BARUFFALDI
MACHINE TOOL COMPONENTS

High precision mechanical industry development

since 1927

Turn-Mill multifunction unit “B Axis” type BAX

Breve introduzione sulla Baruffaldi

Short introduction about Baruffaldi

La Baruffaldi è nel settore della meccanica fin dagli anni 30 con la produzione di freni per motociclette.
Grazie allo sviluppo del mercato e all' esperienza conseguita, durante gli anni 70, la Baruffaldi ha avviato la produzione di componenti per macchine utensili, cambi a due velocità e torrette elettromeccaniche per torni CNC.
Attenta alle necessità e alle domande di nuova tecnologia, la Baruffaldi è stata capace di sviluppare un prodotto preciso e sicuro come richiesto dal mercato di macchine utensili, prestando particolare attenzione alle nuove torrette con servomotore, cambi a due di velocità, dischi portautensili, moduli rotanti e le nuove unità asse B.
Questi prodotti hanno soddisfatto con successo le domande di mercato, consentendo alla Baruffaldi di essere presto leader tra i produttori nell'industria meccanica.
Oggigiorno, i prodotti hanno mantenuto il loro alto livello di qualità ma sono state migliorate notevolmente le loro caratteristiche tecniche grazie a una cooperazione continua tra la progettazione, la produzione, i test e gli uffici vendite.
La Baruffaldi, ora, sta sviluppando la sua attività su un'area di 20.500 metri quadrati coperti, nei due nuovi stabilimenti di: Settala (componenti per macchine utensili) e di Tribiano (frizioni e freni elettromagnetici).
La Barruffaldi, grazie a direttori commerciali e servizio tecnico operativo nella maggior parte dei paesi industrializzati, vende la sua linea di prodotti e fornisce assistenza, in tutto il mondo.

Baruffaldi has been in the mechanical branch since 30s producing brakes for motorcycles.
Thanks to the development of the market and to the experience gained, during the 70s, Baruffaldi started the production of components for machine tools, gearboxes, and electromechanical turrets for CNC lathes.
Attentive to the needs and demands of new technology, Baruffaldi has been able to develop the precise and safe product requested by the machine tools market, with particular attention to the new servomotor turrets, to the 2 speed gearboxes, the toolholder discs, the driven tools and the new B axis units.
These products successfully met the market demands, which permitted Baruffaldi to be soon the leader of mechanical industry manufacturers.
Nowadays, the products have maintained their high quality standard, but have been considerably improved in their technical characteristics thanks to a continuous cooperation among the design, test, production, and sales departments.
Baruffaldi is now developing its business in the two NEW branches of Settala (Machine Tools Components) and Tribiano (Electromagnetic Clutches and Brakes), on an area of 20.500 covered square meters.
Baruffaldi sells his product line and provides service all over the world thanks to sales managers and technical services operating in the most industrialized Countries.

Unità per tornitura e fresatura “Asse B” serie BAX

Turn - mill multifunction unit “B Axis” type BAX

L’Asse B serie BAX è il nuovo dispositivo sviluppato da BARUFFALDI, che completa così la propria gamma di accessori per torni e centri di lavoro.
Tramite l’unità BAX si possono eseguire lavorazioni di tornitura, fresatura, foratura, maschiatura in asse e fuori asse, con qualsiasi angolo di inclinazione rispetto all’asse punte, nonché profilature tridimensionali mediante interpolazione del brandeggio con gli altri assi della macchina. L’unità BAX è disponibile nelle taglie con elettromandrino da 100Nm (BAX 100), 200Nm (BAX 200) e 330Nm (BAX 330), con la possibilità di impiegare portautensili di tipo HSK, CAPTO o altri su richiesta del cliente.
La massiccia struttura in acciaio, l’impiego di dentature Hirth di dimensioni generose e la motorizzazione brandeggio senza gioco garantiscono lavorazioni severe con elevate precisioni costanti nel tempo.

Caratteristiche principali:
- Configurazione compatta. Su richiesta cliente, integrabile nella slitta della macchina
- Elettromandrino ampiamente personalizzabile
- Disponibile in 3 taglie di coppia per soddisfare ogni esigenza di lavorazione, anche la più severa
- Struttura in acciaio compatta e di altissima rigidezza
- Bloccaggio idraulico su dentature Hirth a 3 anelli di grandi dimensioni, sia della tavola che del mandrino, per lavorazioni di tornitura estremamente gravose (pressione olio fino a 70 bar)
- Freno idraulico ad alta coppia (fino a 3500 Nm)
- Movimento di brandeggio realizzato con trasmissione senza gioco, elevata precisione e ripetibilità di posizionamento
- Precarico regolabile per lavorazioni di interpolazione

Baruffaldi has developed B-Axis type BAX, thus completing its range of accessories for lathes and machining centers.
By means of BAX unit, machining operations such as turning, milling, drilling, tapping - coaxial, offset and at any angle - plus three-dimensional profiling can be carried out.
BAX unit is available in three sizes, with reference to electrospindle torque capability: 100Nm (BAX 100), 200Nm (BAX 200) and 330Nm (BAX 330). Different toolholder systems can be supplied, such as HSK, CAPTO and others on request. Rugged steel structure, big diameter Hirth teeth rings and backlash-free swiveling transmission assure strong machining with high and constant precision over time.

Main Characteristics:
- Compact design. Upon customer request, it can be integrated in machine slide
- Widely customizable electrospindle
- Three torque sizes available, to meet the hardest machining needs
- Very high steel structure stiffness
- Hydraulic locking on big diameter three-rings Hirth coupling, both for table and electrospindle, for very heavy turning operations (oil pressure up to 70 bar)
- High torque hydraulic brake (up to 3500 Nm)
- Backlash free swiveling, high precision and positioning repeatability
- Variable table pre-load for interpolation machining

Grandezza *Size*			BAX 100	BAX 200	BAX 330
Angolo di brandeggio *Swiveling angle*		Deg°	± 105°		
Posizionamento angolare *Angular positioning*	Su dentatura Hirth *Index clamping*	Deg°	Every 5°		
	Su freno idraulico (1) *Brake clamping (1)*		Risoluzione *Resolution*	0,4”	
Accuratezza di posizionamento *Positioning accuracy*	Su dentatura Hirth *Index clamping*	Deg°	± 4”		
	Su freno idraulico (1) *Brake clamping (1)*		± 15”		
Ripetibilità di posizionamento *Positioning repeatability*	Su dentatura Hirth *Index clamping*	Deg°	± 1,5”		
	Su freno idraulico (1) *Brake clamping (1)*		± 5”		
Coppia tangenziale massima *Maximum tangential torque*	50 bar	Nm	4000	4000	7700
	70 bar		5600	5600	10800
Pressione alimentazione idraulica *Oil pressure*		bar	50 - 70 bar (according to duty)		

Elettromandrino *Electrospindle*					
Coppia massima elettromandrino - S1 (2) *Maximum electrospindle torque - S1 (2)*		Nm	100	200	330
		RPM	0 - 2000	0 - 1500	0 - 1300
Coppia massima elettromandrino - S6 40% (2) *Maximum electrospindle torque - S6 40% (2)*		Nm	130	260	430
Velocità di rotazione massima elettromandrino (2) *Maximum electrospindle rotating speed (2)*		RPM	14.000	14.000	8.000
Tipologia di attacco utensile (3) *Tool coupling (3)*			HSK A50 - A63	HSK A63 - A80	HSK A80 - A100
			CAPTO C5 - C6	CAPTO C6 - C8	CAPTO C8
Pressione alimentazione idraulica *Oil pressure*		bar	50 - 70 bar (according to duty)		

* **Sono possibili differenti posizioni di montaggio.**
Different mounting positions are possible.

1 Valori riferiti all’encoder standard. È possibile raggiungere valori inferiori con encoder più accurati
2 I valori effettivi di coppia, punto di deflussaggio e velocità massima sono personalizzabili su richiesta
3 Attacchi differenti su richiesta

1 Values achieved with standard encoder. Lower values can be achieved by using a more accurate encoder
2 Actual torque, defluxing speed and maximum speed can be customized
3 Different couplings upon request

BAX 100

Turn-Mill Multifunction Unit "B-Axis"

The device is designed as a "C"-shaped structure comprising:

- Steel base, where turning table is fitted
- Welded steel column
- Welded steel upper structure, where swiveling motor and transmission are fitted
- Electrospindle

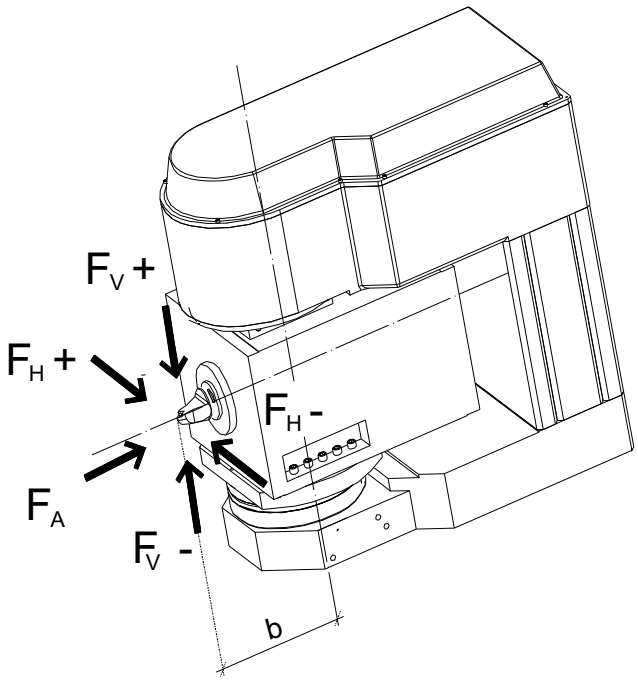
Swiveling +/- 105° or more if necessary.

- Turning Table

Main features

- Turning upon axial and radial needle bearings
- Swiveling by means of a pre-stressed gear transmission with eccentricity and backlash automatic continuous compensation; different swiveling motors can be used (customer's supply)
- Indexed locking every 5 deg on 3-part Hirth rings
- Free angle locking by means of a hydraulic brake
- N°2 inductive sensors for locked/unlocked Hirth rings signal
- Interpolation machining possible during finish-milling, different table bearings pre-loads can be set.

Mechanical performances



- ***OIL PRESSURE: 50 BAR***

Hirth rings locked (Turning operations)

Max tangential torque (F_H+*b, F_H-*b)		4000 Nm
Max tilting torque, pushing (F_V+*b)		4000 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 14800 N C = 3400 Nm
Max axial force (F_A)		26000 N

Hydraulic brake locked (Rotating tool operations)

Max tangential torque (F_H+*b, F_H-*b)		2500 Nm
Max tilting torque, pushing (F_V+*b)		4000 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 14800 N C = 3400 Nm
Max axial force (F_A)		26000 N

Interpolation (Finish-milling)

Max tangential torque (F_H+*b, F_H-*b)		1200 Nm	(according to motor)

- ***OIL PRESSURE: 70 BAR***

Hirth rings locked (Turning operations)

Max tangential torque (F_H+*b, F_H-*b)		5600 Nm
Max tilting torque, pushing (F_V+*b)		5600 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 20700 N C = 4760 Nm
Max axial force (F_A)		36400 N

Hydraulic brake locked (Rotating tool operations)

Max tangential torque (F_H+*b, F_H-*b)		3500 Nm
Max tilting torque, pushing (F_V+*b)		5600 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 20700 N C = 4760 Nm
Max axial force (F_A)		36400 N

Interpolation (Finish-milling)

Max tangential torque (F_H+*b, F_H-*b)	1200 Nm	(according to motor)

- ELECTROSPINDLE

Tool coupling	Capto C6 – HSK A63 (others on request)
Motor features:	Synchronous motor
	Cmax (S1) = 100 Nm (0-1800 rpm)
	Max power = 19 kW
	Max turning speed = 12.000 rpm

- No maintenance, permanent grease bearings lubrication
- Liquid motor cooling
- Encoder for spindle vectorial control and positioning
- Front and rear air pressurization
- Tool coupling air cleaning during tool change
- Double effect hydraulic cylinder for tool change operations
- Tool change operations control by means of an analogic inductive sensor
- Rotating joint for through-tool coolant supply
- Rotating joint draining
- Outer coolant supply through built-in adjustable nozzles
- Spindle hydraulic locking on 3-part Hirth rings for turning operations (spindle bearings are released)

- POSSIBLE MACHINING OPERATIONS WITH 50 BAR TABLE LOCKING

Material to be machined: low alloy steel, Rm=600 N/mm^2

Insert tools.

Outer diameter turning (table Hirth rings locked, electrospindle Hirth rings locked)

D= 300mm	workpiece diameter
Vc=180 m/min	cutting speed
ap= 7 mm	depth of cut
fn= 0.6 mm/rev	feed per revolution

Center drilling (table Hirth rings locked, electrospindle Hirth rings locked)

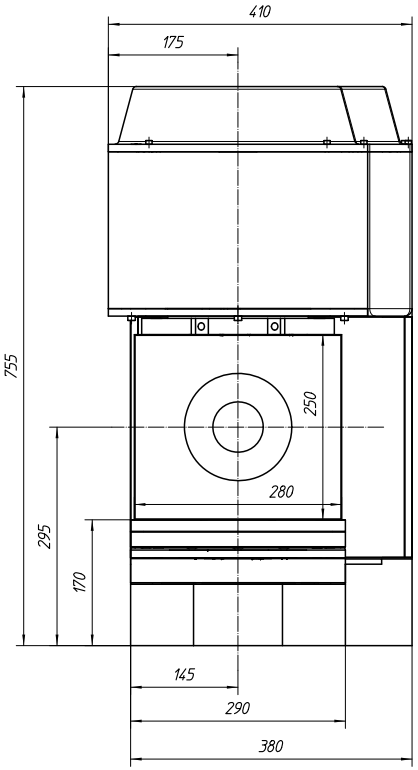
d=63mm	drill diameter
Vc=200 m/min	cutting speed
fn=0.15 mm/rev	feed per revolution

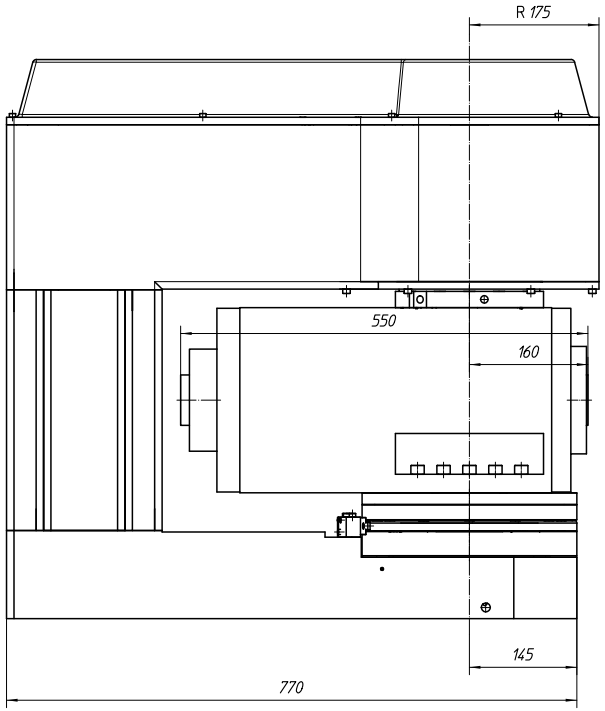
Off-center drilling with electrospindle (table Hirth rings locked, electrospindle turning)

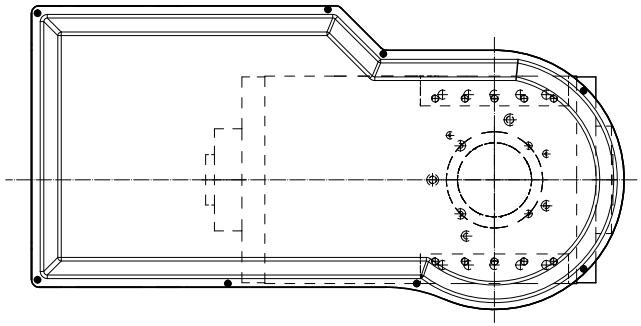
d=40 mm	drill diameter
Vc=170 m/min	cutting speed
fn=0.13 mm/rev	feed per revolution

Face milling (hydraulic brake locked, electrospindle turning)

d=63 mm	mill diameter
Vc=250 m/min	cutting speed
ap= 5 mm	axial depth of cut
ae=47 mm	radial depth of cut
fz=0.14 mm/tooth	mill feed per tooth
z=7 teeth	number of teeth







PRELIMINARY DRAWING

Modifiche	Data	Firma
	05/05/09	Molinari

Questo disegno e' di proprieta' della Barutfaldi S.p.A.
A Termine di legge ogni diritto e' riservato

Materiale			
Trattamento Termico	Prof. Tratt. Term. mm		
Resistenza N/mm²	Durezza		
Stato delle superfici			
Importanza della caratteristica			
Critica	Sostituisce il		
Importante	Sostituito dal		
Secondaria			

QUOTE SENZA INDICAZIONE DI TOLLERANZA: GRADO DI PRECISIONE MEDIO UNI EN 22768-1/2

⊥	0,1/100	Fino a 6 mm	± 0,1	>400 a 1000mm	± 0,8
//	0,1/100	>6 a 30 mm	±0,2	>1000 a 2000mm	± 1,2
◎	0,1	>30 a 120 mm	± 0,3	>2000 a 4000mm	± 2,0
⌓	0,1/100	>120 a 400 mm	± 0,5	Dim.angolari	± 20'

Senza apposite prescrizioni
tutti gli spigoli si intendono smussati a raggiati di 0,2

Denominazione prodotto	
Particolare	
Overall dim. EM 100Nm	
Gruppo	Sottogruppo

Disegnato da	Data
Molinari	20/11/08
Controllato da	Data
Q.ta'	Scala
	0.5

BARUFFALDI S.p.A
San Donato Milanese (MI)

Disegno N. 99_0100_9999_01

Ind. Mod. | Formato A2

mm 0 10 20 30 40 50 60 70 80 90

BAX 200

Turn-Mill Multifunction Ui

The device is designed as a “C”-shaped structure comprising:

- Steel base, where turning table is fitted
- Welded steel column
- Welded steel upper structure, where swiveling motor and transmission are fitted
- Electrospindle

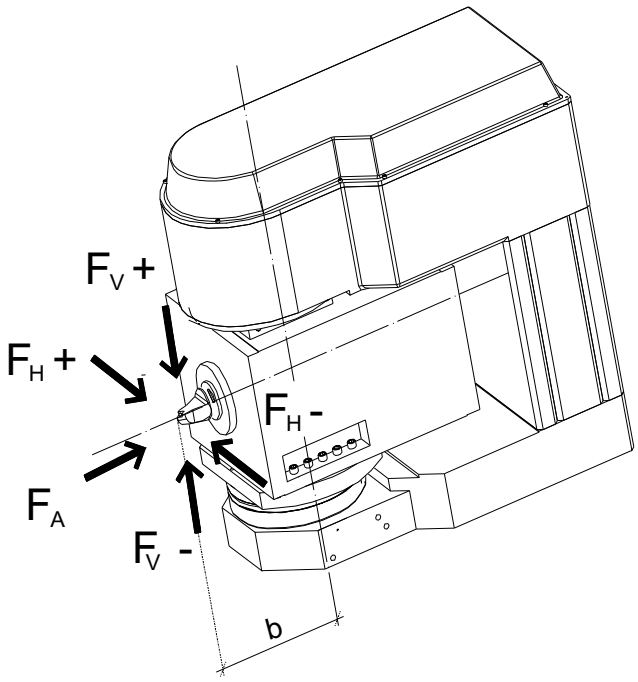
Swiveling +/- 105° or more if necessary.

- Turning Table

Main features

- Turning upon axial and radial needle bearings
- Swiveling by means of a pre-stressed gear transmission with eccentricity and backlash automatic continuous compensation; different swiveling motors can be used (customer’s supply)
- Indexed locking every 5 deg on 3-part Hirth rings
- Free angle locking by means of a hydraulic brake
- N°2 inductive sensors for locked/unlocked Hirth rings signal
- Interpolation machining possible during finish-milling, different table bearings pre-loads can be set.

Mechanical performances



- ***OIL PRESSURE: 50 BAR***

Hirth rings locked (Turning operations)

Max tangential torque (F_H+*b, F_H-*b)		4000 Nm
Max tilting torque, pushing (F_V+*b)		4000 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 14800 N C = 3400 Nm
Max axial force (F_A)		26000 N

Hydraulic brake locked (Rotating tool operations)

Max tangential torque (F_H+*b, F_H-*b)		2500 Nm
Max tilting torque, pushing (F_V+*b)		4000 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 14800 N C = 3400 Nm
Max axial force (F_A)		26000 N

Interpolation (Finish-milling)

Max tangential torque (F_H+*b, F_H-*b)		1200 Nm	(according to motor)

- ***OIL PRESSURE: 70 BAR***

Hirth rings locked (Turning operations)

Max tangential torque (F_H+*b, F_H-*b)		5600 Nm
Max tilting torque, pushing (F_V+*b)		5600 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 20700 N C = 4760 Nm
Max axial force (F_A)		36400 N

Hydraulic brake locked (Rotating tool operations)

Max tangential torque (F_H+*b, F_H-*b)		3500 Nm
Max tilting torque, pushing (F_V+*b)		5600 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 20700 N C = 4760 Nm
Max axial force (F_A)		36400 N

Interpolation (Finish-milling)

Max tangential torque (F_H+*b, F_H-*b)	1200 Nm	(according to motor)

- ELECTROSPINDLE

Tool coupling	Capto C5/C6 – HSK A63/A80 (others on request)
Motor features:	Synchronous motor
	Cmax (S1) = 200 Nm (0-1500 rpm)
	Max power = 32.5 kW
	Max turning speed = 10.000 rpm

Some motor features can be changed according to customer's specifications.

- No maintenance, permanent grease bearings lubrication
- Liquid motor cooling
- Encoder for spindle vectorial control and positioning
- Front and rear air pressurization
- Tool coupling air cleaning during tool change
- Double effect hydraulic cylinder for tool change operations
- Tool change operations control by means of an analogic inductive sensor
- Rotating joint for through-tool coolant supply
- Rotating joint draining
- Outer coolant supply through built-in adjustable nozzles
- Spindle hydraulic locking on 3-part Hirth rings for turning operations (spindle bearings are released)

- POSSIBLE MACHINING OPERATIONS WITH 50 BAR TABLE LOCKING

Material to be machined: low alloy steel, Rm=600 N/mm^2

Insert tools.

Outer diameter turning (table Hirth rings locked, electrospindle Hirth rings locked)

D= 300mm	workpiece diameter
Vc=180 m/min	cutting speed
ap= 7 mm	depth of cut
fn= 0.6 mm/rev	feed per revolution

Center drilling (table Hirth rings locked, electrospindle Hirth rings locked)

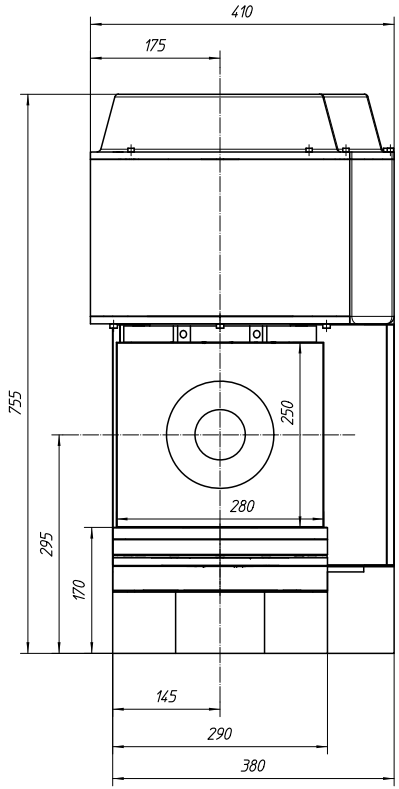
d=63mm	drill diameter
Vc=200 m/min	cutting speed
fn=0.15 mm/rev	feed per revolution

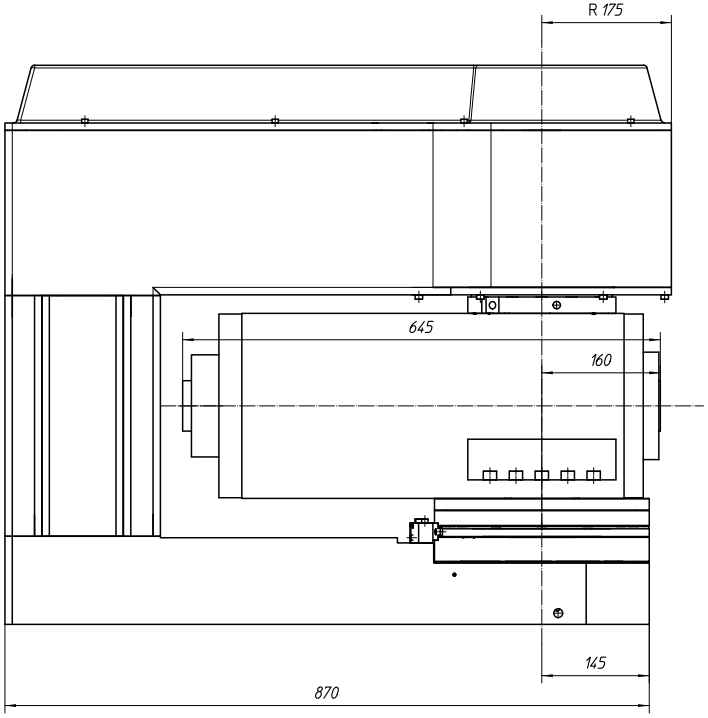
Off-center drilling with electrospindle (table Hirth rings locked, electrospindle turning)

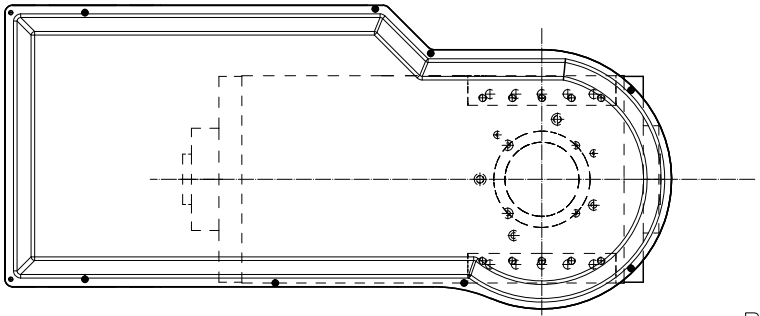
d=55 mm	drill diameter
Vc=170 m/min	cutting speed
fn=0.13 mm/rev	feed per revolution

Face milling (hydraulic brake locked, electrospindle turning)

d=100mm	mill diameter
Vc=250 m/min	cutting speed
ap= 5 mm	axial depth of cut
ae=75mm	radial depth of cut
fz=0.15 mm/tooth	mill feed per tooth
z=7 teeth	number of teeth







PRELIMINARY DRAWING

Modifiche	Firma	Data
	Molinari	05/05/09

Questo disegno e' di proprieta' della Barutfaldi S.p.A.
A Termine di legge ogni diritto e' riservato

Materiale			
Trattamento Termico	Prof. Tratt. Term. mm		
Resistenza N/mm²	Durezza		
Stato delle superfici			
Importanza della caratteristica			
Critica	Sostituisce il		
Importante	Sostituito dal		
Secondaria			

BARUFFALDI S.p.A
San Donato Milanese (MI)

QUOTE SENZA INDICAZIONE DI TOLLERANZA: GRADO DI PRECISIONE MEDIO UNI EN 22768-1/2

⊥	0,1/100	Fino a 6 mm	± 0,1	>400 a 1000mm	± 0,8
//	0,1/100	>6 a 30 mm	±0,2	>1000 a 2000mm	± 1,2
◎	0,1	>30 a 120 mm	± 0,3	>2000 a 4000mm	± 2,0
□	0,1/100	>120 a 400 mm	± 0,5	Dim.angolari	± 20'

Senza apposite prescrizioni
tutti gli spigoli si intendono smussati a raggiati di 0,2

Denominazione prodotto

Particolare
Overall dim. EM 200Nm

Disegnato da	Data
Molinari	29/04/09
Controllato da	Data
Q.ta'	Scala
	0.5
Gruppo	Sottogruppo

Disegno N. 99_0200_9999_01

Ind. Mod. | Formato A2

mm 0 10 20 30 40 50 60 70 80 90

BAX 330

Turn-Mill Multifunction Unit

The device is designed as a “C”-shaped structure comprising:

- Steel base, where turning table is fitted
- Welded steel column
- Welded steel upper structure, where swiveling motor and transmission are fitted
- Electrospindle

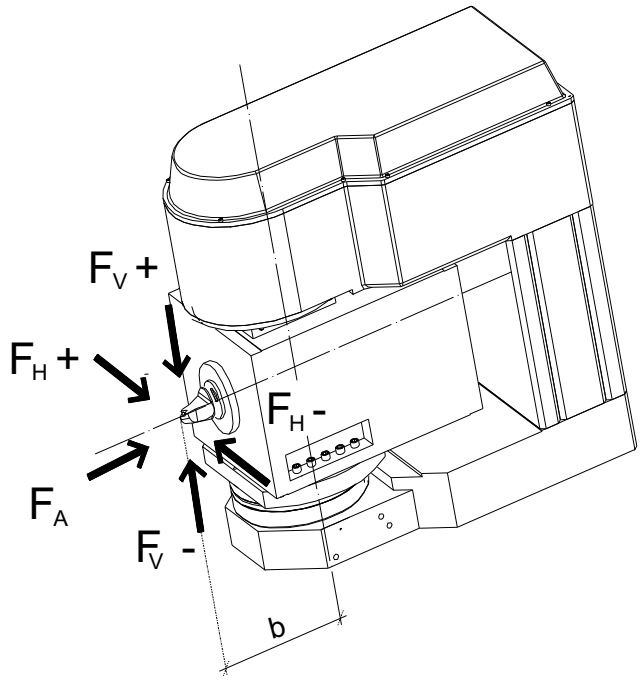
Swiveling +/- 105° or more if necessary.

- Turning Table

Main features

- Turning upon axial and radial needle bearings
- Swiveling by means of a pre-stressed gear transmission with eccentricity and backlash automatic continuous compensation; different swiveling motors can be used (customer’s supply)
- Indexed locking every 5 deg on 3-part Hirth rings
- Free angle locking by means of a hydraulic brake
- N°2 inductive sensors for locked/unlocked Hirth rings signal
- Interpolation machining possible during finish-milling, different table bearings pre-loads can be set.

Mechanical performances



- ***OIL PRESSURE: 50 BAR***

Hirth rings locked (Turning operations)

Max tangential torque (F_H+*b, F_H-*b)		7700 Nm
Max tilting torque, pushing (F_V+*b)		7700 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 14800 N C = 3400 Nm
Max axial force (F_A)		28000 N

Hydraulic brake locked (Rotating tool operations)

Max tangential torque (F_H+*b, F_H-*b)		2500 Nm
Max tilting torque, pushing (F_V+*b)		7700 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 14800 N C = 3400 Nm
Max axial force (F_A)		28000 N

Interpolation (Finish-milling)

Max tangential torque (F_H+*b, F_H-*b)		1200 Nm	(according to motor)

- ***OIL PRESSURE: 70 BAR***

Hirth rings locked (Turning operations)

Max tangential torque (F_H+*b, F_H-*b)		10800 Nm
Max tilting torque, pushing (F_V+*b)		10800 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 20700 N C = 4760 Nm
Max axial force (F_A)		39200 N

Hydraulic brake locked (Rotating tool operations)

Max tangential torque (F_H+*b, F_H-*b)		3500 Nm
Max tilting torque, pushing (F_V+*b)		10800 Nm
Max tilting torque, lifting (F_V-*b)	b=230mm	Fv- max= 20700 N C = 4760 Nm
Max axial force (F_A)		39200 N

Interpolation (Finish-milling)

Max tangential torque (F_H+*b, F_H-*b)	1200 Nm	(according to motor)

- ELECTROSPINDLE

Tool coupling	Capto C6/C8 – HSK A80/A100 (others on request)
Motor features:	Synchronous motor
	Cmax (S1) = 330 Nm (0-1300 rpm)
	Max power = 45 kW
	Max turning speed = 6.000 rpm (8000rpm optional)

- No maintenance, permanent grease bearings lubrication
- Liquid motor cooling
- Encoder for spindle vectorial control and positioning
- Front and rear air pressurization
- Tool coupling air cleaning during tool change
- Double effect hydraulic cylinder for tool change operations
- Tool change operations control by means of an analogic inductive sensor
- Rotating joint for through-tool coolant supply
- Rotating joint draining
- Outer coolant supply through built-in adjustable nozzles
- Spindle hydraulic locking on 3-part Hirth rings for turning operations (spindle bearings are released)

- POSSIBLE MACHINING OPERATIONS WITH 50 BAR TABLE LOCKING

Material to be machined: low alloy steel, Rm=600 N/mm^2

Outer diameter turning (table Hirth rings locked, electrospindle Hirth rings locked)

D= 600mm	workpiece diameter
Vc=190 m/min	cutting speed
ap= 10 mm	depth of cut
fn= 0.9 mm/rev	feed per revolution

Center drilling (table Hirth rings locked, electrospindle Hirth rings locked)

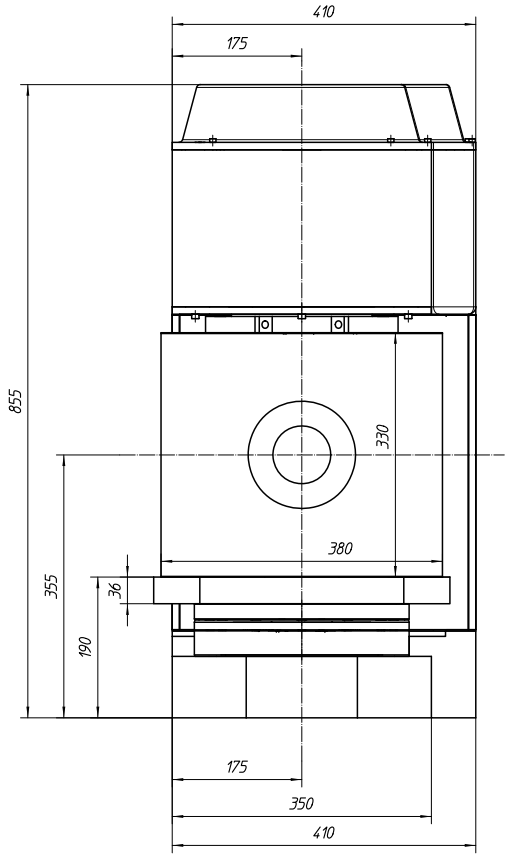
d=100mm	drill diameter
Vc=70 m/min	cutting speed
fn=0.5 mm/rev	feed per revolution

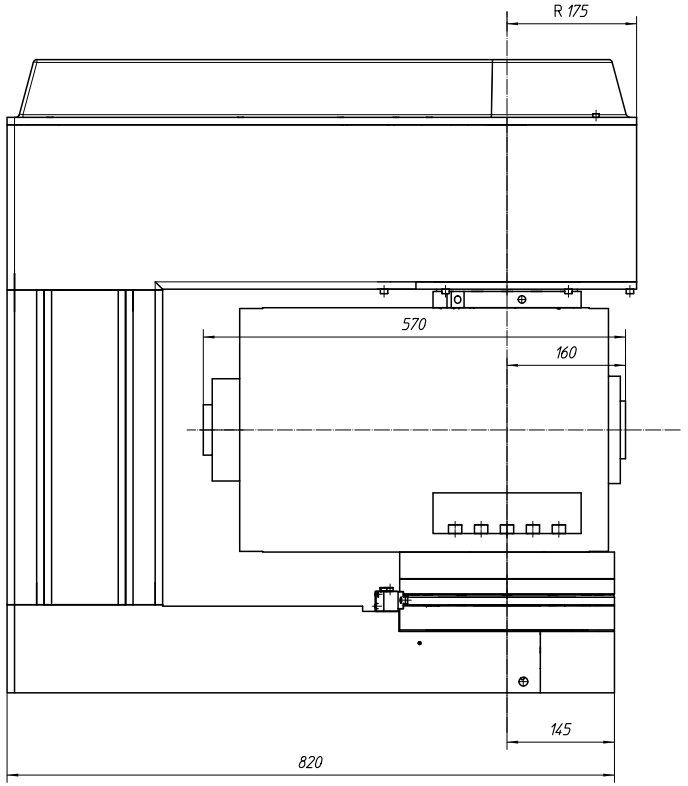
Off-center drilling with electrospindle (table Hirth rings locked, electrospindle turning)

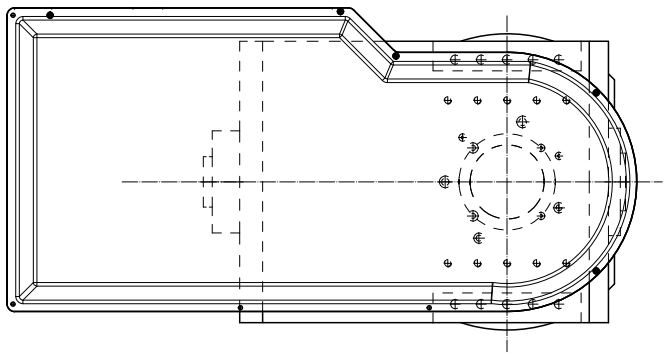
d=50mm	d=70mm (insert)	drill diameter
Vc=70 m/min	Vc=130 m/min	cutting speed
fn=0.35 mm/rev	fn=0.13mm/rev	feed per revolution

Face milling (hydraulic brake locked, electrospindle turning)

d=150mm (45° inserts)	d=125mm (round inserts r=8)	mill diameter
Vc=200 m/min	Vc=200 m/min	cutting speed
ap= 3.5 mm	ap= 3.5mm	axial depth of cut
ae=110mm	ae=100mm	radial depth of cut
fz=0.12 mm/tooth	fz=0.25 mm/tooth	mill feed per tooth
z=12 teeth	z=8 teeth	number of teeth







PRELIMINARY DRAWING

Modifiche	Data	Firma
	05/05/09	Molinari

Questo disegno e' di proprieta' della Barutfaldi S.p.A.
A Termine di legge ogni diritto e' riservato

Materiale			
Trattamento Termico	Prof. Tratt. Term. mm		
Resistenza N/mm²	Durezza		
Stato delle superfici			
Importanza della caratteristica			
Critica	Sostituisce il		
Importante	Sostituito dal		
Secondaria			

QUOTE SENZA INDICAZIONE DI TOLLERANZA: GRADO DI PRECISIONE MEDIO UNI EN 22768-1/2

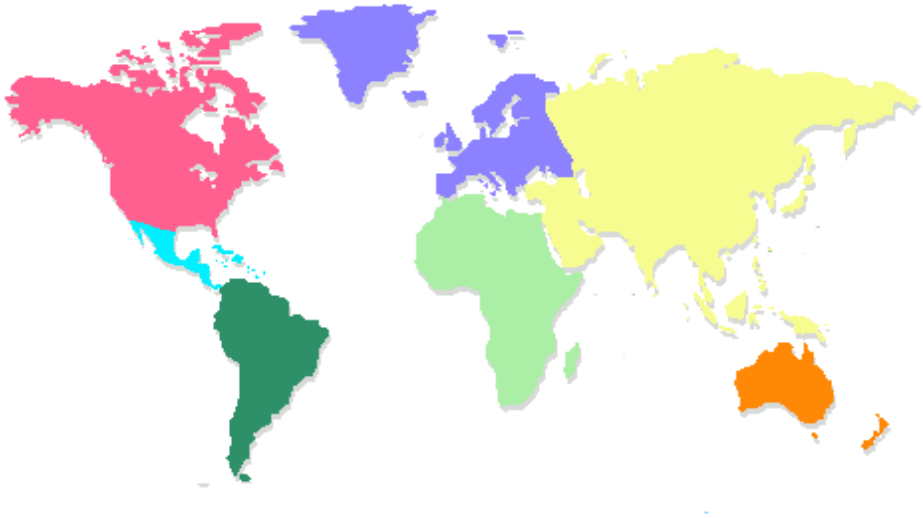
⊥	0,1/100	Fino a 6 mm ± 0,1	>400 a 1000mm ± 0,8	Senza apposite prescrizioni
//	0,1/100	>6 a 30 mm ±0,2	>1000 a 2000mm ± 1,2	tutti gli spigoli si
◎	0,1	>30 a 120 mm ± 0,3	>2000 a 4000mm ± 2,0	intendono smussati
⌓	0,1/100	>120 a 400 mm ± 0,5	Dim.angolari ± 20'	a raggiati di 0,2

Denominazione prodotto		Disegnato da Molinari	Data 30/04/09
		Controllato da	Data
Particolare Overall dim. EM 322Nm		Q.ta'	Scala 0,2
Gruppo	Sottogruppo		
Disegno N. 99_0300_9999_01		Ind. Mod.	Formato A2

BARUFFALDI S.p.A
San Donato Milanese (MI)

mm 0 10 20 30 40 50 60 70 80 90

Ogranizzazione mondiale di vendite e servizi
Worldwide sales and service organization



La Baruffaldi è strutturata per offrire un servizio di vendita e assistenza in tutto il mondo.
Inoltre grazie ad una rete di agenti e distributori garantisce un contatto diretto in molte nazioni.
Per ulteriori i informazioni, contattare i nostri uffici.
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• Ci riserviamo di modificare in qualsiasi momento, senza preavviso, le caratteristiche tecniche, le dimensioni ed i pesi indicati nel presente catalogo. Le illustrazioni non sono impegnative.

• *The tecnichal data, dimensions and weights are subject to change unless otherwise stated in the individual pages of this catalogue. The illustrations are for reference only.*