

# General Manufacturing Programme

## ACIERA SA

Machine Tool Factory

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### Universal tool-room milling machines

Type	Traverses Horizontal × Transverse × Vertical	Spindle power
F 1	100 × 75 × 150 mm (3.94" × 2.95" × 5.9")	0,25 KW
F 3	* 300 × 135 × 300 mm (11.81" × 5.31" × 11.81")	0,6/1,5 KW
	* (on request. 400 mm) (15.75")	
F 4	400 × 190 × 450 mm (15.75" × 7.48" × 17.72")	2,6 KW
F 5	500 × 325 × 420 mm (19.69" × 12.8" × 16.54")	4 KW

### Production universal milling machines

Type	Traverses Horizontal × Transverse × Vertical	Spindle power
F 1 N	100 × 75 × 150 mm (3.94" × 2.95" × 5.9")	0,25 KW
F 1 H	100 × 75 × 150 mm (3.94" × 2.95" × 5.9")	0,25 KW
F 1 NC	120 × 80 × 150 mm (4.72" × 3.15" × 5.9")	0,25 KW
F 3 EC	360 × 135 × 250 mm (14.17" × 5.31" × 9.84")	0,6/1,5 KW
F 5 NC	500 × 320 × 380 mm (19.69" × 12.8" × 15")	4 KW

### Drilling-tapping machines

Type	Capacity	Number of spindles
E 3	Drilling machine, 4 mm (.16")	1 - 3
ET 3	Tapping machine, M 3.5 (.14")	1 - 3
6	6 mm (.24") - M 5 (.2")	1 - 6
13	13 mm (.51") - M 10 (.39")	1 - 6
22	22 mm (.87") - M 18 (.71")	1 - 6

### Semi jig boring machines

Type	Capacity	Traverse of the table
13 KT	13 mm (.51") - M 10 (.39")	200 × 150 mm ( 7.87" × 5.91")
22 KT	22 mm (.87") - M 18 (.71")	330 × 205 mm (12.99" × 8.07")
22 STA	22 mm (.87") - M 18 (.71")	330 × 205 mm (12.99" × 8.07")
23 STA	23 mm (.91") - M 18 (.71")	420 × 300 mm (16.5" × 12.81")

### Production drilling-boring machines

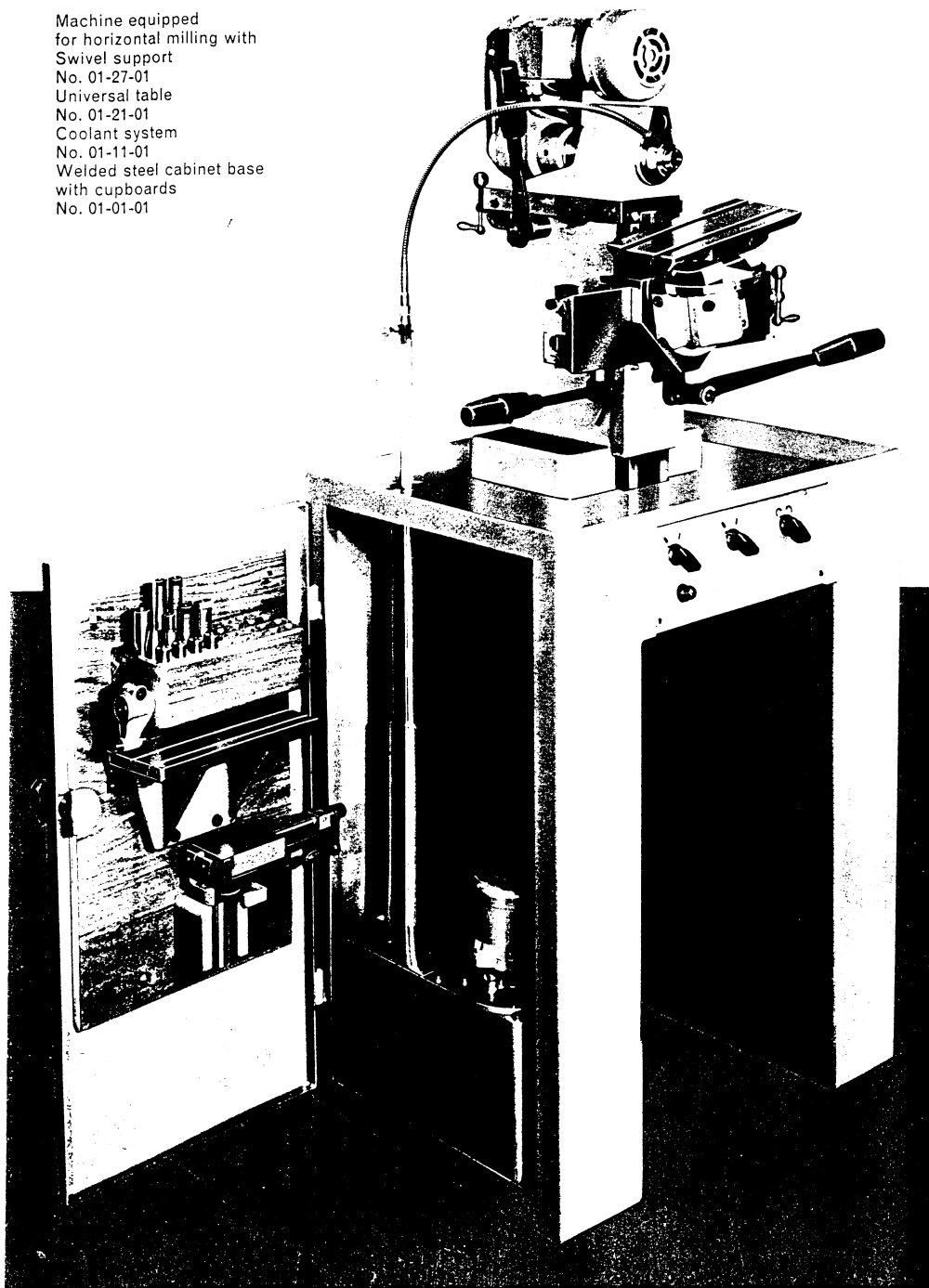
Type	Capacity	Traverse of the table
22 TR 33	22 mm (.87") - M 18 (.71")	278 × 190 mm (10.95" × 7.48")
23/24 TR	23 mm (.91") - M 18 (.71")	400 × 285 mm (15.75" × 11.22")
24 NC	23 mm (.91") - M 18 (.71")	400 × 320 mm (15.75" × 12.6")

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ADAM MACHINE  
EQUIPMENT LTD.,  
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# ACIERA

# Precision Universal Milling Machine, Type F1

Machine equipped  
for horizontal milling with  
Swivel support  
No. 01-27-01  
Universal table  
No. 01-21-01  
Coolant system  
No. 01-11-01  
Welded steel cabinet base  
with cupboards  
No. 01-01-01



# Technical Characteristics

## Standard Equipment

	F1	F1N/F1H
Complete electrical system – three phase	*	*
Feedscrews and levers for traverse in:	3 directions	2 directions
Cutter arbor steady arm with cylindrical support	*	*
Oil-gun for general lubrication	*	*
One set of servicing hexagon keys	*	*
One instruction book	*	*
One plain table No. 01-20-01	*	*
One welded steel cabinet base No. 01-01-01	*	*
One motor reversal switch No. 80-01-1700	*	*

## Motor

Cutter spindle	2800 RPM, 245 W, 0.33 HP
Coolant system	2800 RPM, 70 W, 0.10 HP

## Spindle

For W12 collets and cutter arbors, shank diameter	12 mm
8 Speeds	125-200-310-500-1000-1600-2500-4000 R.P.M

## Traverses

Horizontal, F1: manual	100 mm (3.94")
F1N/F1H: automatic	100 mm (3.94")
Supplementary table movement on slide	200 mm (7.88")
Horizontal – total	150 mm (5.91")
Vertical	75 mm (2.95")
Transverse of the headstock	

## Manual traverses

By feedscrew or by lever:		
Horizontal feedscrew – 1 turn	2 mm (.1")	—
Vertical feedscrew – 1 turn	2 mm (.1")	2 mm (.1")
Transverse feedscrew – 1 turn	2 mm (.1")	2 mm (.1")
Graduated drums – 1 division	0.01 mm (.0005")	0.01 mm (.0005")

## Automatic traverses

Working feed rates	—	10-2000 mm/min (.4"-79"/min)
Rapid advance feed rate	—	4000 mm/min (157"/min)
Max. pressure at the table	—	200 Kp
Air pressure required	—	5-6 bar
Min. supply of air for one forward and return stroke of 100 mm (3.94")	—	3.6 litres
Oil pressure in machine circuit	—	20 bar
Oil capacity of hydraulic unit F1H	—	24 litres

## Capacity

Min./Max. distance	10-160 mm (.39"-6.3")
Plain table – horizontal spindle axis	0-175 mm (0-6.89")
Plain table – vertical spindle nose	60 mm (2.36")
Max. cutter diameter under steady arm support	

## Plain table

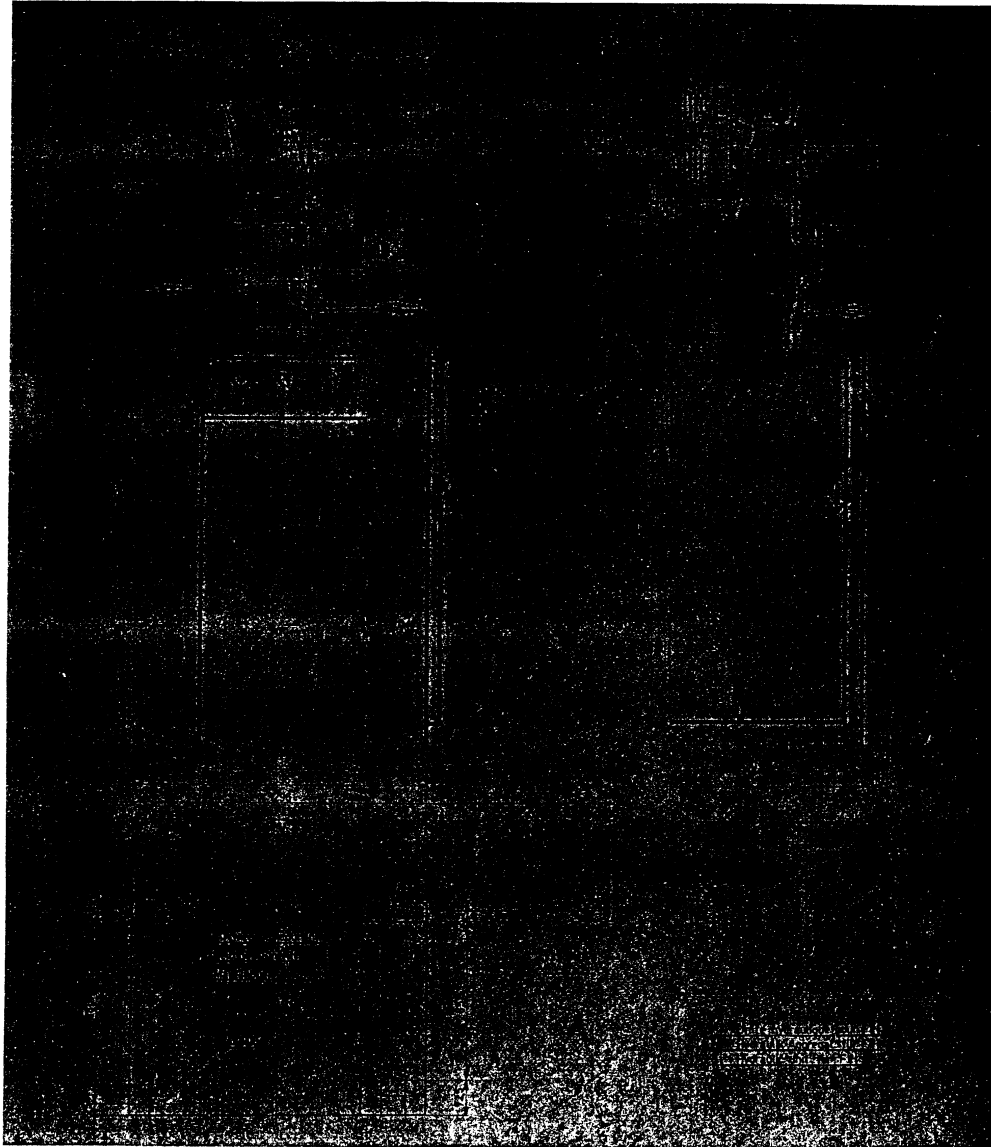
Clamping area	220 × 100 mm (8.66" × 3.94")
3 Tee-slots, distance between	8 mm 35 mm

## Dimensions and Weight

Height	1370 mm (53.93")
Height – ground to horizontal spindle axis	1175 mm (46.25")
Max. area occupied, width × depth	1300 × 530 mm (51.18" × 20.86")
Net weight, without cabinet base, approx.	60 kg (132 lbs)
Net weight, with cabinet base, approx.	120 kg (264 lbs)      120/210 kg (264/463 lbs)

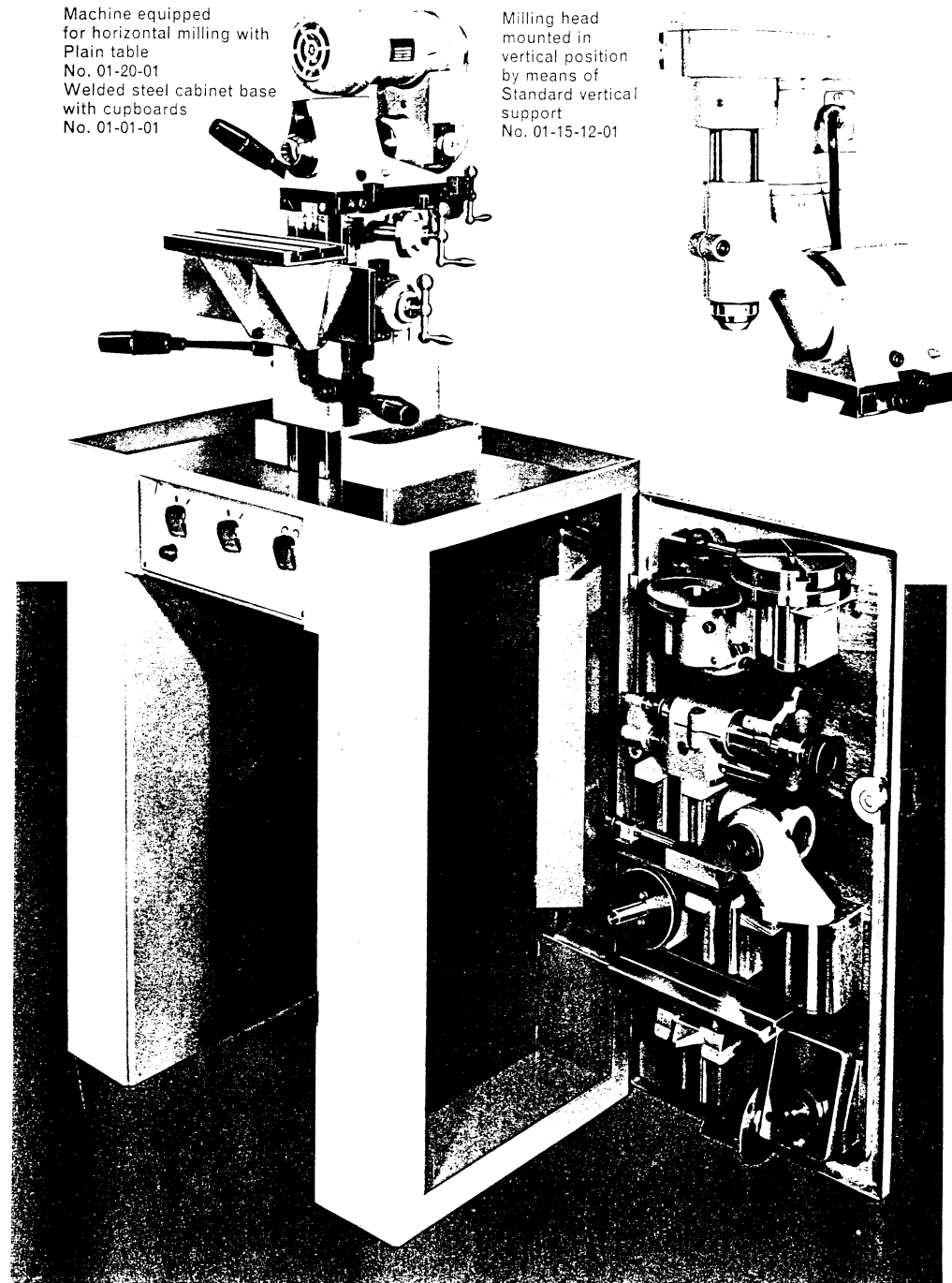
The right to effect modifications is reserved

## Milling Machine F1, F1N, F1H



Machine equipped  
for horizontal milling with  
Plain table  
No. 01-20-01  
Welded steel cabinet base  
with cupboards  
No. 01-01-01

Milling head  
mounted in  
vertical position  
by means of  
Standard vertical  
support  
No. 01-15-12-01



# Precision Universal Milling Machine, Type F1

The ACIERA F1 small precision milling machine has been designed to meet the demanding standards of micro-mechanics. In the fields of utilization we can cite horology, electronics, jewellery tooling, moulds, optics, small punches, electrodes and dental instruments. For second-operation work on turned parts there is the ACIERA F1-S, solely for lever-operation, without feedscrews and cranked handles.

## Precise and Versatile

**High Speed**  
The ACIERA F1 is equipped with a high speed motor, which allows a maximum spindle speed of 2000 rpm. This high speed is achieved by means of a special gear train, which is designed to provide a constant speed over the entire range of operation.

**Reaction**  
The motor is mounted on a special support, which allows the machine to operate without vibration. This is achieved by means of a special design, which allows the machine to operate without vibration.

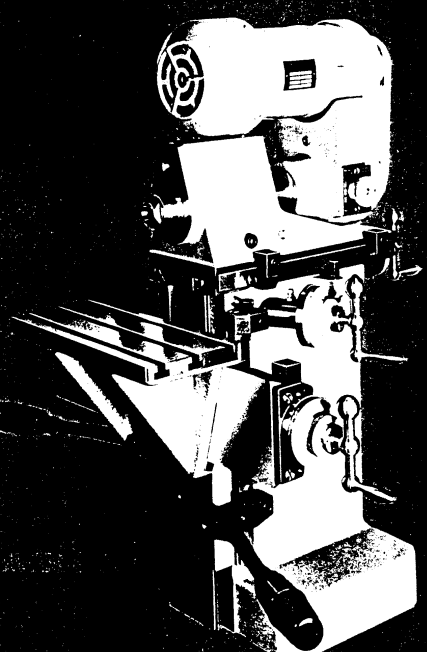
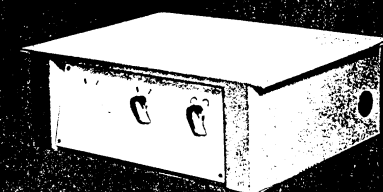
**Worktable**  
The worktable is made of a special material, which allows it to operate without vibration. This is achieved by means of a special design, which allows the machine to operate without vibration.

**Automatic Feeds**  
The machine is equipped with automatic feeds, which allow it to operate without vibration. This is achieved by means of a special design, which allows the machine to operate without vibration.

**Rapid Feed**  
The machine is equipped with a rapid feed, which allows it to operate without vibration. This is achieved by means of a special design, which allows the machine to operate without vibration.

**Vertical Compensation by Spring**  
The machine is equipped with a vertical compensation by spring, which allows it to operate without vibration. This is achieved by means of a special design, which allows the machine to operate without vibration.

**Separate Control**  
The machine is equipped with a separate control, which allows it to operate without vibration. This is achieved by means of a special design, which allows the machine to operate without vibration.

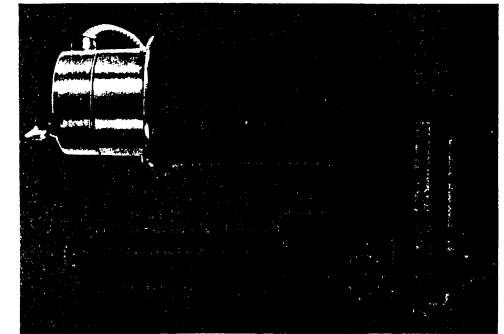



# Special Equipment for F1N and F1H

## Motor Brake

Order No. 80-51-1800

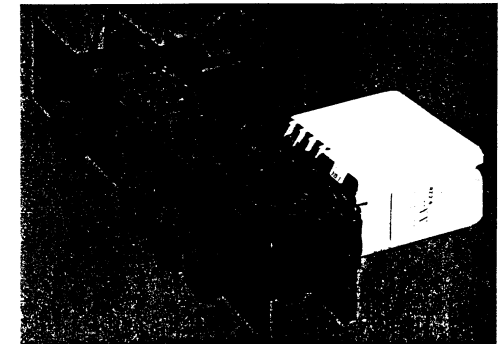
Stops the cutter spindle automatically at the end of the machining cycle. Electro-magnetic brake mounted on the end of the motor shaft. Operates at zero voltage. Safety for the operator. Reduction in idle times when changing workpieces.



## Dwell Relay

Order No. 80-12-1200

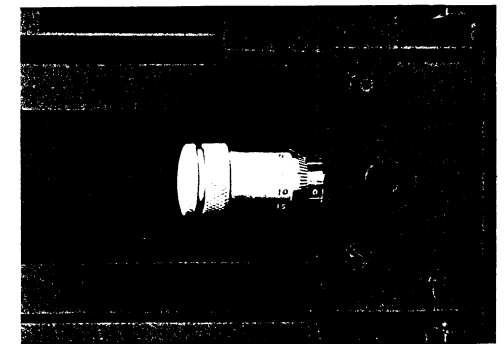
Set to 0.5 seconds. Complements the travel limit stop by holding the table against the stop for half a second (completion of the milling pass).



## Micrometer Stop

Order No. 01-76-0103-01

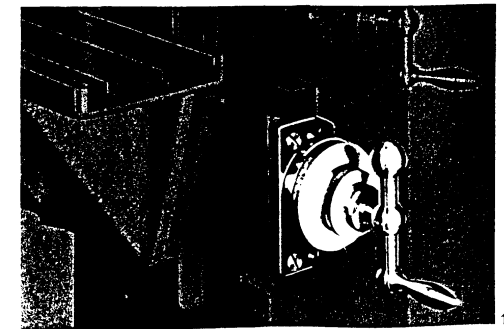
Replaces the simple travel limit stop. 1 division 0.02 mm (.001")



## Longitudinal Movement by Feedscrew and Cranked Handle

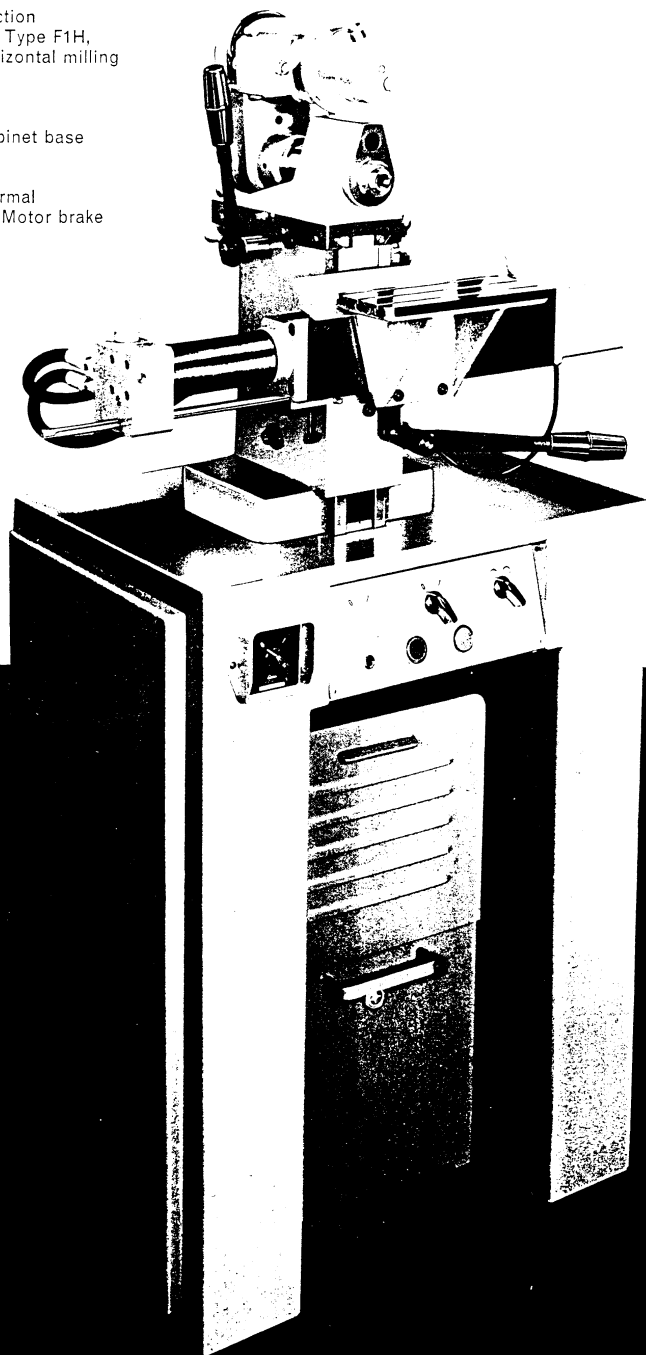
Order No. 01-76-0113-01

Mounted on the right side of the slide, without having to dismantle the cylinder. Graduated drum, diameter 56 mm (2.20") 1 division 0.01 mm (.0005") Manual traverse 100 mm (3.94")



# Universal Production Milling Machines, F1N and F1H

Universal production milling machine, Type F1H, equipped for horizontal milling with  
 Plain table  
 No. 01-20-01  
 Welded steel cabinet base with cupboards  
 No. 01-01-01,  
 supplied with normal accessories and Motor brake  
 No. 80-51-1800

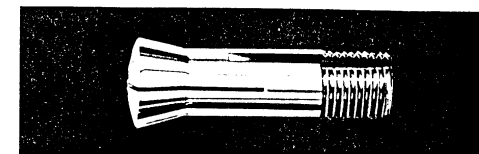


## Accessories

### Collet Type W 12

Order No. 54-31-01

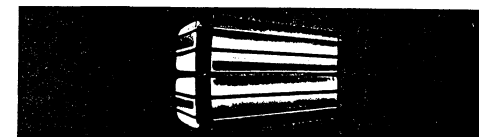
Shank diameter 12 mm  
 Range in 0.5 mm steps ( $1/32''$ ) 0.5-10 mm ( $1/32''$ - $3/8''$ )  
 Max. capacity (through) 8 mm ( $.31''$ )  
 Net weight 0.05 kg (1.75 ozs)



### Double Taper Collet ESX 16

Order No. 54-34-11

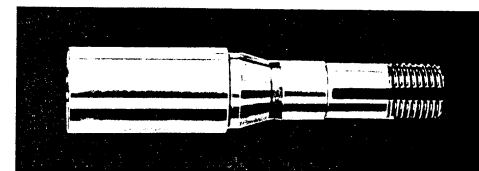
For the drilling attachment No. 01-15-16-01  
 Dia. 1-3 mm, in 0.5 mm steps, compressible by 0.5 mm  
 Dia. 4-10 mm, in 1 mm steps, compressible by 1 mm  
 Net weight 0.025 kg (1 ozs)



### Adaptor Sleeve MT1

Order No. 85-12-1013-46

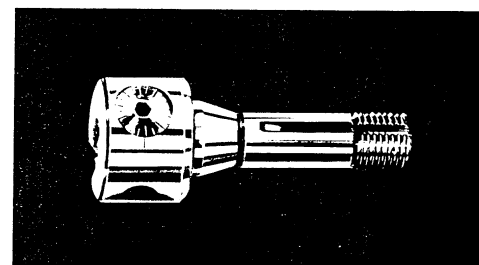
Reduction W12/MT1  
 Length L 35 mm (1.38'')  
 Net weight 0.05 kg (1.75 ozs)



### Boring Head

Graduations		Order No.
Metric	0.01 mm	54-80-1000-01
Inch	.0005''	54-80-1000-02

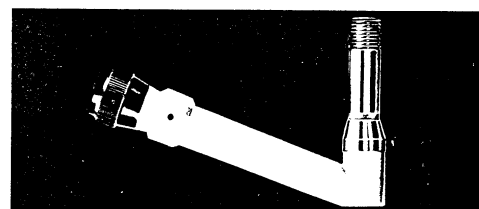
Supplied in wooden box with 3 tools and one key  
 Spindle insert W12  
 Boring range 2 to 100 mm (.08''-3.94'')  
 Diameter of tools 6 mm (.24'')  
 Radial travel of slide 5 mm (.2'')  
 Diameter of head x length L 26 x 21 mm (1.02'' x .83'')  
 Net weight with box 0.3 kg (10.5 ozs)



### Centering Microscope

Order No. 85-12-5023-88

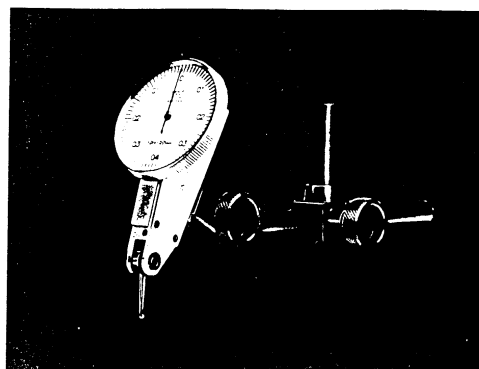
Supplied in wooden box  
 Spindle insert W12  
 Magnification 25x  
 Distance objective-workpiece 20 mm (.79'')  
 Distance L 23 mm (.91'')  
 Net weight with box 0.4 kg (14 ozs)



### Measuring-device "TESATAST"

Graduations		Order No.
Metric	0.01 mm	54-55-1000-14
Inch	.0005''	54-55-1000-15

supplied in a wooden box with:  
 3 interchangeable contact points with key  
 2 swivel clamps  
 1 angular clamp  
 2 cylindrical shanks  
 This antimagnetic device permits centering and positioning of workpieces.  
 Centering range, bore diameters 3-300 mm (.12''-1.18'')  
 Dial dia. 38 mm (1.50'')  
 Weight of the wooden box with tooling 0.450 kg (1 lb)  
 To be used with collets dia. 8 mm

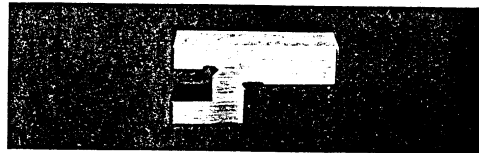


# Accessories

## Adjusting Angle

Order No. 54-51-1000-01

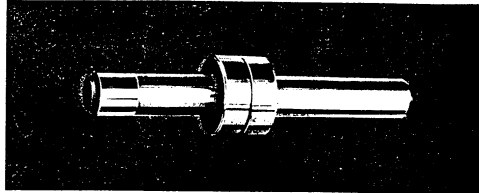
Permits the spindle axis to be centered in relation to a reference face, using the measuring-device Tesatast.  
Net weight 0.1 kg (3.5 ozs)



## “MARWA” Centering Device

Order No. 54-55-1000-03

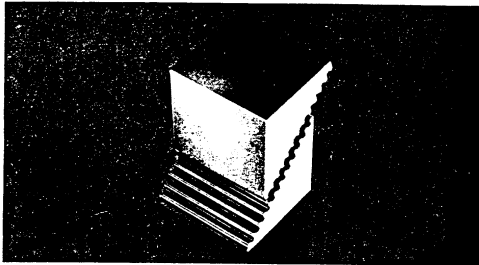
Permits the spindle axis to be centered in relation to a reference face.  
Diameter of shaft 6 mm  
Centering accuracy 0.005 mm (.0002")  
Net weight 0.05 kg (1.8 ozs)



## Adjustable Packing Block

Order No. 54-23-1000-01

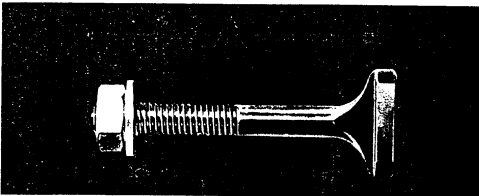
tempered and ground  
Height adjustable in steps of 1.4 mm (.055")  
Min. height 25 mm (1")  
Max. height 33 mm (1.3")  
Thickness 38 mm (1.5")  
Net weight 0.15 kg (5.3 ozs)



## Clamping Bolt

tempered, diameter 6 mm

A	L min.	L max.	Order No.
30 mm (1.18")	8 mm (.32")	18 mm (.71")	86-20-0600-30
50 mm (1.97")	18 mm (.71")	38 mm (1.5")	86-20-0600-50
Net weight			0.03-0.04 kg (1.05-1.4 ozs)



## Clamping Piece, Closed

Order No. 86-70-0600-40

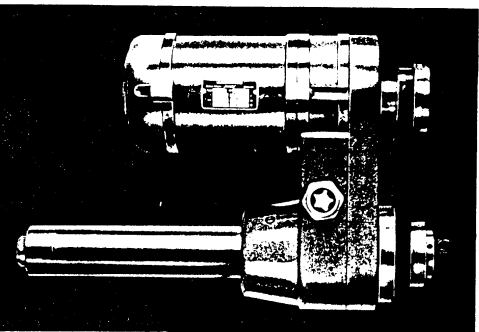
tempered  
Total length 40 mm (1.57")  
Thickness 7 mm (.27")  
Net weight 0.05 kg (1.8 ozs)



## Quill with Bronze Bearings

Order No. 01-06-12-51

For work with diamond tools, foreseen principally for Type F1N  
Installed in place of the standard quill.  
Without gear-box.  
Spindle speeds 1000-1700-3000 RPM



# Universal Production Milling Machines, F1N and F1H

## Construction

The two universal production milling machines F1N and F1H, have been developed from the widely-known universal toolroom milling machine Type F1. The accessories offered are common to all three types of machine.

**Automatic Horizontal Travers**

**ACIESA F1N**

**ACIESA F1H**

Swivel ○ Stop ○ Automatic ○

Table traverse (dashed line)

Handing (solid line)

# Accessories

## Cutter Arbor - short

Hardened and ground, with distance rings and nut, without key.

D	L	d	A	Order No.
4	11	8	22	85-12-0040-09
5	11	9	20	85-12-0050-09
6	11	11	14	85-12-0060-09
8	12	16	14	85-12-0080-09
10	14	16	7	85-12-0100-09
12	15	20	7	85-12-0120-09
13	15	20	7	85-12-0130-09
16	15	22	7	85-12-0160-09

D	L	d	A	Order No.
3/16"	7/16"	23/64"	53/64"	85-13-0316-09
1/4"	7/16"	7/16"	9/16"	85-13-0140-09
5/16"	15/32"	5/8"	9/16"	85-13-0516-09
3/8"	35/64"	5/8"	9/32"	85-13-0380-09
7/16"	19/32"	25/32"	9/32"	85-13-0716-09
1/2"	19/32"	25/32"	9/32"	85-13-0120-09
5/8"	19/32"	7/8"	9/32"	85-13-0580-09

Net weight 0,05-0,12 kg (1.75-4.20 ozs)

## Cutter Arbor - long

Hardened and ground, with distance rings and nut, without key.

D	L	d	A	Order No.
4	13	8	45	85-12-0040-15
5	15	9	38	85-12-0050-15
6	20	11	35	85-12-0060-15
8	24	16	25	85-12-0080-15
10	40	16	7	85-12-0100-15
12	40	20	7	85-12-0120-15
13	40	20	7	85-12-0130-15
16	40	22	7	85-12-0160-15

D	L	d	A	Order No.
3/16"	19/32"	23/64"	1 1/2"	85-13-0316-15
1/4"	25/32"	7/16"	1 3/8"	85-13-0140-15
5/16"	15/16"	5/8"	1"	85-13-0516-15
3/8"	137/64"	5/8"	9/32"	85-13-0380-15
7/16"	137/64"	25/32"	9/32"	85-13-0716-15
1/2"	137/64"	25/32"	9/32"	85-13-0120-15
5/8"	137/64"	7/8"	9/32"	85-13-0580-15

Net weight 0,08-0,18 kg (2.80-6.30 ozs)

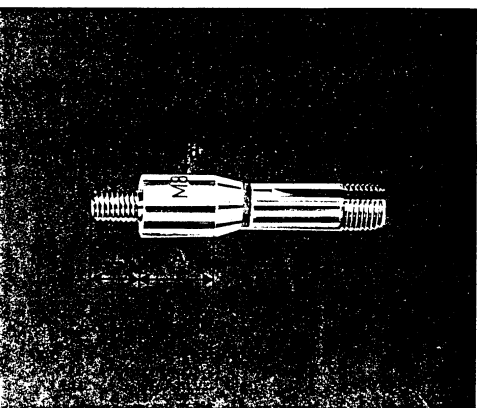
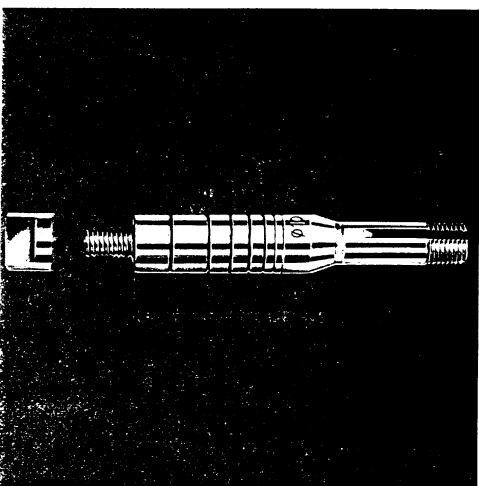
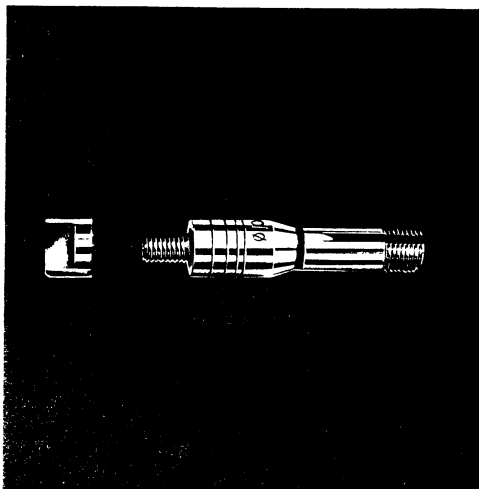
## Cutter Arbor - threaded

Hardened and ground.

D	L	d	A	Order No.
M6	9	11,5	18	85-12-0060-28
M8	12	16	18	85-12-0080-28
M10	15	16	12	85-12-0100-28
M12	18	20	12	85-12-0120-28

D	L	d	A	Order No.
3/16"	17/64"	3/8"	23/32"	85-13-0316-28
1/4"	23/64"	23/64"	5/8"	85-13-0140-28
5/16"	15/32"	5/8"	23/32"	85-13-0516-28
3/8"	19/32"	5/8"	15/32"	85-13-0380-28
7/16"	5/8"	5/8"	15/32"	85-13-0716-28
1/2"	43/64"	25/32"	15/32"	85-13-0120-28
5/8"	15/16"	7/8"	9/32"	85-13-0580-28

Net weight 0,05-0,06 kg (1.75-2.10 ozs)



# Universal Production Milling Machines, F1N and F1H

## Productive, Precise, Robust and Simple

- Quick to put into service without special preparation
- High production by reducing idle times and risks of error
- Travel limitation by means of a micrometer stop graduated to 0.02 mm (0.001") and dwell relay set to 0.5 seconds (on request)
- Perfect surface finishes by means of table feed rates infinitely variable from 10 to 2000 mm/min (4"-79"/min)

- Utilisation of diamond-tools on the milling machine Type F1N with hydro-pneumatic longitudinal table feed, equipped on request with the "Quill with bronze bearings No. 01-06-12-51"
- Work feed start-up smooth and free from jerks
- Climb milling
- Return of the table to its starting position in the event of current failure
- Easy operation of the machine without fatigue to the operator

## Utilisation:

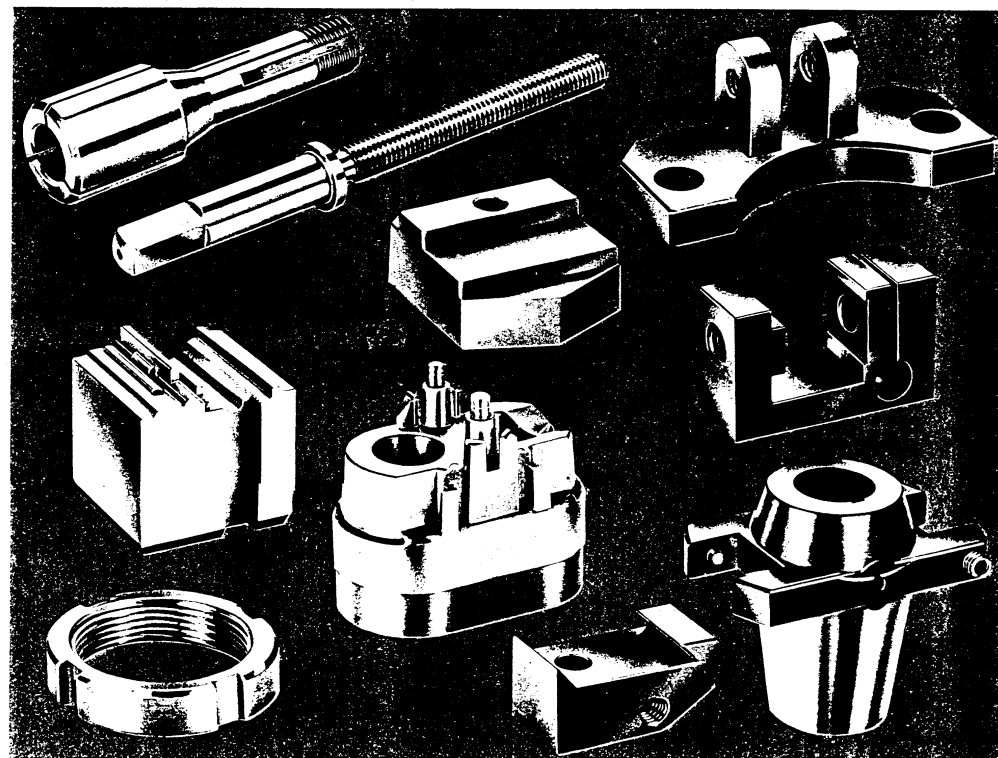
For machining small workpieces in small or large series. The machine Type F1N is specially recommended for working with diamond tools.

- Horology
- Optical instruments
- Measuring instruments
- Surgical and dental instruments
- Aeronautics, aerospace
- Accoustic and recording material
- Electronics
- Second operations on turned parts
- Jewellery

## F 1 NC

This machine is equipped with or without contouring device and is specially recommended for machining complicated workpieces in small or medium series, as well as for educational purposes. Ask for our special documentation.

Examples of workpieces machined on F1, F1N, F1H

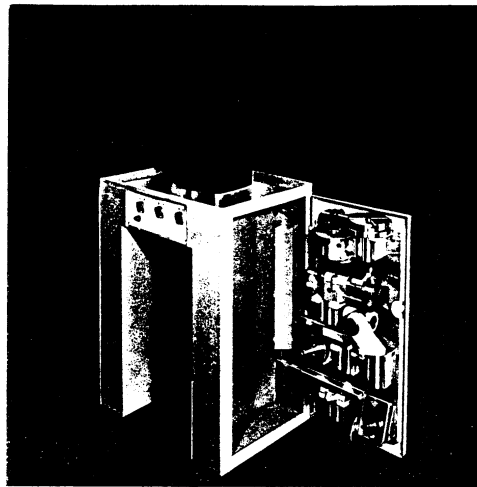


## Special Equipment

### Welded Steel Cabinet Base

Order No. 01-01-01

Including two cupboards for tooling and accessories.  
Net weight 56 kg (123 lbs)

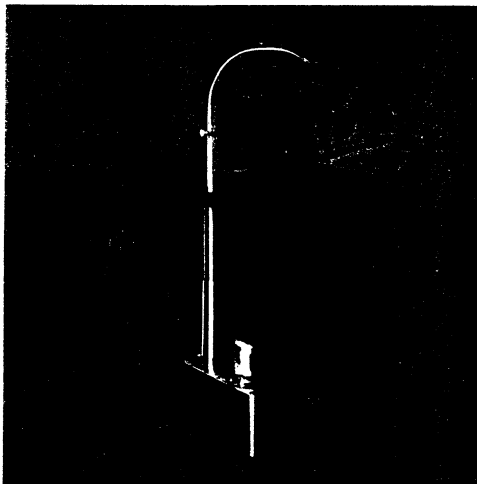


### Coolant System

Solely for machine on cabinet base

Order No. 01-11-01

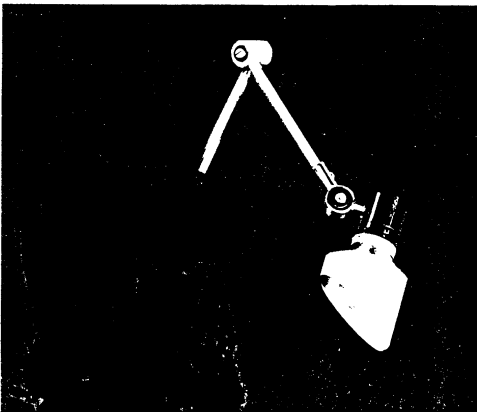
Electric pump - 2800 RPM - 70 watts.  
Reservoir lodged in cabinet base, capacity 6 litres,  
piping and tap, delivery with emulsion 1,8 l/min.



### Lighting

Order No. 80-32-1000

Articulated lamp 24 V - 25 W.



### Reversal Switch

Not illustrated.

Order No. 80-01-1700

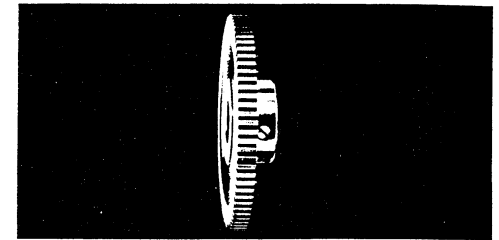
Makes available two directions of rotation to the milling spindle.

## Accessories

### Supplementary Dividing Plate

for dividing heads Nos. 01-30-12-01 and 01-30-12-11

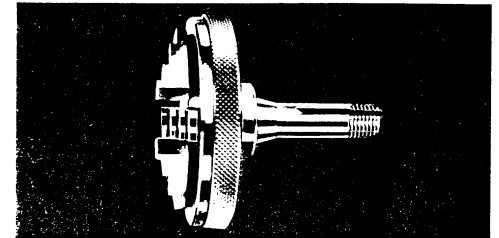
Divisions	Material	Order No.
2- 17	Cast-iron	01-31-1034-01
18-120	Cast-iron	01-31-1044-01
121-180	Steel	01-31-1054-01
State number of divisions required		
Diameter of dividing plate		90 mm (3.54")
Net weight		0.4 kg (14 ozs)



### Three-Jaw Chuck, Extra Flat

Order No. 85-99-0073-01

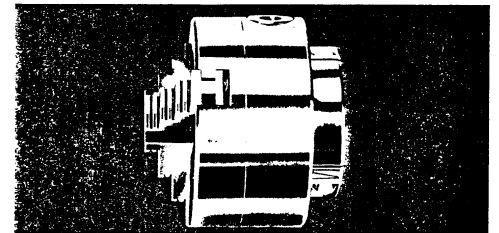
For light machining  
Quick tightening by knurled ring  
Mounted on W 12 spindle insert  
1 Set of reversible jaws, ext. cap. 15-70 mm (.59"-2.76")  
int. cap. 0-70 mm (0-2.76")  
Diameter of chuck 70 mm (2.76")  
Overhang of the head 30 mm (1.18")  
Net weight 0.4 kg (14 ozs)



### Three-Jaw Chuck

Order No. 85-99-0083-01

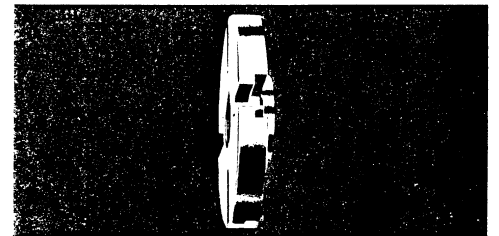
Mounted on backplate with thread dia. 22.6 x 2 mm  
2 Sets of jaws, int cap. 16-80 mm (.63"-3.15")  
ext cap. 0-80 mm (0-3.15")  
Diameter of chuck 70 mm (2.76")  
Total height 65 mm (2.56")  
Net weight 1.35 kg (2.97 lbs)



### Circular Clamping Plate

Order No. 01-31-0113-01

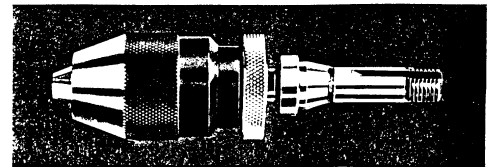
Pitch of internal thread dia. 22.6 x 2 mm  
Diameter of plate 80 mm (3.15")  
Total height 16 mm (.63")  
4 Tee-slots, at 90°, width 8 mm  
Net weight 0.3 kg (10.5 ozs)



### Keyless Drill-Chuck

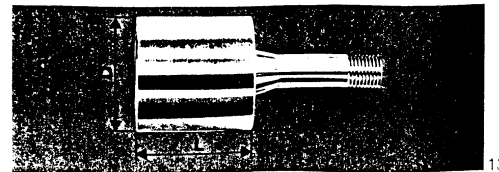
Order No. 85-12-5003-89

Mounted on W 12 spindle insert  
Clamping capacity 0-6.5 mm (0-.26")  
Diameter x overhang dia. 35 x 78 mm (1.38" x 3.07")  
Net weight 0.4 kg (14 ozs)



### Cutter Arbor, - unfinished

D	L	Net weight	Order No.
20 mm (.79")	40 mm (1.57")	0.1 kg (3.5 ozs)	85-12-0200-34
20 mm (.79")	100 mm (3.94")	0.25 kg (8.75 ozs)	85-12-0201-34



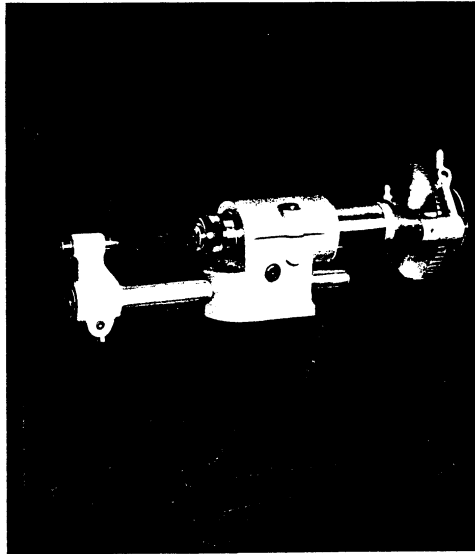


## Accessories

### Simple Dividing Head

Order No. 01-30-12-01

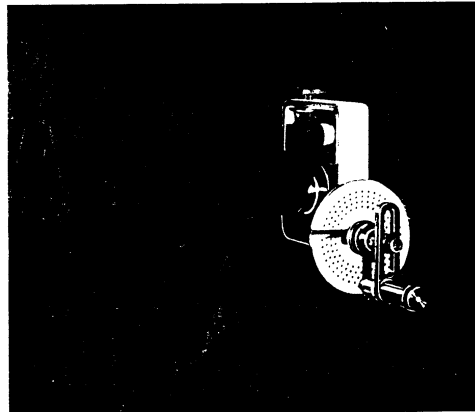
Is mounted in the swivel support No. 01-27-01  
 Supplied with 60 division dividing plate and tailstock.  
 Diameter of quill 35 mm  
 Spindle for collets and arbors, type W 12  
 Spindle nose thread - Schäublin 22.6 x 2 mm  
 Centre height 30 mm (1.18")  
 Max. distance between centres 100 mm (3.94")  
 Diameter of 60 notch dividing plate 90 mm (3.54")  
 Min./Max. distance between:  
 a) Axis of horizontal spindle and dividing head axis 0-110 mm (0-4.33")  
 b) Vertical spindle nose and dividing head axis 0-125 mm (0-4.92")  
 c) Dividing head axis and nose of horizontal spindle 0-100 mm (0-3.94")  
 (Dividing head in horizontal position and parallel to the horizontal slide)  
 Inclination to left/to right 45° - 0 - 100°  
 Rotation in the horizontal plane 180°  
 Net weight 4.8 kg (10.56 lbs)



### Universal Dividing Head

Order No. 01-31-12-01

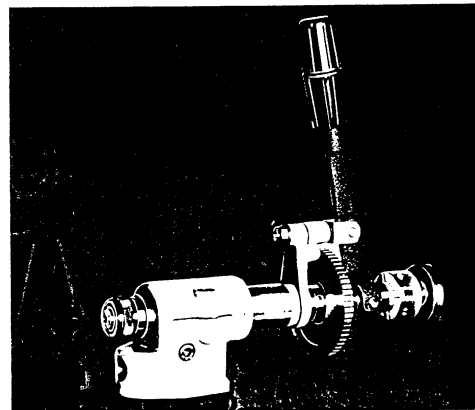
Is mounted on the end of the dividing head No. 01-30-12-01  
 Cannot be utilized on the dividing head No. 01-30-12-11  
 Supplied with 3 perforated dividing plates  
 Net weight of the attachment only 2.2 kg (4.84 lbs)



### Simple Dividing Head with Quick Clamping Device

Order No. 01-30-12-11

Is mounted in the swivel support No. 01-27-01  
 Supplied with 60 division dividing plate and tailstock  
 Same characteristics as the simple dividing head No. 01-30-12-01  
 Length of lever from dividing head axis 180 mm (7.09")  
 Net weight 5.5 kg (12.10 lbs)  
 The universal dividing head No. 01-31-12-01 cannot be mounted on this dividing head with quick clamping.

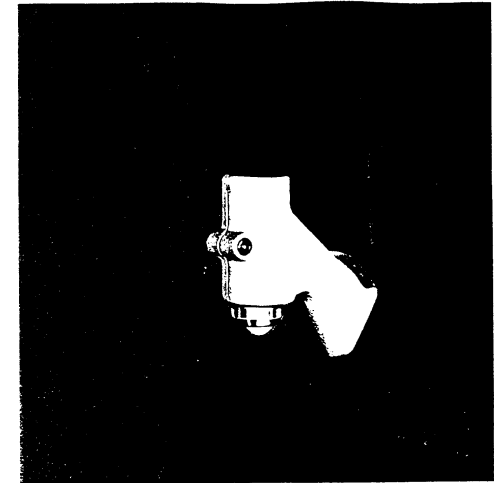


## Accessories

### Standard Vertical Support

Order No. 01-15-12-01

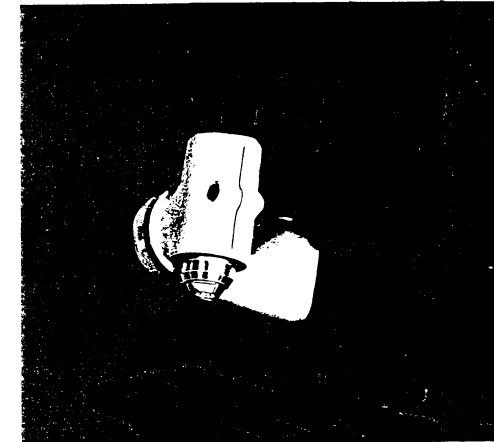
For mounting the milling head in the vertical position.  
 Bore diameter 40 mm  
 Swivels to left/to right 45° - 0 - 45°  
 Min./Max. distance between:  
 a) Spindle nose and plain table 0-175 mm (0-6.88")  
 b) Spindle nose and universal table 0-130 mm (0-5.12")  
 c) Spindle axis and column 45-120 mm (1.77"-4.72")  
 Net weight 3.2 kg (7 lbs)



### Universal Vertical Support

Order No. 01-15-12-11

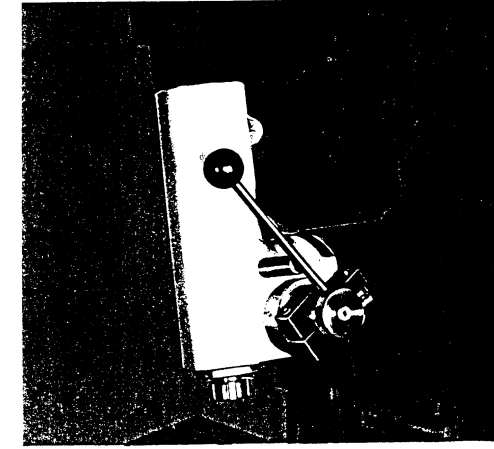
For mounting the milling head in the vertical position.  
 Bore diameter 40 mm  
 Swivels to left/to right 45° - 0 - 45°  
 Tilts forwards/backwards 45° - 0 - 15°  
 Min./Max. distance between:  
 a) Spindle nose and plain table 0-175 mm (0-6.88")  
 b) Spindle nose and universal table 0-130 mm (0-5.12")  
 c) Spindle nose and compound vice 0-140 mm (0-5.51")  
 d) Spindle nose and dividing head horizontal spindle axis 0-125 mm (0-4.92")  
 e) Spindle axis and column 45-120 mm (1.77"-4.72")  
 Net weight 5 kg (11 lbs)



### Drilling Attachment

Order No. 01-15-16-01

Bore diameter 40 mm  
 Swivels to left/to right 45° - 0 - 45°  
 Drilling depth 65 mm (2.56")  
 Spindle taper for double-taper collets ES 16  
 Clamping range of double-taper collets 1-9 mm  
 Min./Max. distance between:  
 a) Spindle nose and plain table 0-105 mm (0-4.13")  
 b) Spindle nose and universal table 0-65 mm (0-2.56")  
 c) Spindle nose and compound vice 0-75 mm (0-2.95")  
 d) Spindle nose and dividing head horizontal spindle axis 0-55 mm (0-2.16")  
 e) Spindle axis and column 45-120 mm (1.77"-4.72")  
 Net weight 9 kg (19.8 lbs)

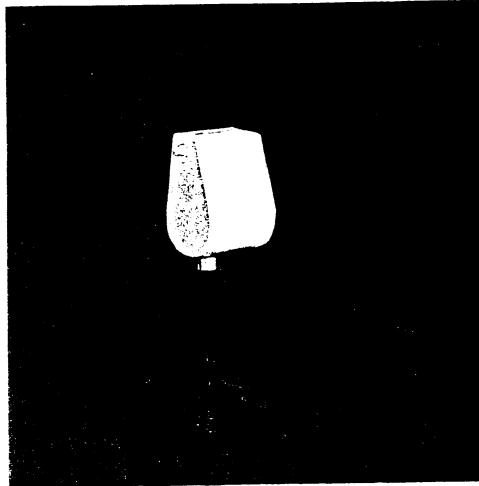


For ES 16 collets, see Page 15.

## Accessories

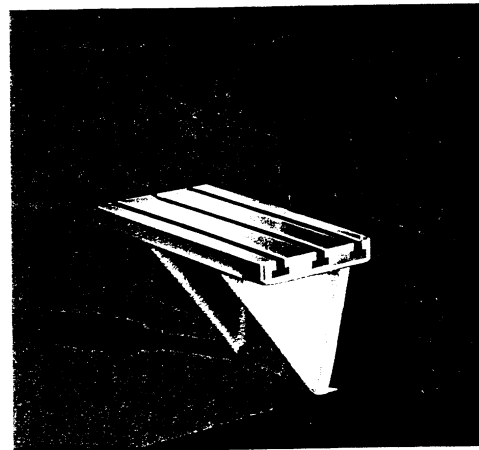
### Slotting Attachment

	<b>Order No. 01-17-01</b>
Stroke of tool, not adjustable	10 mm (.39")
Range of strokes per minute	125-200
Max. vertical distance from plain table	110 mm (4.33")
Max. distance between slotting attachment axis and column	82 mm (3.23")
Diameter of tool	8 mm (.32")
Net weight	1.9 kg (4.2 lbs)



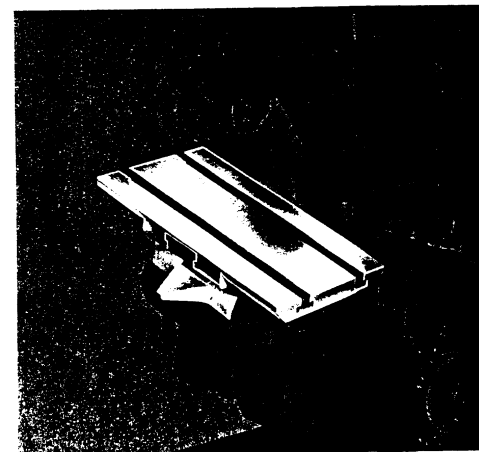
### Plain Table

	<b>Order No. 01-20-01</b>
Clamping area	220 x 100 mm (8.66" x 3.94")
3 Tee-slots, width	8 mm
distance between	35 mm
Min./Max. distance between:	
a) Axis of horizontal spindle and table	10-160 mm (.39"-6.3")
b) Vertical spindle nose and table	0-175 mm (0-6.88")
Net weight	4.1 kg (9.02 lbs)



### Universal Table

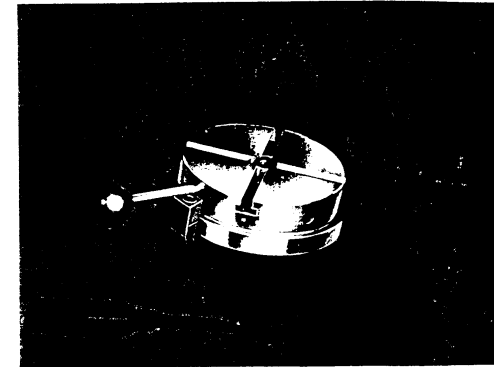
	<b>Order No. 01-21-01</b>
Is mounted in the swivel support No. 01-27-01	
Clamping area	220 x 100 mm (8.66" x 3.94")
2 Tee-slots, width	8 mm
distance between	50 mm
Min./Max. distance between:	
a) Axis of horizontal spindle and table	0-120 mm (0-4.72")
b) Vertical spindle nose and table	0-130 mm (0-5.12")
Tilting forwards/backwards	30° - 0 - 30°
Swivelling to left/to right	25° - 0 - 25°
Rotation in the horizontal plane	30° - 0 - 30°
Net weight	4.4 kg (9.68 lbs)



## Accessories

### Rotary Table

	<b>Order No. 01-22-01</b>
Is mounted in the swivel support No. 01-27-01	
Table diameter	120 mm (4.72")
4 Tee-slots at 90°, width	8 mm
Threaded holes for rotating lever, positioned every	90°
Stops for rotating lever:	2
Graduation of platform	360°
Centering hole, in centre of table	dia. 5-H6 mm
Swivels to left/to right	20° - 0 - 20°
Max. rotation between 2 stops	190°
Min./Max. distance between:	
a) Axis of horizontal spindle and table	0-135 mm (0-5.32")
b) Vertical spindle nose and table	0-145 mm (0-5.71")
Net weight	3.4 kg (7.48 lbs)



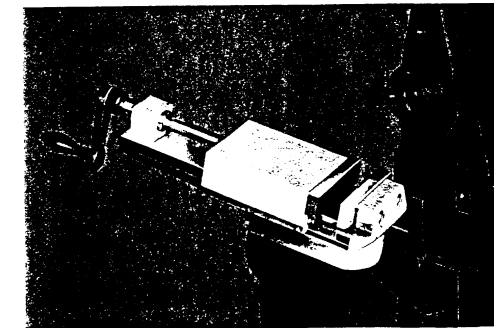
### Swivel Support

	<b>Order No. 01-27-01</b>
Essential for mounting the universal table, rotary table, vices and dividing heads.	
Swivels to left/to right	45° - 0 - 100°
Centre bore diameter	35 mm (1.38")
Net weight	4.5 kg (9.9 lbs)



### Rotating Vice

	<b>Order No. 01-26-11</b>
Is mounted in the swivel support No. 01-27-01	
Maximum opening of jaws	55 mm (2.16")
Size of jaws	15.5 x 60 mm (.61" x 2.36")
Swivels to left/to right	45° - 0 - 100°
Rotation in the horizontal plane	180°
Min./Max. distance between:	
a) Axis of horizontal spindle and vice	0-140 mm (0-5.51")
b) Vertical spindle nose and vice (vice in horizontal position) measured from the support face	0-150 mm (0-5.91")
Net weight	2.8 kg (6.16 lbs)



### Rotating and Inclinable Vice

	<b>Order No. 01-26-21</b>
Is mounted in the swivel support No. 01-27-01	
Maximum opening of jaws	55 mm (2.16")
Size of jaws	15.5 x 60 mm (.61" x 2.36")
Swivels to left/to right	45° - 0 - 100°
Rotation in the horizontal plane	180°
Inclinable through	0-90°
Min./Max. distance between:	
a) Axis of horizontal spindle and vice	0-130 mm (0-5.12")
b) Vertical spindle nose and vice (vice in horizontal position) measured from the support face	0-140 mm (0-5.51")
Net weight	2.7 kg (5.94 lbs)

