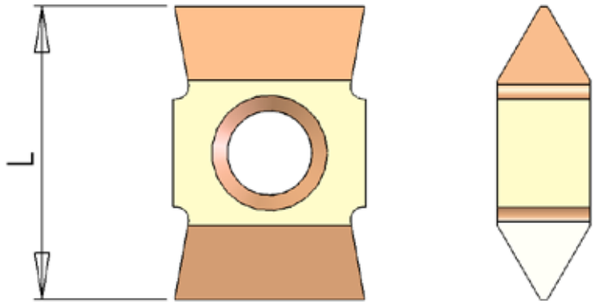
$\alpha$ **rad=arctang** $\frac{P}{\pi \times D}$ Il risultato è espresso in radianti, si deve trasformare in gradi: $\alpha$ **gradi** = $\frac{\alpha \text{ rad} \times 180}{\pi}$

**LEGENDA:** **D**=diametro **P**=passo $\alpha$ =angolo dell'elica

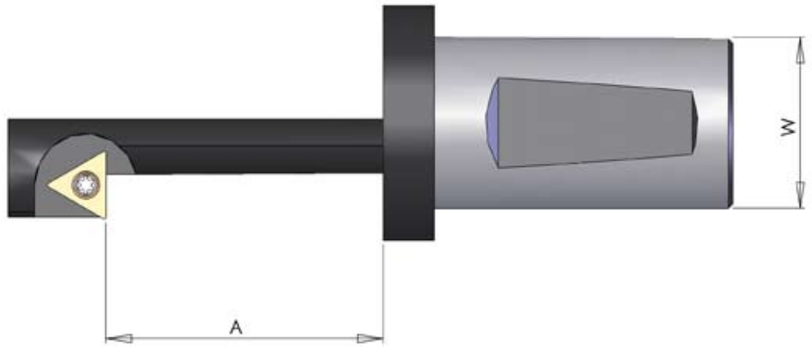
## INSERTI PER FRESE A FILETTARE TTFF
### *Inserts for threading ttff*

**versione speciale su richiesta**
***special version by request***

| CODICE ORDINAZIONE | L |
|---|---|
| **TT80N1.3.60** | 19 |
| **TT80N3.6.60** | 19 |
| **TT80N1.3.55** | 19 |
| **TT80N3.6.55** | 19 |
| | |
| **TT80S1.3.60** | 13 |
| **TT80S1.3.55** | 13 |



# UTENSILI PER RETRO LAMATURA TTLT
## *Rear spot-facing tool cutters ttlt*




| CODICE | D | d. | A | W | INSERTO |
|---|---|---|---|---|---|
| **TTLT.14.09.20** | 14 | 9 | 35 | 20 | TC..06 |
| **TTLT.18.11.20** | 18 | 11 | 40 | 20 | CC..06 |
| **TTLT.20.13.20** | 20 | 13 | 45 | 20 | CC..06 |
| **TTLT.24.15.20** | 24 | 15 | 50 | 20 | CC..06 |
| **TTLT.26.17.20** | 26 | 17 | 60 | 20 | CC..06 |
| **TTLT.30.19.20** | 30 | 19 | 65 | 20 | CC..06 |
| **TTLT.33.21.20** | 33 | 21 | 75 | 20 | CC..09 |
| **TTLT.40.22.40** | 40 | 22 | 55 | 40 | CC..12 |
| **TTLT.45.25.40** | 45 | 25 | 65 | 40 | CC..12 |
| **TTLT.50.29.40** | 50 | 29 | 70 | 40 | CC..12 |
| **TTLT.56.32.40** | 56 | 32 | 75 | 40 | TC..16 |
| **TTLT.56.33.40** | 56 | 33 | 93 | 40 | TC..16 |
| **TTLT.61.36.40** | 61 | 36 | 95 | 40 | TC..16 |
| **TTLT.67.38.40** | 67 | 38 | 96 | 40 | TC..22 |
| **TTLT.72.41.40** | 72 | 41 | 125 | 40 | TC..22 |
| **TTLT.80.45.40** | 80 | 45 | 120 | 40 | TC..22 |
| **TTLT.85.47.40** | 85 | 47,5 | 135 | 40 | TC..22 |
| **TTLT.90.50.40** | 90 | 50,8 | 140 | 40 | TC..22 |

**versione speciale su richiesta**
***special version by request***

# FRESE Fora – Filetta – Smussa in MDI

## PARAMETRI DI TAGLIO:
## *Cutting parameters*

| MATERIALE *Materials* | Vt ( m/min) *Speed* | SMUSSATURA - *Bevelling* f (mm / giro) *f (mm/turn)* | | FRESATURA - *Milling* f (mm / giro) *f (mm/turn)* | |
|---|---|---|---|---|---|
| | | D ← 10 | D → 10 | D ← 10 | D → 10 |
| **Ghisa Grigia** ***Grey iron cast*** | 100 - 150 | 0,10 – 0,25 | 0,25 – 0,4 | 0,015 – 0,035 | 0,02 – 0,06 |
| **Ghisa Sferoidale** ***Spheroid iron cast*** | 10 - 100 | 0,07 – 0,15 | 0,15 – 0,25 | 0,01 – 0,03 | 0,015 – 0,05 |
| **Leghe di Alluminio con percentuale di Silicio ‹ 10%** ***Aluminium alloy with a percentage of silicium <10%*** | 130 - 280 | 0,12 – 0,28 | 0,25 – 0,38 | 0,02 – 0,04 | 0,04 – 0,075 |
| **Leghe di Alluminio con percentuale di Silicio › 10%** ***Aluminium alloy with a percentage of silicium > 10%*** | 80 - 180 | 0,12 – 0,25 | 0,18 – 0,28 | 0,015 – 0,035 | 0,02 – 0,06 |

## VANTAGGI:

- Esecuzione di 3 differenti lavorazioni ( foratura, filettatura e smusso) con un' unico utensile, aumentando sensibilmente la produttività
- Possibilità di realizzare filetti destri e sinistri con lo stesso utensile, riuscendo inoltre a rispettare ogni tipo di tolleranza e ottenendo un'ottima finitura.
- Alte velocità di taglio e quindi tempi di lavorazione ridotti

***ADVANTAGES:***

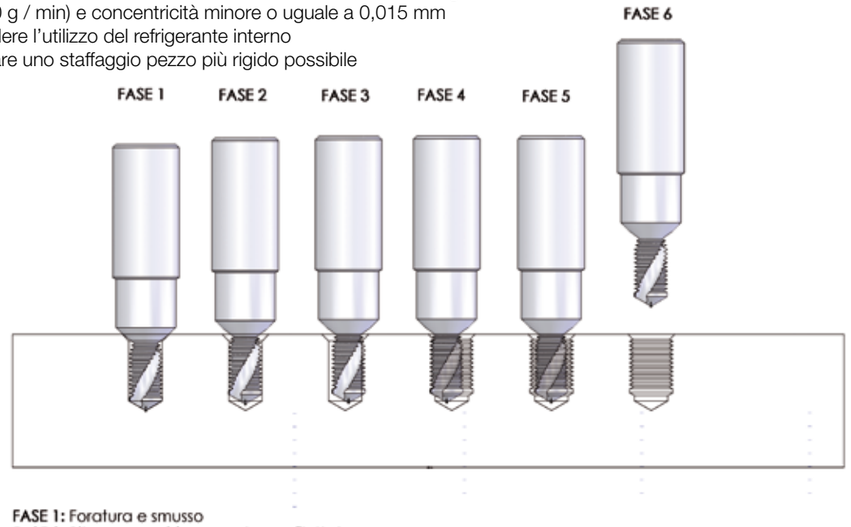
*1- Execution of 3 different works (boring, threading and bevelling) in using one unique tool and without any tooling change, this will slightly increase the productivity.*
*2- Possibility to realise some threads on right side or on left side with the same tool, in proceeding to respect each tolerance type and in getting an excellent completion*
*3- High cutting speed and then the working times are reduced.*

## ACCORGIMENTI PER L'UTILIZZO DELL'UTENSILE:

- Per ottenere il 100% delle prestazioni dall'utensile è consigliabile:
- Utilizzare macchine con elevata stabilità, elevato numero dei giri (15000 g / min) e concentricità minore o uguale a 0,015 mm
- Prevedere l'utilizzo del refrigerante interno
- Utilizzare uno staffaggio pezzo più rigido possibile

***ADVICES TO USE THE TOOL:***

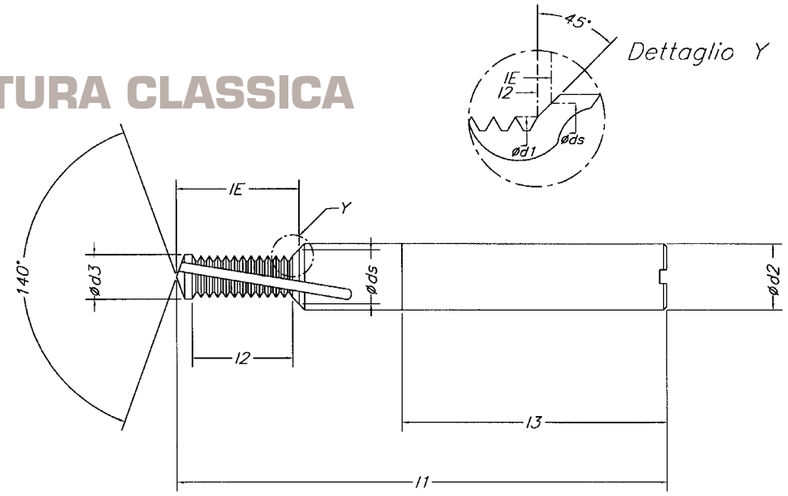
*• To get 100% of the tool service, we advise you to:*
*• Use machines which have a high stability, a high number of turns (15000 rotations per minute) and a concentricity lower or equal to 0,015 mm.*
*• Foresee to use an internal cooling*
*• Use a part blocking the most rigid possible.*




**FASE 1:** Foratura e smusso
**FASE 2:** Ritorno e posizionamento per filettatura
**FASE 3:** Disassamento
**FASE 4:** Realizzazione della filettatura in interpolazione tramite il movimento degli assi X,Y e Z
**FASE 5:** Riposizionamento in asse
**FASE 6:** Uscita



# FORATURA CLASSICA




## FILETTATURA METRICA ISO 60°
## PASSO GROSSO
## LUBRIFICAZIONE INTERNA
**versione a 2 o 3 taglienti**

## *metric iso thread 60°*
**coarse pitch**
**with coolant holes**
**z2 or z3 available**

| MA 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 5 | 0,8 | 55 | 7,15 | 36 | 4,04 | 6 | 4,2 | 5,3 | 9,4 | **TTDTH05080000** | **TTDTH05080003** |
| 6 | 1 | 62 | 9,05 | 36 | 4,8 | 8 | 5 | 6,3 | 11,66 | **TTDTH06100000** | **TTDTH06100003** |
| 8 | 1,25 | 74 | 11,32 | 40 | 6,5 | 10 | 6,75 | 8,3 | 14,64 | **TTDTH08125000** | **TTDTH08125003** |
| 10 | 1,5 | 9 | 15,08 | 45 | 8,2 | 12 | 8,5 | 10,3 | 19,11 | **TTDTH10150000** | **TTDTH10150003** |
| 12 | 1,75 | 89 | 17,6 | 45 | 9,9 | 14 | 10,25 | 12,3 | 22,33 | **TTDTH12175000** | **TTDTH12175003** |
| 14 | 2 | 102 | 20,11 | 48 | 11,6 | 16 | 12 | 14,3 | 25,54 | **TTDTH14200000** | **TTDTH14200003** |
| 16 | 2 | 102 | 24,11 | 48 | 13,6 | 18 | 14 | 16,3 | 29,91 | **TTDTH16200000** | **TTDTH16200003** |
| "MA 2 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 5 | 0,8 | 55 | 9,55 | 36 | 4,04 | 6 | 4,2 | 5,3 | 11,8 | **TTDTH05080001** | **TTDTH05080004** |
| 6 | 1 | 62 | 12,05 | 36 | 4,8 | 8 | 5 | 6,3 | 14,66 | **TTDTH06100001** | **TTDTH06100004** |
| 8 | 1,25 | 74 | 15,07 | 40 | 6,5 | 10 | 6,75 | 8,3 | 18,39 | **TTDTH08125001** | **TTDTH08125004** |
| 10 | 1,5 | 9 | 19,58 | 45 | 8,2 | 12 | 8,5 | 10,3 | 23,61 | **TTDTH10150001** | **TTDTH10150004** |
| 12 | 1,75 | 89 | 22,85 | 45 | 9,9 | 14 | 10,25 | 12,3 | 27,58 | **TTDTH12175001** | **TTDTH12175004** |
| 14 | 2 | 102 | 28,11 | 48 | 11,6 | 16 | 12 | 14,3 | 33,54 | **TTDTH14200001** | **TTDTH14200004** |
| 16 | 2 | 102 | 32,11 | 48 | 13,6 | 18 | 14 | 16,3 | 37,91 | **TTDTH16200001** | **TTDTH16200004** |

**ESEMPIO DI ORDINAZIONE**
VERSIONE 2 TAGLIENTI**: TTDTHT05080000 Z2**
VERSIONE 3 TAGLIENTI**: TTDTHT05080000 Z3**

TECHNOTOOLS ITALIA

| "MA 2,5 | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 6 | 1 | 65 | 14,9 | 36 | 4,8 | 8 | 5 | 6,3 | 17,65 | **TTDTH06100002** | **TTDTH06100005** |
| 8 | 1,25 | 80 | 19,9 | 40 | 6,5 | 10 | 6,75 | 8,3 | 23,4 | **TTDTH08125002** | **TTDTH08125005** |
| 10 | 1,5 | 85 | 23,9 | 45 | 8,2 | 12 | 8,5 | 10,3 | 28,1 | **TTDTH10150002** | **TTDTH10150005** |
| 12 | 1,75 | 95 | 29,6 | 45 | 9,9 | 14 | 10,25 | 12,3 | 34,6 | **TTDTH12175002** | **TTDTH12175005** |
| 14 | 2 | 110 | 35,85 | 48 | 11,6 | 16 | 12 | 14,3 | 41,55 | **TTDTH14200002** | **TTDTH14200005** |
| 16 | 2 | 110 | 39,85 | 48 | 13,6 | 18 | 14 | 16,3 | 45,95 | **TTDTH16200002** | **TTDTH16200005** |

## FILETTATURA METRICA ISO 60°
## PASSO FINE
## LUBRIFICAZIONE INTERNA
**versione a 2 o 3 taglienti**

## *metric iso thread 60°*
**fine pitch**
**with coolant holes**
**z2 or z3 available**

| MF 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 6 | 0,75 | 62 | 8,95 | 36 | 5,05 | 8 | 5,25 | 6,3 | 11,3 | **TTDTH06075006** | **TTDTH06075008** |
| 8 | 1 | 74 | 11,9 | 40 | 6,75 | 10 | 7 | 8,3 | 15,05 | **TTDTH08100006** | **TTDTH08100008** |
| 10 | 1 | 79 | 15,1 | 45 | 8,7 | 12 | 9 | 10,3 | 18,47 | **TTDTH10100006** | **TTDTH10100008** |
| 10 | 1,25 | 79 | 15,1 | 45 | 8,4 | 12 | 8,75 | 10,3 | 18,9 | **TTDTH10125006** | **TTDTH10125008** |
| 12 | 1 | 89 | 17,9 | 45 | 10,65 | 14 | 11 | 12,3 | 21,08 | **TTDTH12100006** | **TTDTH12100008** |
| 12 | 1,25 | 89 | 19,9 | 45 | 10,4 | 14 | 10,75 | 12,3 | 23 | **TTDTH12125006** | **TTDTH12125008** |
| 12 | 1,5 | 89 | 18,1 | 45 | 10,15 | 14 | 8,5 | 12,3 | 22,5 | **TTDTH12150006** | **TTDTH12150008** |
| 14 | 1,5 | 102 | 21,12 | 48 | 12,1 | 16 | 10,25 | 14,3 | 25,9 | **TTDTH14150006** | **TTDTH14150008** |
| 16 | 1,5 | 102 | 24,15 | 48 | 14,1 | 18 | 12 | 16,3 | 29,3 | **TTDTH16150006** | **TTDTH16150008** |
| **MF 2 x Ø** | | | | | | | | | | **NON RIVESTITA** | **RIVESTITA X-TOP** |
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 6 | 0,75 | 62 | 11,95 | 36 | 5,05 | 8 | 5,25 | 6,3 | 14,3 | **TTDTH06075007** | **TTDTH06075009** |
| 8 | 1 | 74 | 15,9 | 40 | 6,75 | 10 | 7 | 8,3 | 19,1 | **TTDTH08100007** | **TTDTH08100009** |
| 10 | 1 | 79 | 20,1 | 45 | 8,7 | 12 | 9 | 10,3 | 23,47 | **TTDTH10100007** | **TTDTH10100009** |
| 10 | 1,25 | 79 | 20,1 | 45 | 8,4 | 12 | 8,75 | 10,3 | 23,9 | **TTDTH10125007** | **TTDTH10125009** |
| 12 | 1 | 89 | 23,9 | 45 | 10,65 | 14 | 11 | 12,3 | 27,8 | **TTDTH12100007** | **TTDTH12100009** |
| 12 | 1,25 | 89 | 23,9 | 45 | 10,4 | 14 | 10,75 | 12,3 | 28 | **TTDTH12125007** | **TTDTH12125009** |
| 12 | 1,5 | 89 | 24,1 | 45 | 10,15 | 14 | 8,5 | 12,3 | 28,5 | **TTDTH12150007** | **TTDTH12150009** |
| 14 | 1,5 | 102 | 27,12 | 48 | 12,1 | 16 | 10,25 | 14,3 | 31,9 | **TTDTH14150007** | **TTDTH14150009** |
| 16 | 1,5 | 102 | 31,65 | 48 | 14,1 | 18 | 12 | 16,3 | 36,8 | **TTDTH16150007** | **TTDTH16150009** |
| 16 | 2 | 102 | 32,11 | 48 | 13,6 | 18 | 14 | 16,3 | 37,91 | **TTDTH16200001** | **TTDTH16200004** |

## FILETTATURA GAS
## LUBRIFICAZIONE INTERNA
**versione a 2 o 3 taglienti**

## *gas thread*
**with coolant holes**
**z2 or z3 available**

| GAS 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 1/8 | 28,00 | 79 | 14,44 | 45 | 8,5 | 12 | 8,8 | 10 | 17,85 | **TTDTH1/8GAS10** | **TTDTH1/8GAS12** |
| 1/4 | 19,00 | 102 | 18,61 | 48 | 11,4 | 16 | 11,8 | 13,5 | 23,3 | **TTDTH1/4GAS10** | **TTDTH1/4GAS12** |
| 3/8 | 19,00 | 102 | 30,75 | 48 | 14,85 | 18 | 15,25 | 17 | 36,05 | **TTDTH3/8GAS10** | **TTDTH3/8GAS12** |
| **GAS 2 x Ø** | | | | | | | | | | **NON RIVESTITA** | **RIVESTITA X-TOP** |
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 1/8 | 28,00 | 79 | 18,98 | 45 | 8,5 | 12 | 8,8 | 10 | 22,4 | **TTDTH1/8GAS11** | **TTDTH1/8GAS13** |
| 1/4 | 19,00 | 102 | 25,3 | 48 | 11,4 | 16 | 11,8 | 13,5 | 29,3 | **TTDTH1/4GAS11** | **TTDTH1/4GAS13** |
| 3/8 | 19,00 | 102 | 37,4 | 48 | 14,85 | 18 | 15,25 | 17 | 42,7 | **TTDTH3/8GAS11** | **TTDTH3/8GAS13** |

**ESEMPIO DI ORDINAZIONE**
VERSIONE 2 TAGLIENTI: **TTDTHT05080000 Z2**
VERSIONE 3 TAGLIENTI: **TTDTHT05080000 Z3**

## FILETTATURA UNC
### LUBRIFICAZIONE INTERNA
**versione a 2 o 3 taglienti**

***unc thread***
**with coolant holes**
**z2 or z3 available**

| UNC 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| n.12 | 24 | 62 | 7,45 | 36 | 4,21 | 6 | 4,5 | 5,79 | 10,05 | **TTDTH12UNC014** | **TTDTH12UNC017** |
| 01-04-09 | 20 | 62 | 8,95 | 36 | 4,85 | 8 | 5,2 | 6,65 | 12 | **TTDTH1/4UNC14** | **TTDTH1/4UNC17** |
| 01-05-16 | 18 | 74 | 11,35 | 40 | 6,25 | 10 | 6,6 | 8,25 | 14,98 | **TTDTH516UNC14** | **TTDTH516UNC17** |
| 03-08-09 | 16 | 80 | 14,35 | 45 | 7,65 | 12 | 8 | 9,83 | 18,45 | **TTDTH3/8UNC14** | **TTDTH3/8UNC17** |
| 01-07-16 | 14 | 80 | 16,4 | 45 | 9 | 12 | 9,4 | 11,43 | 21,05 | **TTDTH716UNC14** | **TTDTH716UNC17** |
| 01-02-09 | 13 | 89 | 17,7 | 45 | 10,35 | 14 | 10,75 | 13 | 22,85 | **TTDTH1/2UNC14** | **TTDTH1/2UNC17** |
| 01-09-16 | 12 | 102 | 21,3 | 48 | 11,8 | 16 | 12,25 | 14,61 | 26,95 | **TTDTH916UNC14** | **TTDTH916UNC17** |
| 05-08-09 | 11 | 102 | 23,2 | 48 | 13,1 | 18 | 13,5 | 16,18 | 29,4 | **TTDTH5/8UNC14** | **TTDTH5/8UNC17** |
| 03-04-09 | 10 | 115 | 28,05 | 50 | 16 | 20 | 16,5 | 19,35 | 35,2 | **TTDTH3/4UNC14** | **TTDTH3/4UNC17** |

| UNC 2 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| n.12 | 24 | 62 | 10,65 | 36 | 4,21 | 6 | 4,5 | 5,79 | 13,2 | **TTDTH12UNC015** | **TTDTH12UNC018** |
| 01-04-09 | 20 | 62 | 12,75 | 36 | 4,85 | 8 | 5,2 | 6,65 | 15,8 | **TTDTH1/4UNC15** | **TTDTH1/4UNC18** |
| 01-05-16 | 18 | 74 | 15,6 | 40 | 6,25 | 10 | 6,6 | 8,25 | 19,1 | **TTDTH516UNC15** | **TTDTH516UNC18** |
| 03-08-09 | 16 | 80 | 19,15 | 45 | 7,65 | 12 | 8 | 9,83 | 23,2 | **TTDTH3/8UNC15** | **TTDTH3/8UNC18** |
| 01-07-16 | 14 | 80 | 21,85 | 45 | 9 | 12 | 9,4 | 11,43 | 26,5 | **TTDTH716UNC15** | **TTDTH716UNC18** |
| 01-02-09 | 13 | 89 | 25,5 | 45 | 10,35 | 14 | 10,75 | 13 | 30,65 | **TTDTH1/2UNC15** | **TTDTH1/2UNC18** |
| 01-09-16 | 12 | 102 | 27,65 | 48 | 11,8 | 16 | 12,25 | 14,61 | 33,3 | **TTDTH916UNC15** | **TTDTH916UNC18** |
| 05-08-09 | 11 | 102 | 30,15 | 48 | 13,1 | 18 | 13,5 | 16,18 | 36,35 | **TTDTH5/8UNC15** | **TTDTH5/8UNC18** |
| 03-04-09 | 10 | 115 | 38,25 | 50 | 16 | 20 | 16,5 | 19,35 | 45,35 | **TTDTH3/4UNC15** | **TTDTH3/4UNC18** |

| UNC 2,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 03-08-09 | 16 | 85 | 23,9 | 45 | 7,65 | 12 | 8 | 9,83 | 27,95 | **TTDTH3/8UNC16** | **TTDTH3/8UNC19** |
| 01-07-16 | 14 | 85 | 27,3 | 45 | 9 | 12 | 9,4 | 11,43 | 31,95 | **TTDTH716UNC16** | **TTDTH716UNC19** |
| 01-02-09 | 13 | 95 | 31,35 | 45 | 10,35 | 14 | 10,75 | 13 | 36,5 | **TTDTH1/2UNC16** | **TTDTH1/2UNC19** |
| 01-09-16 | 12 | 110 | 34 | 48 | 11,8 | 16 | 12,25 | 14,61 | 39,65 | **TTDTH916UNC16** | **TTDTH916UNC19** |
| 05-08-09 | 11 | 110 | 39,35 | 48 | 13,1 | 18 | 13,5 | 16,18 | 45,6 | **TTDTH5/8UNC16** | **TTDTH5/8UNC19** |
| 03-04-09 | 10 | 125 | 45,85 | 50 | 16 | 20 | 16,5 | 19,35 | 53 | **TTDTH3/4UNC16** | **TTDTH3/4UNC19** |



## FILETTATURA UNF
### LUBRIFICAZIONE INTERNA
**versione a 2 o 3 taglienti**

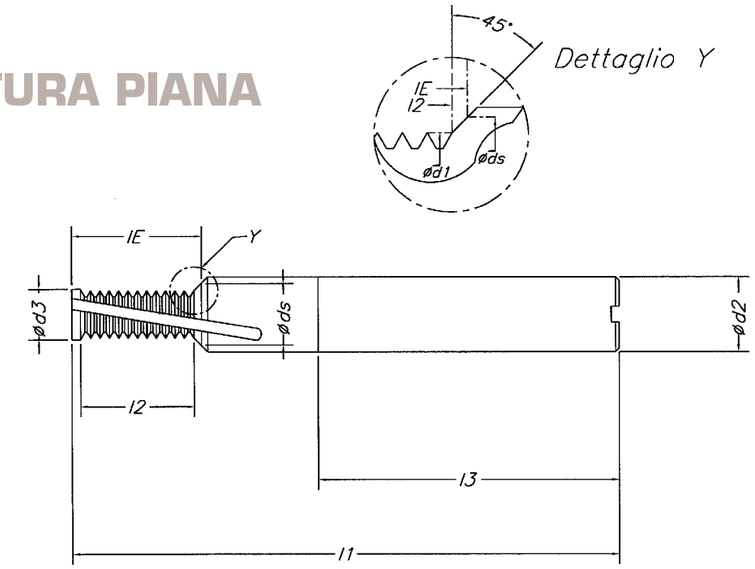
***unf thread***
**with coolant holes**
**z2 or z3 available**

| UNF 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| n.12 | 28 | 62 | 8,25 | 36 | 4,36 | 6 | 4,65 | 5,8 | 10,6 | **TTDTH12UNF020** | **TTDTH12UNF022** |
| 01-04-09 | 28 | 62 | 9,15 | 36 | 5,26 | 8 | 5,5 | 6,65 | 11,7 | **TTDTH1/4UNF20** | **TTDTH1/4UNF22** |
| 01-05-16 | 24 | 74 | 11,75 | 40 | 6,6 | 10 | 6,9 | 8,25 | 14,8 | **TTDTH516UNF20** | **TTDTH516UNF22** |
| 03-08-09 | 24 | 80 | 13,85 | 45 | 8,2 | 12 | 8,5 | 9,85 | 17,2 | **TTDTH3/8UNF20** | **TTDTH3/8UNF22** |
| 01-07-16 | 20 | 80 | 17,9 | 45 | 9,55 | 12 | 9,9 | 11,4 | 21,85 | **TTDTH716UNF20** | **TTDTH716UNF22** |
| 01-02-09 | 20 | 89 | 19,2 | 45 | 11,1 | 14 | 11,5 | 13 | 23,45 | **TTDTH1/2UNF20** | **TTDTH1/2UNF22** |
| 01-09-16 | 18 | 102 | 21,3 | 48 | 12,5 | 16 | 12,9 | 14,6 | 26,05 | **TTDTH916UNF20** | **TTDTH916UNF22** |
| 05-08-09 | 18 | 102 | 22,75 | 48 | 14,1 | 18 | 14,5 | 16,2 | 27,75 | **TTDTH5/8UNF20** | **TTDTH5/8UNF22** |
| 03-04-09 | 16 | 115 | 28,75 | 50 | 16,95 | 20 | 17,5 | 19,4 | 34,65 | **TTDTH3/4UNF20** | **TTDTH3/4UNF22** |

| UNF 2 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| n.12 | 28 | 62 | 10,95 | 36 | 4,36 | 6 | 4,65 | 5,8 | 13,35 | **TTDTH12UNF021** | **TTDTH12UNF023** |
| 01-04-09 | 28 | 62 | 12,75 | 36 | 5,26 | 8 | 5,5 | 6,65 | 15,35 | **TTDTH1/4UNF21** | **TTDTH1/4UNF23** |
| 01-05-16 | 24 | 74 | 15,95 | 40 | 6,6 | 10 | 6,9 | 8,25 | 19 | **TTDTH516UNF21** | **TTDTH516UNF23** |
| 03-08-09 | 24 | 80 | 19,15 | 45 | 8,2 | 12 | 8,5 | 9,85 | 22,5 | **TTDTH3/8UNF21** | **TTDTH3/8UNF23** |
| 01-07-16 | 20 | 80 | 21,7 | 45 | 9,55 | 12 | 9,9 | 11,4 | 25,65 | **TTDTH716UNF21** | **TTDTH716UNF23** |
| 01-02-09 | 20 | 89 | 25,55 | 45 | 11,1 | 14 | 11,5 | 13 | 29,8 | **TTDTH1/2UNF21** | **TTDTH1/2UNF23** |
| 01-09-16 | 18 | 102 | 28,35 | 48 | 12,5 | 16 | 12,9 | 14,6 | 33,1 | **TTDTH916UNF21** | **TTDTH916UNF23** |
| 05-08-09 | 18 | 102 | 31,2 | 48 | 14,1 | 18 | 14,5 | 16,2 | 36,25 | **TTDTH5/8UNF21** | **TTDTH5/8UNF23** |
| 03-04-09 | 16 | 115 | 38,3 | 50 | 16,95 | 20 | 17,5 | 19,4 | 44,15 | **TTDTH3/4UNF21** | **TTDTH3/4UNF23** |

**ESEMPIO DI ORDINAZIONE**
VERSIONE 2 TAGLIENTI: **TTDTHT05080000 Z2**
VERSIONE 3 TAGLIENTI: **TTDTHT05080000 Z3**

# FORATURA PIANA




## FILETTATURA METRICA ISO
**PASSO GROSSO**
**LUBRIFICAZIONE INTERNA**
**solo versione a 3 taglienti**

***metric iso thread***
**coarse pitch**
**with coolant holes**
**only z3 version**

| MA 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 5 | 0,80 | 55 | 7,15 | 36 | 4,04 | 6 | 4,20 | 5,3 | 8,64 | **TTMTH05080000** | **TTMTH05080002** |
| 6 | 1,00 | 62 | 9,05 | 36 | 4,80 | 8 | 5,00 | 6,3 | 10,75 | **TTMTH06100000** | **TTMTH06100002** |
| 8 | 1,25 | 74 | 11,32 | 40 | 6,50 | 10 | 6,75 | 8,3 | 13,41 | **TTMTH08125000** | **TTMTH08125002** |
| 10 | 1,50 | 9 | 15,08 | 45 | 8,20 | 12 | 8,50 | 10,3 | 17,56 | **TTMTH10150000** | **TTMTH10150002** |
| 12 | 1,75 | 89 | 17,6 | 45 | 9,90 | 14 | 10,25 | 12,3 | 20,46 | **TTMTH12175000** | **TTMTH12175002** |
| **MA 2 x Ø** | | | | | | | | | | **NON RIVESTITA** | **RIVESTITA X-TOP** |
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 5 | 0,80 | 55 | 9,55 | 36 | 4,04 | 6 | 4,20 | 5,3 | 11,04 | **TTMTH05080001** | **TTMTH05080003** |
| 6 | 1,00 | 62 | 12,05 | 36 | 4,80 | 8 | 5,00 | 6,3 | 13,75 | **TTMTH06100001** | **TTMTH06100003** |
| 8 | 1,25 | 74 | 15,07 | 40 | 6,50 | 10 | 6,75 | 8,3 | 17,16 | **TTMTH08125001** | **TTMTH08125003** |
| 10 | 1,50 | 9 | 19,58 | 45 | 8,20 | 12 | 8,50 | 10,3 | 22,06 | **TTMTH10150001** | **TTMTH10150003** |
| 12 | 1,75 | 89 | 22,85 | 45 | 9,90 | 14 | 10,25 | 12,3 | 25,71 | **TTMTH12175001** | **TTMTH12175003** |



## FILETTATURA METRICA ISO
**PASSO FINE**
**LUBRIFICAZIONE INTERNA**
**solo versione a 3 taglienti**

***metric iso thread***
**fine pitch**
**with coolant holes**
**only z3 version**

| MF 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 6 | 0,75 | 62 | 8,95 | 36 | 5,05 | 8 | 5,25 | 6,3 | 10,34 | **TTMTH06075004** | **TTMTH06075006** |
| 8 | 1,00 | 74 | 11,9 | 40 | 6,75 | 10 | 7,00 | 8,3 | 13,78 | **TTMTH08100004** | **TTMTH08100006** |
| 10 | 1,00 | 79 | 15,1 | 45 | 8,70 | 12 | 9,00 | 10,3 | 16,83 | **TTMTH10100004** | **TTMTH10100006** |
| 10 | 1,25 | 79 | 15,1 | 45 | 8,40 | 12 | 8,75 | 10,3 | 17,31 | **TTMTH10125004** | **TTMTH10125006** |
| 12 | 1,00 | 89 | 17,9 | 45 | 10,65 | 14 | 11,00 | 12,3 | 19,08 | **TTMTH12100004** | **TTMTH12100006** |
| 12 | 1,25 | 89 | 19,9 | 45 | 10,40 | 14 | 10,75 | 12,3 | 21,04 | **TTMTH12125004** | **TTMTH12125006** |
| 12 | 1,50 | 89 | 18,1 | 45 | 10,15 | 14 | 8,50 | 12,3 | 20,95 | **TTMTH12150004** | **TTMTH12150006** |
| **MF 2 x Ø** | | | | | | | | | | **NON RIVESTITA** | **RIVESTITA X-TOP** |
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 6 | 0,75 | 62 | 11,95 | 36 | 5,05 | 8 | 5,25 | 6,3 | 13,34 | **TTMTH06075005** | **TTMTH06075007** |
| 8 | 1,00 | 74 | 15,9 | 40 | 6,75 | 10 | 7,00 | 8,3 | 17,83 | **TTMTH08100005** | **TTMTH08100007** |
| 10 | 1,00 | 79 | 20,1 | 45 | 8,70 | 12 | 9,00 | 10,3 | 21,83 | **TTMTH10100005** | **TTMTH10100007** |
| 10 | 1,25 | 79 | 20,1 | 45 | 8,40 | 12 | 8,75 | 10,3 | 22,31 | **TTMTH10125005** | **TTMTH10125007** |
| 12 | 1,00 | 89 | 23,9 | 45 | 10,65 | 14 | 11,00 | 12,3 | 25,80 | **TTMTH12100005** | **TTMTH12100007** |
| 12 | 1,25 | 89 | 23,9 | 45 | 10,40 | 14 | 10,75 | 12,3 | 26,04 | **TTMTH12125005** | **TTMTH12125007** |
| 12 | 1,50 | 89 | 24,1 | 45 | 10,15 | 14 | 8,50 | 12,3 | 26,95 | **TTMTH12150005** | **TTMTH12150007** |

## FILETTATURA GAS
**LUBRIFICAZIONE INTERNA**
**solo versione a 3 taglienti**

***gas thread***
**with coolant holes**
**only z3 version**

| GAS 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 1/8 | 28,00 | 79 | 14,44 | 45 | 8,5 | 12 | 8,8 | 10 | 16,24853 | **TTMTH1/8GAS08** | **TTMTH1/8GAS10** |
| 1/4 | 19,00 | 102 | 18,61 | 48 | 11,40 | 16 | 11,80 | 13,5 | 21,15 | **TTMTH1/4GAS08** | **TTMTH1/4GAS10** |
| **GAS 2 x Ø** | | | | | | | | | | **NON RIVESTITA** | **RIVESTITA X-TOP** |
| D1 | P | l1 | l2 | l3 | d1 | d2 | d3 | ds | lE | Codice | Codice |
| 1/8 | 28,00 | 79 | 18,98 | 45 | 8,5 | 12 | 8,8 | 10 | 20,79853 | **TTMTH1/8GAS09** | **TTMTH1/8GAS11** |
| 1/4 | 19,00 | 102 | 25,3 | 48 | 11,40 | 16 | 11,80 | 13,5 | 27,15 | **TTMTH1/4GAS09** | **TTMTH1/4GAS11** |

## FILETTATURA UNC
## LUBRIFICAZIONE INTERNA
**solo versione a 3 taglienti**

## *unc thread*
**with coolant holes**
**only z3 version**

| UNC 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D1** | **P** | **l1** | **l2** | **l3** | **d1** | **d2** | **d3** | **ds** | **lE** | **Codice** | **Codice** |
| n.12 | 24,00 | 62 | 7,45 | 36 | 4,21 | 6 | 4,5 | 5,79 | 9,231067 | **TTMTH12UNC012** | **TTMTH12UNC014** |
| 1/4 | 20,00 | 62 | 8,95 | 36 | 4,85 | 8 | 5,20 | 6,65 | 11,18 | **TTMTH1/4UNC12** | **TTMTH1/4UNC14** |
| 5/16 | 18,00 | 74 | 11,35 | 40 | 6,25 | 10 | 6,60 | 8,25 | 13,78 | **TTMTH516UNC12** | **TTMTH516UNC14** |
| 3/8 | 16,00 | 80 | 14,35 | 45 | 7,65 | 12 | 8,00 | 9,83 | 16,99 | **TTMTH3/8UNC12** | **TTMTH3/8UNC14** |
| 7/16 | 14,00 | 80 | 16,4 | 45 | 9,00 | 12 | 9,40 | 11,43 | 19,34 | **TTMTH716UNC12** | **TTMTH716UNC14** |
| 1/2 | 13,00 | 89 | 17,7 | 45 | 10,35 | 14 | 10,75 | 13 | 20,89 | **TTMTH1/2UNC12** | **TTMTH1/2UNC14** |

| UNC 2 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D1** | **P** | **l1** | **l2** | **l3** | **d1** | **d2** | **d3** | **ds** | **lE** | **Codice** | **Codice** |
| n.12 | 24,00 | 62 | 10,65 | 36 | 4,21 | 6 | 4,5 | 5,79 | 12,38107 | **TTMTH12UNC013** | **TTMTH12UNC015** |
| 1/4 | 20,00 | 62 | 12,75 | 36 | 4,85 | 8 | 5,20 | 6,65 | 14,85 | **TTMTH1/4UNC13** | **TTMTH1/4UNC15** |
| 5/16 | 18,00 | 74 | 15,6 | 40 | 6,25 | 10 | 6,60 | 8,25 | 17,90 | **TTMTH516UNC13** | **TTMTH516UNC15** |
| 3/8 | 16,00 | 80 | 19,15 | 45 | 7,65 | 12 | 8,00 | 9,83 | 21,74 | **TTMTH3/8UNC13** | **TTMTH3/8UNC15** |
| 7/16 | 14,00 | 80 | 21,85 | 45 | 9,00 | 12 | 9,40 | 11,43 | 24,79 | **TTMTH716UNC13** | **TTMTH716UNC15** |
| 1/2 | 13,00 | 89 | 25,5 | 45 | 10,35 | 14 | 10,75 | 13 | 28,69 | **TTMTH1/2UNC13** | **TTMTH1/2UNC15** |



## FILETTATURA UNF
## LUBRIFICAZIONE INTERNA
**solo versione a 3 taglienti**

## *unf thread*
**with coolant holes**
**only z3 version**

| UNF 1,5 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D1** | **P** | **l1** | **l2** | **l3** | **d1** | **d2** | **d3** | **ds** | **lE** | **Codice** | **Codice** |
| n.12 | 28,00 | 62 | 8,25 | 36 | 4,36 | 8 | 4,65 | 5,8 | 9,753769 | **TTMTH12UNF016** | **TTMTH12UNF018** |
| 1/4 | 28,00 | 62 | 9,15 | 36 | 5,26 | 8 | 5,50 | 6,65 | 10,70 | **TTMTH1/4UNF16** | **TTMTH1/4UNF18** |
| 5/16 | 24,00 | 74 | 11,75 | 40 | 6,60 | 10 | 6,90 | 8,25 | 13,54 | **TTMTH516UNF16** | **TTMTH516UNF18** |
| 3/8 | 24,00 | 80 | 13,85 | 45 | 8,20 | 12 | 8,50 | 9,85 | 15,65 | **TTMTH3/8UNF16** | **TTMTH3/8UNF18** |
| 7/16 | 20,00 | 80 | 17,9 | 45 | 9,55 | 12 | 9,90 | 11,4 | 20,05 | **TTMTH716UNF16** | **TTMTH716UNF18** |
| 1/2 | 20,00 | 89 | 19,2 | 45 | 11,10 | 14 | 11,50 | 13 | 21,36 | **TTMTH1/2UNF16** | **TTMTH1/2UNF18** |

| UNF 2 x Ø | | | | | | | | | | NON RIVESTITA | RIVESTITA X-TOP |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **D1** | **P** | **l1** | **l2** | **l3** | **d1** | **d2** | **d3** | **ds** | **lE** | **Codice** | **Codice** |
| n.12 | 28,00 | 62 | 10,95 | 36 | 4,36 | 8 | 4,65 | 5,8 | 12,50377 | **TTMTH12UNF017** | **TTMTH12UNF019** |
| 1/4 | 28,00 | 62 | 12,75 | 36 | 5,26 | 8 | 5,50 | 6,65 | 14,35 | **TTMTH1/4UNF17** | **TTMTH1/4UNF19** |
| 5/16 | 24,00 | 74 | 15,95 | 40 | 6,60 | 10 | 6,90 | 8,25 | 17,74 | **TTMTH516UNF17** | **TTMTH516UNF19** |
| 3/8 | 24,00 | 80 | 19,15 | 45 | 8,20 | 12 | 8,50 | 9,85 | 20,95 | **TTMTH3/8UNF17** | **TTMTH3/8UNF19** |
| 7/16 | 20,00 | 80 | 21,7 | 45 | 9,55 | 12 | 9,90 | 11,4 | 23,85 | **TTMTH716UNF17** | **TTMTH716UNF19** |
| 1/2 | 20,00 | 89 | 25,55 | 45 | 11,10 | 14 | 11,50 | 13 | 27,71 | **TTMTH1/2UNF17** | **TTMTH1/2UNF19** |