MD MG TESTE MULTIPLE

Made in Italy

**FH** *Facing Heads* · **BAH** *Big Angle Heads* · **TA.CP** *Angle Heads* · **TA** *Angle Heads* · **MOx** *Spindle Speeders* · **HT** *Turret Heads* · **VH** *Variable axis heads* · **TSI/TSX** *Twin spindle milling heads* · **T** *Adjustable joint multi spindle heads* · **MT-TC-TC3** *Fixed multi spindle heads*



# SERIE MOx





I moltiplicatori di giri serie "MOx" sono stati studiati e definiti con l'intento di offrire un prodotto che possa assicurare la massima affidabilità e precisione nelle operazioni di fresatura e foratura.
Dalla progettazione al controllo statico e dinamico del prodotto finito, i nostri moltiplicatori di giri sfruttano le più avanzate conoscenze tecniche e tecnologiche. La costruzione compatta, i componenti in acciaio trattato termicamente, gli ingranaggi rettificati sull'evolvente permettono la trasmissione di potenze elevate con ottimi livelli di silenziosità. Il mandrino è supportato da cuscinetti a sfere di precisione a contatto obliquo precaricati che gli conferiscono un'elevata rigidità e precisione di rotazione.

I moltiplicatori della serie MOx vedono infatti le seguenti caratteristiche:

- Equilibratura di tutti i componenti in rotazione
- Semplice set up nelle macchine con cambio utensile automatico
- Ingranaggi progettati per ridurre il rumore e le vibrazioni dell'utensile
- Liquido refrigerante ad alta pressione su tutta la gamma
- Poca generazione di calore e maggiore stabilità termica grazie a nuovi cuscinetti
- Giri max 35.000
- Utilizzati specialmente in operazioni di finitura
- Possibilità di montaggio manuale o automatico
- Consentono alla macchina di ruotare a bassi regimi di giri
- Possibilità di utilizzare utensili in metallo duro

*The "MOx" series spindle speeders have been designed and developed to offer maximum reliability and precision in milling and drilling. From design to static and dynamic testing of the finished product, our spindle speeders rely on the most advanced technical know-how. The compact construction, the heat-treated steel parts, and the ground gears on the involute, guarantee transmission of high power ratings with amazingly low noise levels. The spindle is supported by a set of preloaded precision ball bearings with oblique contact that ensure greater strength and rotation precision.*

*Our MOx series includes the following features:*

- *Balancing of all the rotating components*
- *Greater speed*
- *More stability thanks to an advanced bearing layout*
- *A new system making set up easier for automatic tool change*
- *A new bearing layout that reduces noise and vibration of the tool*
- *Greater load capacity*
- *Low heat generation and more thermal stability thanks to the advanced bearing layout*
- *Max 35.000 rpm*
- *Mainly used for finishing operations*
- *Manual or automatic tool change options*
- *Allows the machine to rotate at low rpm*
- *Allows the use of carbide cutting tools*

# MOX10-HS

## MOLTIPLICATORE DI GIRI • *SPINDLE SPEEDERS*



PESO *WEIGHT*

40 — 5,8 KG
50 — 8 KG

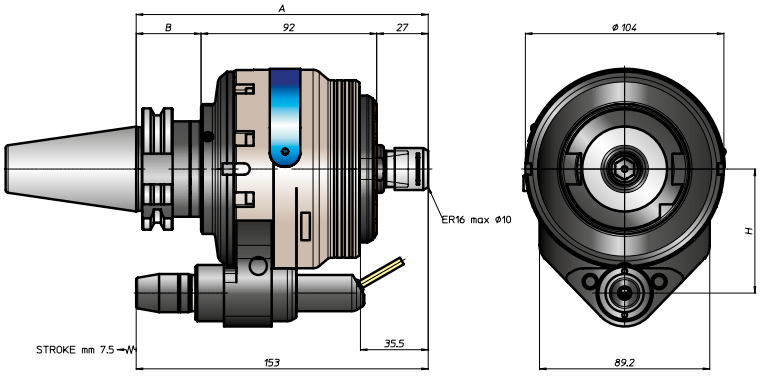
ROTAZIONE *ROTATION*

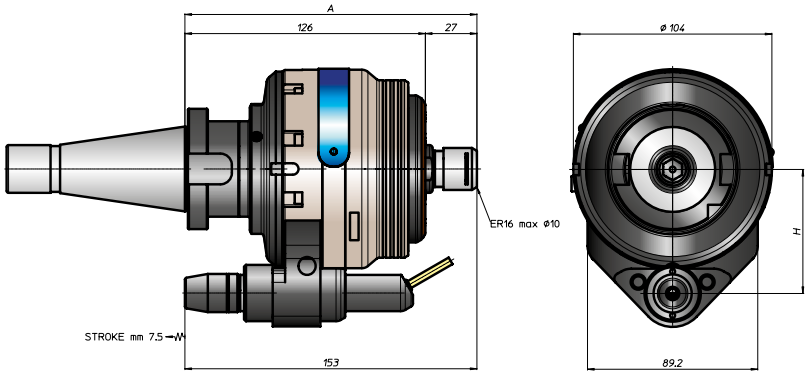
IN — INPUT
OUT — OUTPUT

CARATTERISTICHE *FEATURES*

OPTIONAL

| ER16 | 10 BAR | MAX 242 N | 1-8 | 36000 | 70 BAR | Nm |
|---|---|---|---|---|---|---|
| | | | | RPM | | 8 |




| CONO *SHANK* | DIN69871 | | | | CAT ANSIB5.50 | | BT | | HSK DIN69893 | | | CAPTO ISO26623 | | | KM | | | DIN2080 | | NMTB ANSIB5.18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | 30 | 40 | 45 | 50 | 40 | 50 | 40 | 50 | 63 | 80 | 100 | C5 | C6 | C8 | 63 | 80 | 100 | 40 | 50 | 40 | 50 |
| A | 154 | | | | 154 | | 154 | 162 | 163 | | | 163 | 158 | | 154 | | | 154 | | 154 | |
| B | 34 | | 42 | | 34 | 42 | 35 | 50 | 42 | | 51 | | | | | | | 34 | 42 | 34 | 42 |
| H STANDARD | 65 | | 80 | | 65 | 80 | 65 | 80 | 65 | | 80 | 65 | | 80 | 65 | | 80 | 65 | 80 | 65 | 80 |
| H OPTIONAL | 80 | 110 | | 110 | 80 | 110 | 80 | 110 | 80 | 110 | | 110 | 80 | 110 | | 110 | | 110 | 80 | 110 | |

# MOX10

## MOLTIPLICATORE DI GIRI • *SPINDLE SPEEDERS*



PESO
*WEIGHT*

40 — 5,4 KG
50 — 8 KG



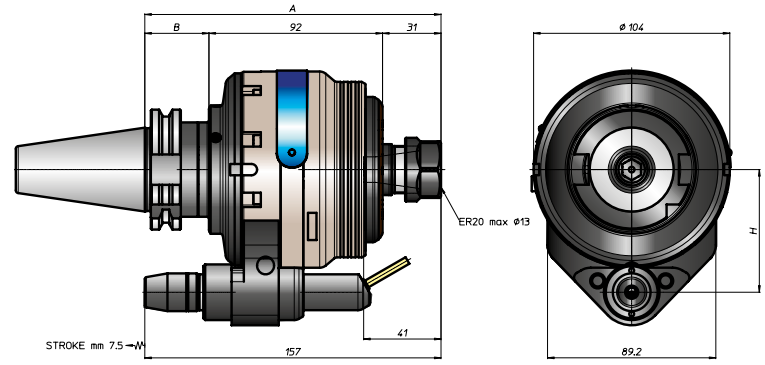
ROTAZIONE
*ROTATION*

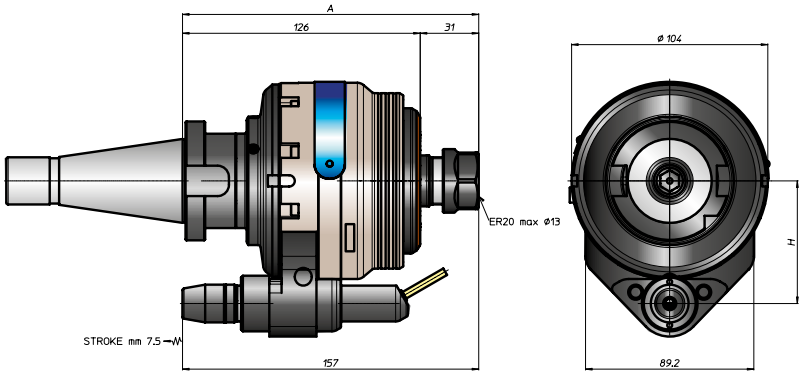
IN — INPUT
OUT — OUTPUT

CARATTERISTICHE
*FEATURES*

OPTIONAL

| ER20 | 10 BAR | MAX 276 N | 1-8 | 24000 | 70 BAR | Nm |
|---|---|---|---|---|---|---|
| | | | | RPM | | 8 |




| CONO *SHANK* | DIN69871 | | | | ANSIB5.50 | | CAT | | BT | | HSK | | | DIN69893 | | | CAPTO | | | KM | | | DIN2080 | | ANSIB5.18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | 30 | 40 | 45 | 50 | 40 | 50 | 40 | 50 | 40 | 50 | 63 | 80 | 100 | C5 | C6 | C8 | 63 | 80 | 100 | 40 | 50 | 40 | 50 | | | |
| A | 157 | | | | 157 | | 157 | 165 | 166 | | 166 | 161 | | 157 | | | 157 | | | 157 | | 157 | | | | |
| B | 34 | | 42 | | 34 | 42 | 35 | 50 | 42 | 51 | | | | | | | | | | 34 | 42 | 34 | 42 | | | |
| H STANDARD | 65 | | 80 | | 65 | 80 | 65 | 80 | 65 | 80 | 65 | 80 | | 65 | 80 | | 65 | 80 | | 65 | 80 | 65 | 80 | | | |
| H OPTIONAL | 80 | 110 | 110 | | 80 | 110 | 110 | 80 | 110 | 110 | 80 | 110 | 110 | 80 | 110 | 110 | 80 | 110 | 110 | 80 | 110 | 110 | 80 | 110 | 110 | |

# MOX13

## MOLTIPLICATORE DI GIRI • *SPINDLE SPEEDERS*



PESO *WEIGHT*

40 — 6,5 KG
50 — 9 KG

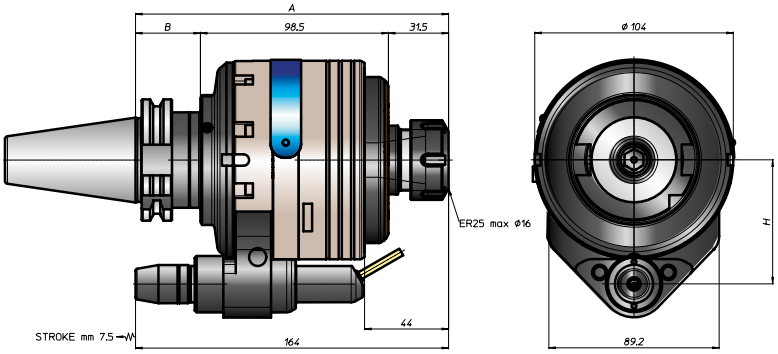
ROTAZIONE *ROTATION*

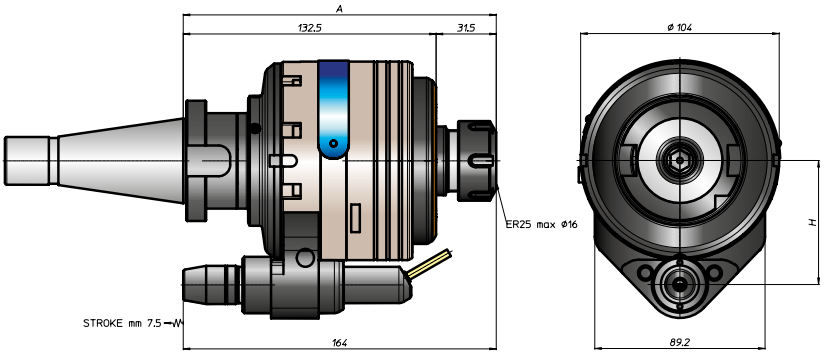
IN — INPUT
OUT — OUTPUT

CARATTERISTICHE *FEATURES*

OPTIONAL

| ER25 | 10 BAR | MAX 460 N | 1-6 | 20000 | 70 BAR | 16 |
|---|---|---|---|---|---|---|
| | | | | RPM | | Nm |




| CONO *SHANK* | DIN69871 | | | ANSIB5.50 | | BT | | HSK DIN69893 | | | CAPTO ISO26623 | | | KM | | | DIN2080 | | NMTB ANSIB5.18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | 40 | 45 | 50 | 40 | 50 | 40 | 50 | 63 | 80 | 100 | C5 | C6 | C8 | 63 | 80 | 100 | 40 | 50 | 40 | 50 |
| A | 164 | | | 164 | | 164 | 172 | 173 | | 172,5 | 168 | | | 163,5 | | | 164 | | 164 | |
| B | 34 | 42 | | 34 | 42 | 35 | 50 | 42 | | 51 | | | | | | | 34 | 42 | 34 | 42 |
| H STANDARD | 65 | 80 | | 65 | 80 | 65 | 80 | 65 | 80 | | 65 | 80 | | 65 | 80 | | 65 | 80 | 65 | 80 |
| H OPTIONAL | 80 | 110 | 110 | 80 | 110 | 80 | 110 | 80 | 110 | 110 | 80 | 110 | 110 | 80 | 110 | 110 | 80 | 110 | 80 | 110 | 110 |

# MOX16

## MOLTIPLICATORE DI GIRI • *SPINDLE SPEEDERS*



PESO
*WEIGHT*

9 KG | 11 KG

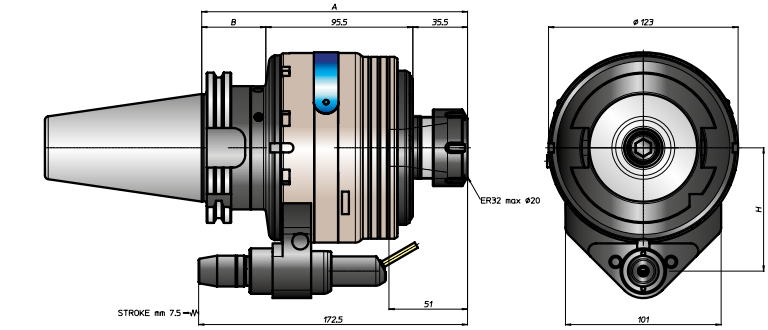
ROTAZIONE
*ROTATION*

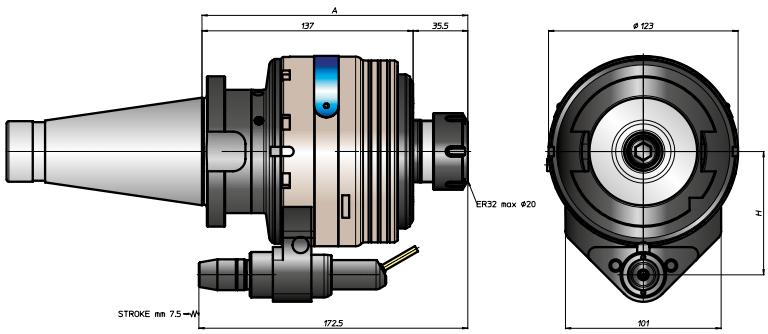
INPUT | OUTPUT

CARATTERISTICHE
*FEATURES*

| ER32 | 10 BAR | MAX 630 N | 1-6 | 16000 | OPTIONAL 70 BAR | Nm 23 |
|---|---|---|---|---|---|---|






| CONO *SHANK* | DIN69871 | | ANSIB5.50 | BT | DIN69893 | | ISO26623 | | KM | | DIN2080 | | ANSIB5.18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SIZE | 40 | 50 | 50 | 50 | 80 | 100 | C6 | C8 | 80 | 100 | 40 | 50 | 40 | 50 |
| A | 172,5 | | 172,5 | 180,5 | 181,5 | | 176,5 | | 172,5 | | 172,5 | | 172,5 | |
| B | 34 | 42 | 35 | 50 | 42 | 51 | | | | | 34 | 42 | 34 | 42 |
| H STANDARD | 80 | | 80 | 80 | 80 | | 80 | | 80 | | 80 | | 80 | |
| H OPTIONAL | 110 | | 110 | 110 | 110 | | 110 | | 110 | | 110 | 110 | 110 | |

# MOX26

## MOLTIPLICATORE DI GIRI • *SPINDLE SPEEDERS*



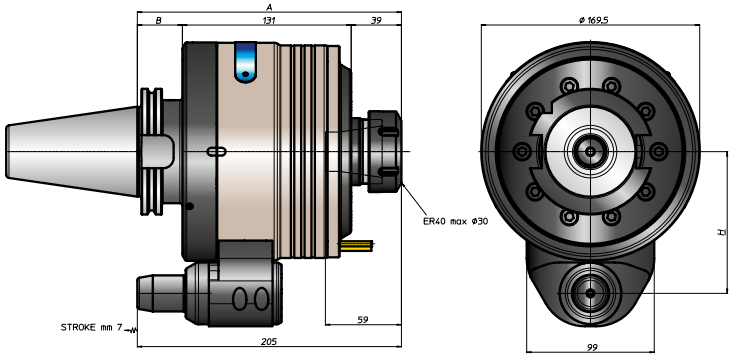
PESO *WEIGHT*: 21 KG

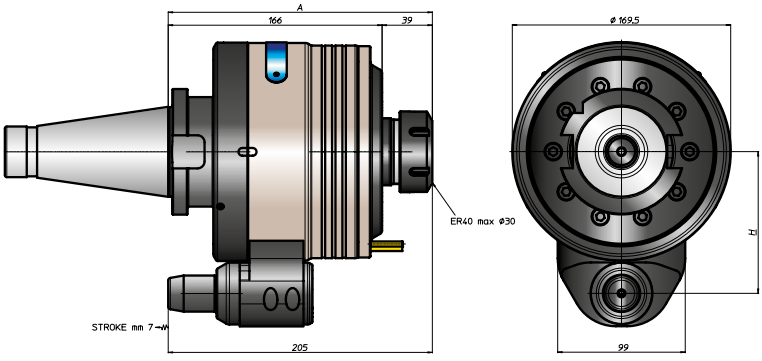
ROTAZIONE *ROTATION*: INPUT → OUTPUT

CARATTERISTICHE *FEATURES*

OPTIONAL

| ER40 | 10 BAR | MAX 1325 N | 1-4,2 | 12000 | 70 BAR | 47 |
|---|---|---|---|---|---|---|
| | | | | RPM | | Nm |




| CONO *SHANK* | DIN69871 | | ANSIB5.50 | BT | DIN69893 | ISO26623 | KM | DIN2080 | ANSIB5.18 |
|---|---|---|---|---|---|---|---|---|---|
| SIZE | 50 | 60 | 50 | 50 | 100 | C8 | 100 | 50 | 50 |
| A | 205 | 221 | 221 | 221 | 223,5 | 213 | 209 | 205 | 205 |
| B | 35 | 51 | 35 | 51 | 53 | | | | |
| H STANDARD | 110 | | 110 | 110 | 110 | 110 | 110 | 110 | 110 |
| H OPTIONAL | | | | | | | | | |

# MOX34

## MOLTIPLICATORE DI GIRI • *SPINDLE SPEEDERS*



PESO
*WEIGHT*

27 KG

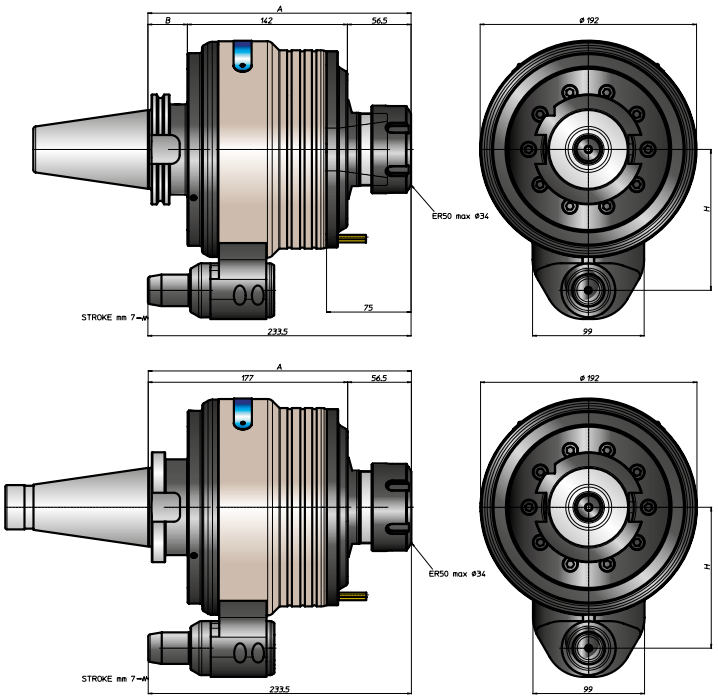
ROTAZIONE
*ROTATION*

INPUT OUTPUT

CARATTERISTICHE
*FEATURES*

| ER50 | 10 BAR | MAX 1470 N | 1-4 | 10000 | OPTIONAL 70 BAR | Nm 180 |
|---|---|---|---|---|---|---|






| CONO *SHANK* | DIN69871 | | CAT ANSIB5.50 | BT | HSK DIN69893 | CAPTO ISO26623 | KM | DIN2080 | NMTB ANSIB5.18 |
|---|---|---|---|---|---|---|---|---|---|
| SIZE | 50 | 60 | 50 | 50 | 100 | C8 | 100 | 50 | 50 |
| A | 233,5 | 249,5 | 249,5 | 249,5 | 252 | 241,5 | 237,5 | 233,5 | 233,5 |
| B | 35 | 51 | 35 | 51 | 53 | | | | |
| H STANDARD | 125 | | 125 | 125 | 125 | 125 | 125 | 125 | 125 |
| H OPTIONAL | | | | | | | | | |

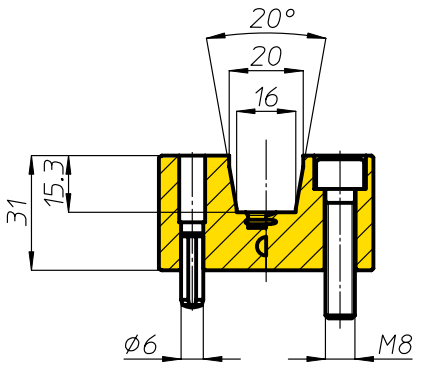
# STOP-BLOCK

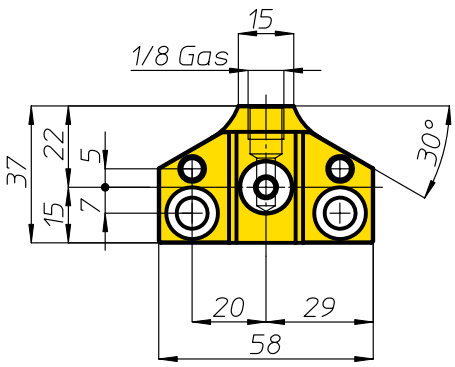
INCLUDED

## STOP-BLOCK (COD. 630104)



### MOX CON H=65/80
*MOX WITH H=65/80*

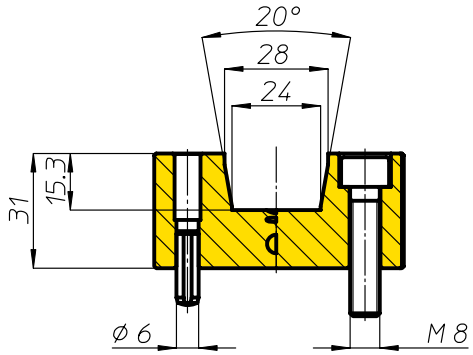


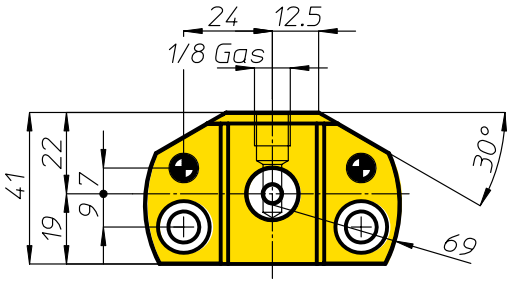




## STOP-BLOCK (COD. 632198)

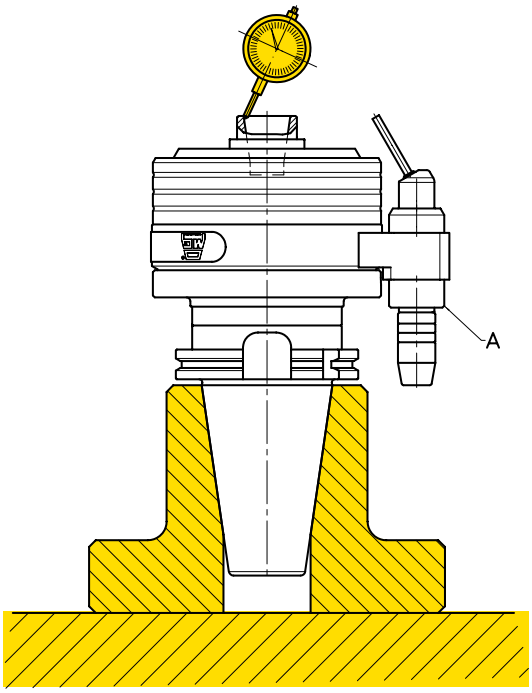


### MOX CON H=110/125
*MOX WITH H=110/125*



# COLLAUDO
## *TEST*






*COLLAUDO*
*Ogni moltiplicatore di giri ha allegato il proprio certificato di collaudo dove sono riportate le proprie caratteristiche tecniche, il numero di matricola, i risultati ottenuti dai test eseguiti sul nostro banco prova BP03, il valore della concentricità tra il cono e la sede pinza il cui valore massimo è mm 0.01. Per verificare il valore della concentricità occorre disporre il moltiplicatore come in fig. 1, fermare il perno A e ruotare il cono. Il valore letto sul comparatore millesimale è la concenticità tra l'asse del cono e l'asse del mandrino.*

*TEST*
*Every spindle speeder has his test certificate in which there are the technical characteristics, the serial number, the results of the tests made on our BP03 testing bench, the concentricity value between the shank and the collet (max. value 0,01 mm). To verify the concentricity value it is necessary to have the spindle speeder as from picture N°. 1, stopping the pin "A" and rotating the shank. The value on the dial indicator is the concentricity between the shank axe and the spindle axe.*

### CERTIFICATO DI COLLAUDO / *TEST REPORT*

Banco prova BP03 / *Testing bench BP03*
Data prova / *Test date*: 10/07/2011
Articolo / *Item*: MO10
Matricola / *SN*: 1315

N° Max Giri Uscita / *Max Output RPM*: 22.000
Rapporto Entrata-Uscita / *Ratio Input-Output* : 1:6
N° Giri Uscita = N° Giri Entrata * Rapporto / *Output RPM = Input RPM * Ratio*

| **Prova** *Test* | **N° Giri Entrata** *Input RPM* | **Temp.(°C) Sonda 1** *Probe 1* | **Temp.(°C) Sonda 2** *Probe 2* | **Temp. Ambiente** *Enviroment Temp.* |
|---|---|---|---|---|
| 1 | 1000 | 45,40 | 43,20 | 24,60 |
| 2 | 1500 | 40,80 | 36,80 | 24,60 |
| 3 | 2000 | 44,20 | 42,00 | 24,80 |
| 4 | 2500 | 48,80 | 42,00 | 24,80 |
| 5 | 3000 | 49,20 | 38,60 | 25,00 |

Concentricità Max Cono - Mandrino / *Max Runout between Shank and Spindle* : 0,006

## MO 26310

Riduttore di giri, rapporto 6-1, input max 15.000 RPM, attacco HSK63, mandrino ER20

*Spindle reducer, ratio 6-1, input max 15.000 RPM, shank HSK63, ER20 spindle*





## MO 28910

MO16 con attacco CAPTO C8 e mandrino ER25 prolungato

*MO16 with CAPTO C8 shank and extended ER25 spindle*



## MO 12110

Rapporto/*Ratio* 1-4
RPM max 4.500
*Torque* 1.150 Nm
Output DIN69871-A50
Peso/*Weight* Kg 240

## TFS 09011

Riduttore di giri per maschiatura con compensazione assiale mandrino, corsa compensazione ±7 mm, rapporto 6-1, input max 10.000 RPM, attacco HSK-F63, mandrino per bussola porta maschio grandezza 1

*Tapping spindle reducer with axial compensation, stroke ±7 mm, ratio 6-1, input max 10.000 RPM, shank HSK-F63, spindle for tapping bush size 1*



## VDI 16610

MO13 rinviato di 90° con attacco VDI30

*MO13 with VDI30 shank at 90°*




## MO 26

MO26 con cono DIN69871-A60, mandrino Weldon Ø25 e liquido refrigerante utensile passante dal centro stop-block/centro mandrino

*MO26 with DIN69871-A60 shank, output spindle Weldon Ø25, coolant trough the stop-block/spindle centre*





## MO 16210

MO13 con attacco VDI40

*MO13 with VDI40 shank*