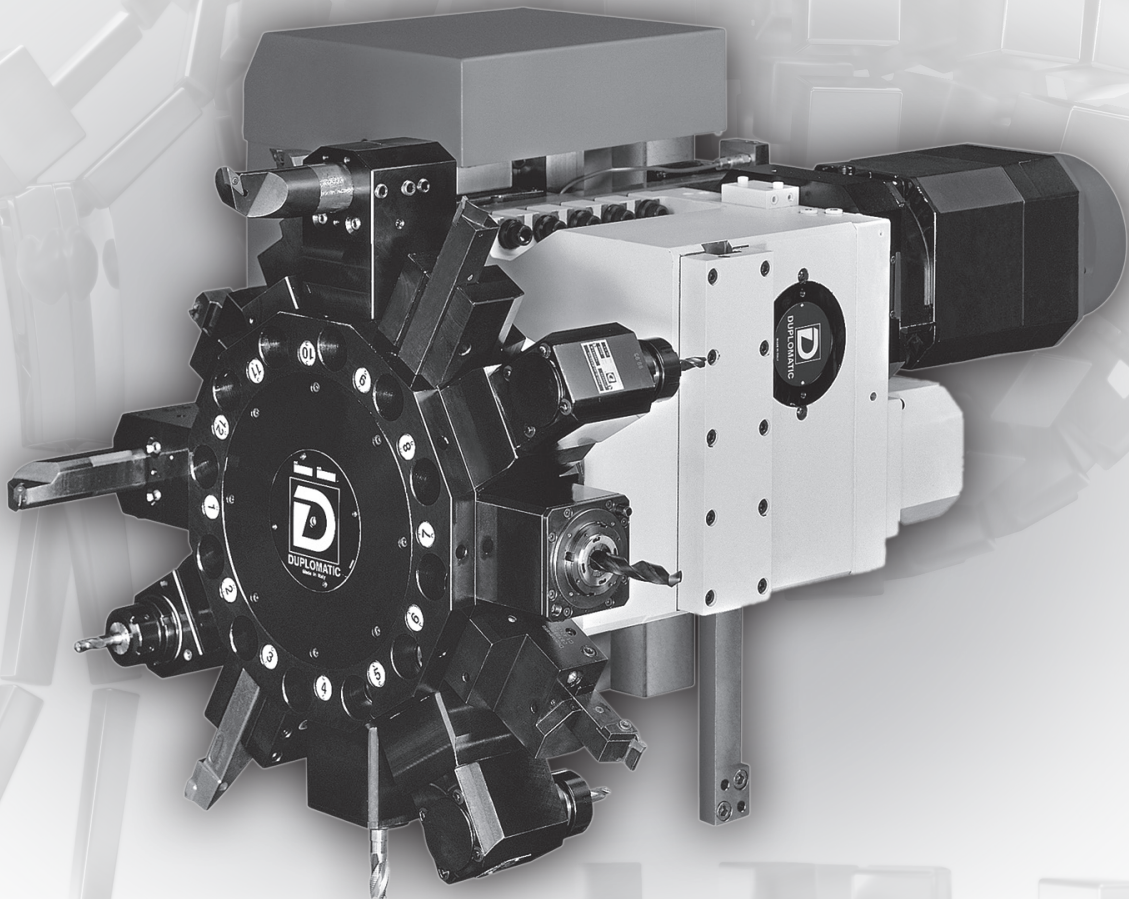




**DIPLOMATIC**  
AUTOMATION



# TMY-B\* series 11

## TURN-MILL TURRET WITH Y-AXIS

(PATENTED)



TECHNICAL INFORMATION

# I.T. 6471

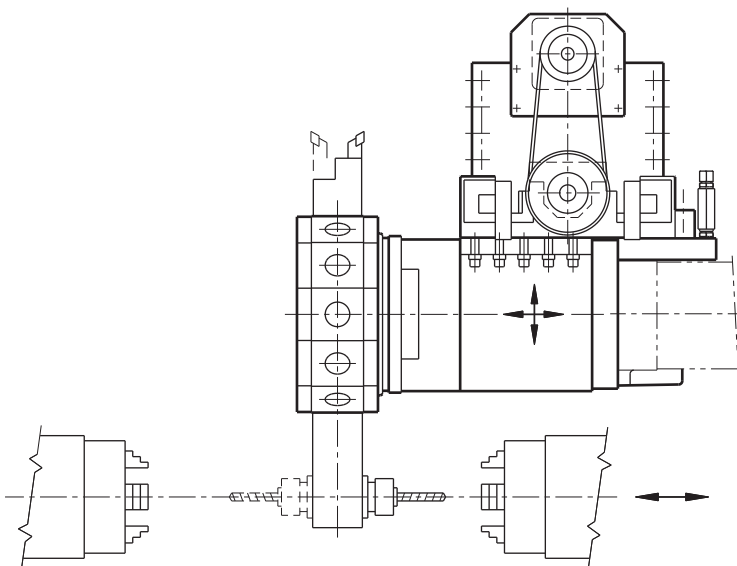
**GB** ISSUED **03-09**

The data given in the I.T. are subject to technical modifications without notice.

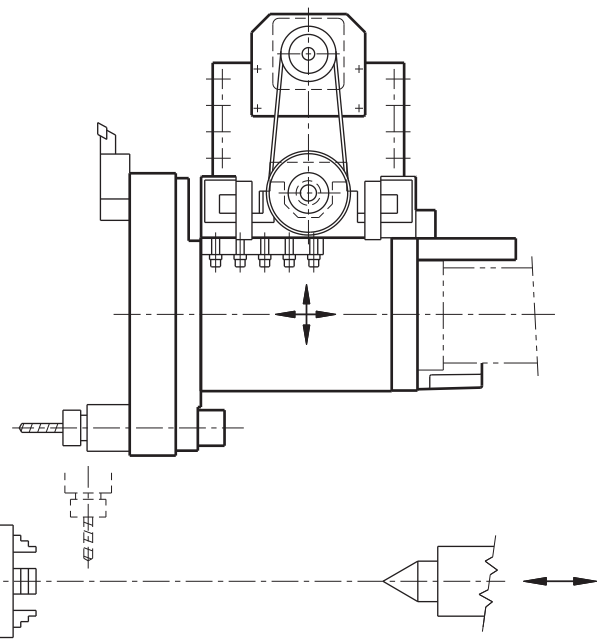
- High stiffness and accuracy thanks to the structure configuration and to slideway sizing.
- Original clamping system (Patented) allowing the maximum rigidity for turning operations.
- High strokes.
- Modular concept, with standard turrets, for a cost-effective solutions.
- Front and back-machining.

### COMPLETE RANGE

- **SM-BR** radial driven tool turret. (refer to I.T. 6445)
- **SM-BA** axial driven tool turret.



**TMY-BA**  
Whit **SM-BA** turret and axial disc  
for front machining



**TMY-BR**  
Whit **SM-BR** turret and radial disc  
for front and back-machining

**“Y” axis**

Size	TMY-B*		12/16 <sup>(1)</sup>	16	20	25
Motor torque (S1)	Tmax	Nm	3	3	6	13
Motor max speed	n max	RPM	4.000	4.000	4.000	4.000
Pitch of ball screw	P	mm	5	5	5	5
Gear transmission	I		1:2	1:2	1:2	1:2
Max speed	V	m/min	10	10	10	10
Working stroke	Y	mm	±40	±40	±60	±70
Max stroke	Y max	mm	±50	±50	±65	±75
Position accuracy $\Delta y$	Motor encoder	$\mu m$	≤ 20	≤ 20	≤ 20	≤ 20
	Linear encoder (optional)		≤ 10	≤ 10	≤ 10	≤ 10
Hydraulic brake on slides	pressure Pmax	bar	100	100	100	100
	(2) clamping force (in "Y" direction)	N/bar	65	65	65	86,5
Motor (with brake) (3)	SIEMENS AC servomotor		1FK6042	1FK6042	1FT6062	1FT6082
	FANUC AC spindle motor		α4	α4	α8	α12

(1) SM-B\* 12 turret is fitted on "Y" axis 16 size.

(2) For friction factor 0,13.

(3) Other motors on request.

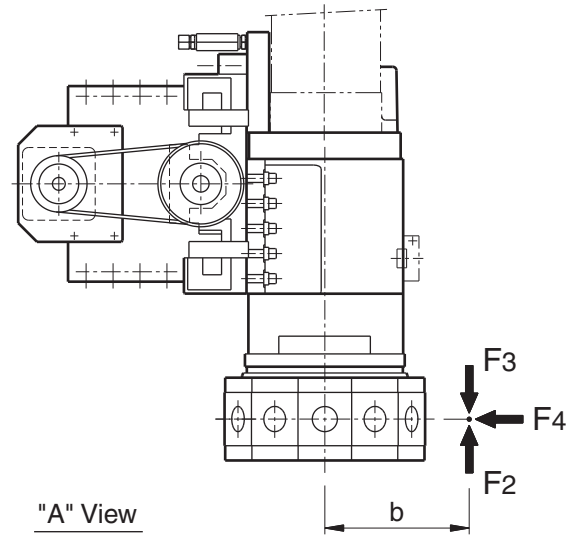
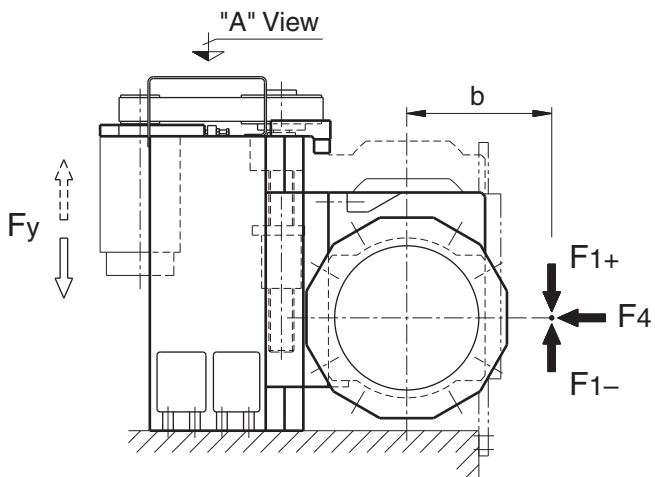
**Turret (4)**

Size	SM-BA or SM-BR		12	16	20	25
N° Positions			12	12	12	12
Tooling system	DIN 69880	mm	25	30	40	50
Transportable inertia		Kgm <sup>2</sup>	1,25	2,5	5,0	10
Positioning times	30°	s	0,12	0,14	0,16	0,20
Unclamping / Clamping times		s	0,14	0,14	0,18	0,22
Hydraulic supply pressure <sup>+ 5%</sup> <sub>- 20%</sub>		bar	50	50	50	50
Tool drive :						
• max torque		Nm	14	28	40	66
• max speed		RPM	6.000	5.000	4.000	3.000
• Toolholder coupling	DIN 5480		14 x 0,8	16 x 0,8	20 x 0,8	24 x 1,25
Motor (without brake) (5)	SIEMENS AC servomotor		1FT6064	1FT6084	1FT6086	1FT6105
	FANUC AC spindle motor		α1,5	α2	α3	α6

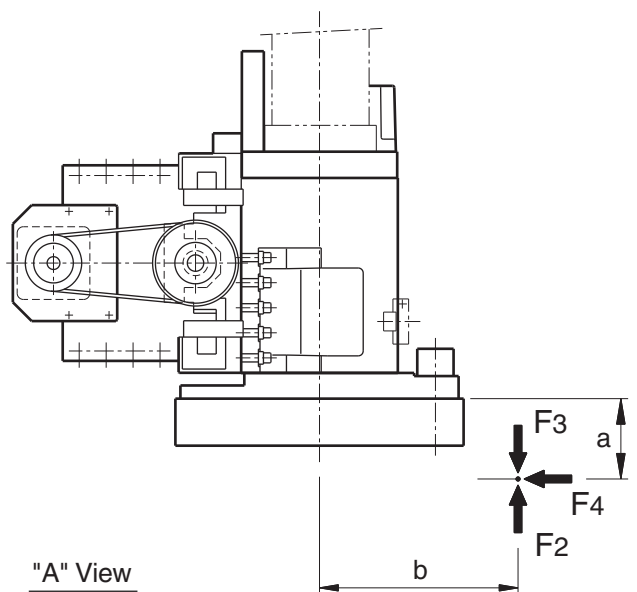
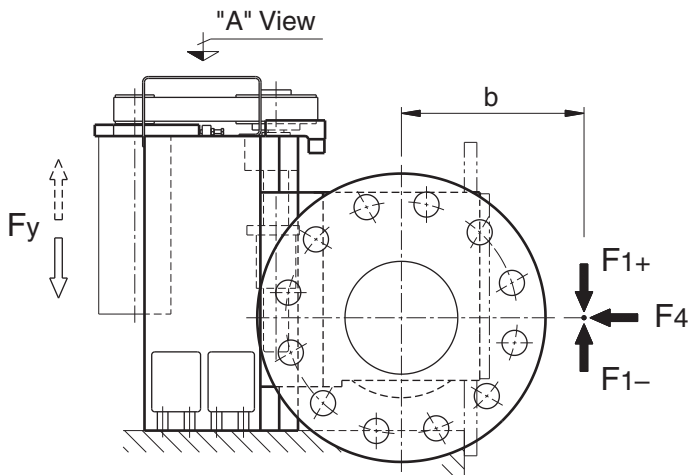
(4) For complete technical data, refer to I.T. 6445.

(5) Other motors on request.

**TMY-BR system with radial tool disc**



**TMY-BA system with axial tool disc**



**Turret**

Size	TMY-B*		<b>12</b>	<b>16</b>	<b>20</b>	<b>25</b>
Max. tangential torque	F1 x b	Nm	950	1.800	3.600	7.200
Max. tilting torque (to push)	F2 x b	Nm	1.500	2.500	5.200	10.000
Max. tilting torque (to lift)	F3 x b	Nm	1.250	2.200	4.500	8.000
Max. radial force	F4	N	10.000	14.000	24.000	35.000
	a	mm	125	155	185	230
Unbalancing torque		Nm	16	35	65	125

(4) Safety factor  $\geq 1,3$ .

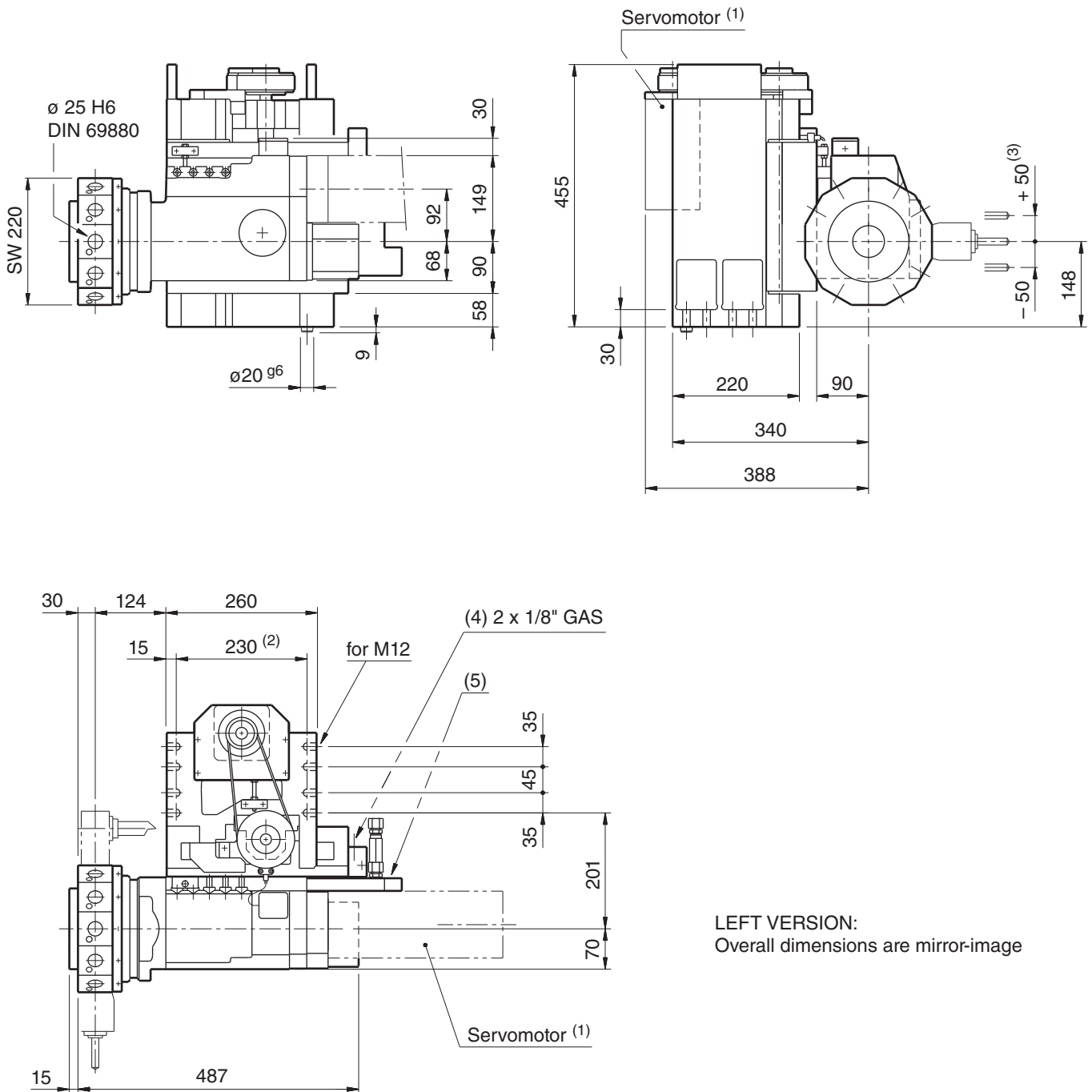
**“Y” axis**

Size	TMY-B*		<b>12/16</b>	<b>16</b>	<b>20</b>	<b>25</b>
Max. feed force	Fy	N	3.500	3.500	4.500	9.000

(5) Safety factor  $\geq 1,3$ .

# TMY-BR 12/16 / series 11

## OVERALL DIMENSIONS

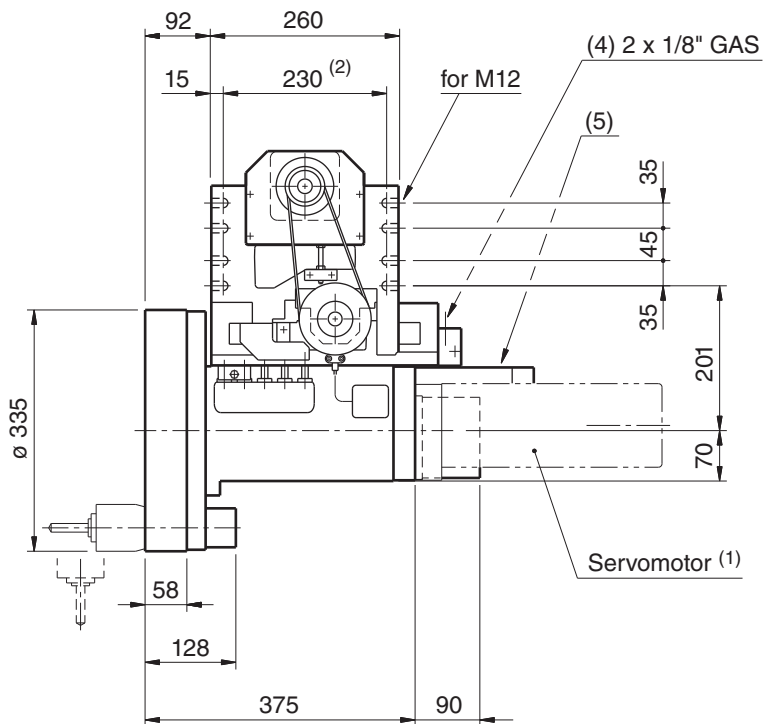
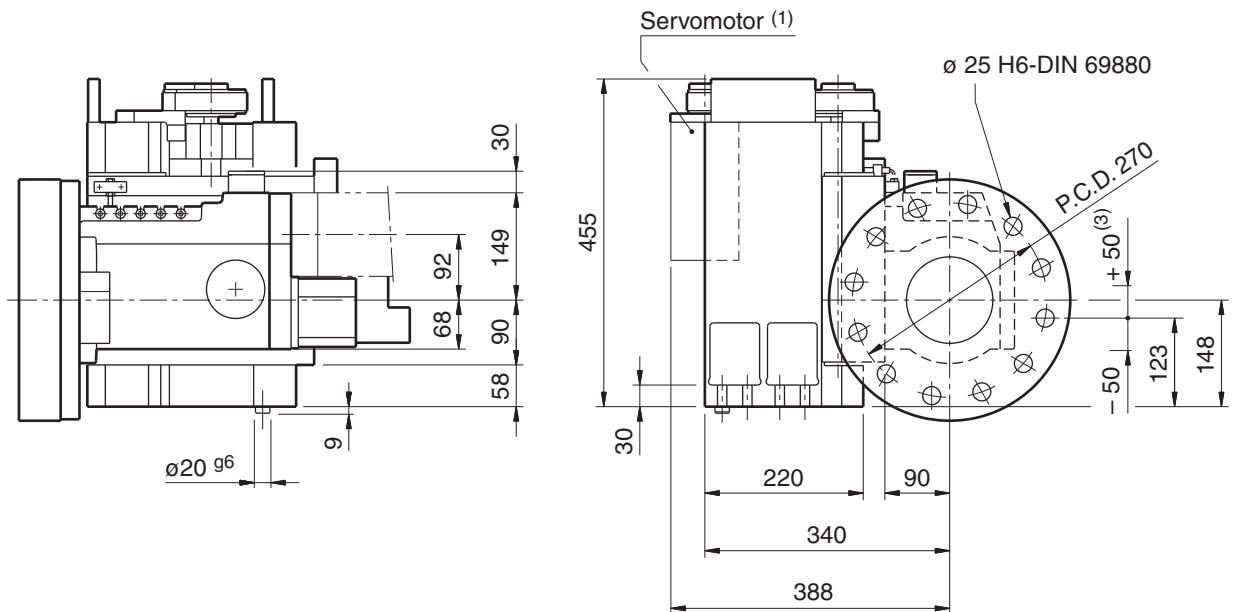


LEFT VERSION:  
Overall dimensions are mirror-image

- (1) Excluded from our supply.
- (2) Fixing screws center distance.
- (3) Working stroke  $\pm 40$  mm.
- (4) "Y" axis hydraulic connections.
- (5) Turret connections (see I.T. 6445).

# TMY-BA 12/16 / series 11

## OVERALL DIMENSIONS

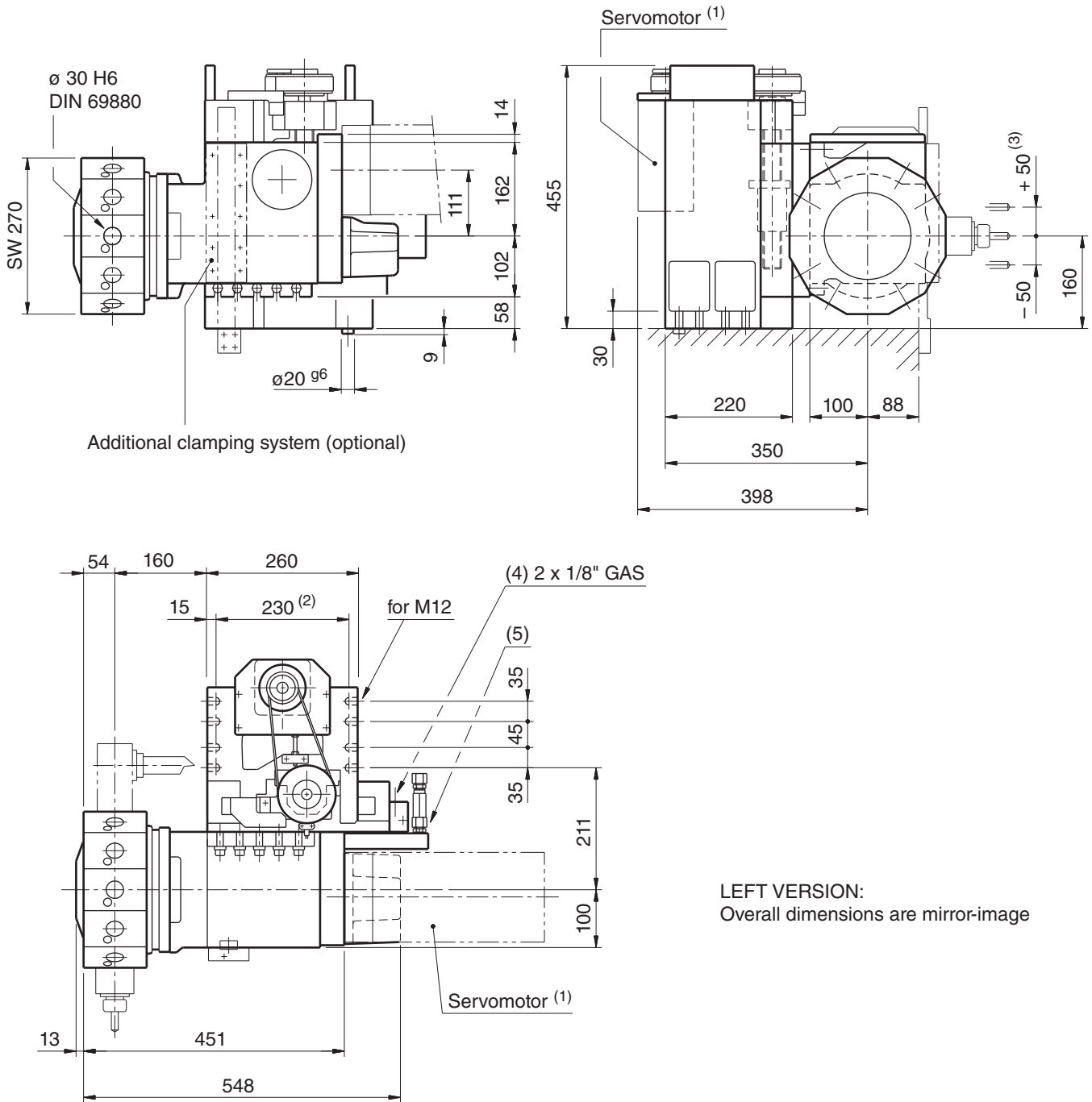


LEFT VERSION:  
Overall dimensions are mirror-image

- (1) Ecluded from our supply.
- (2) Fixing screws center distance.
- (3) Working stroke  $\pm 40$  mm.
- (4) "Y" axis hydraulic connections.
- (5) Turret connections (see I.T. 6445).

# TMY-BR 16 / series 11

## OVERALL DIMENSIONS



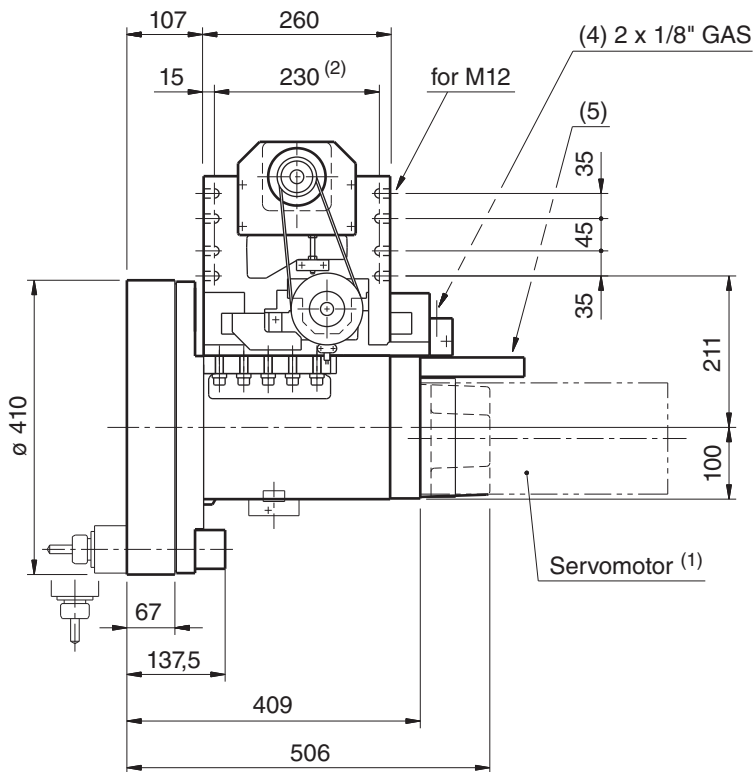
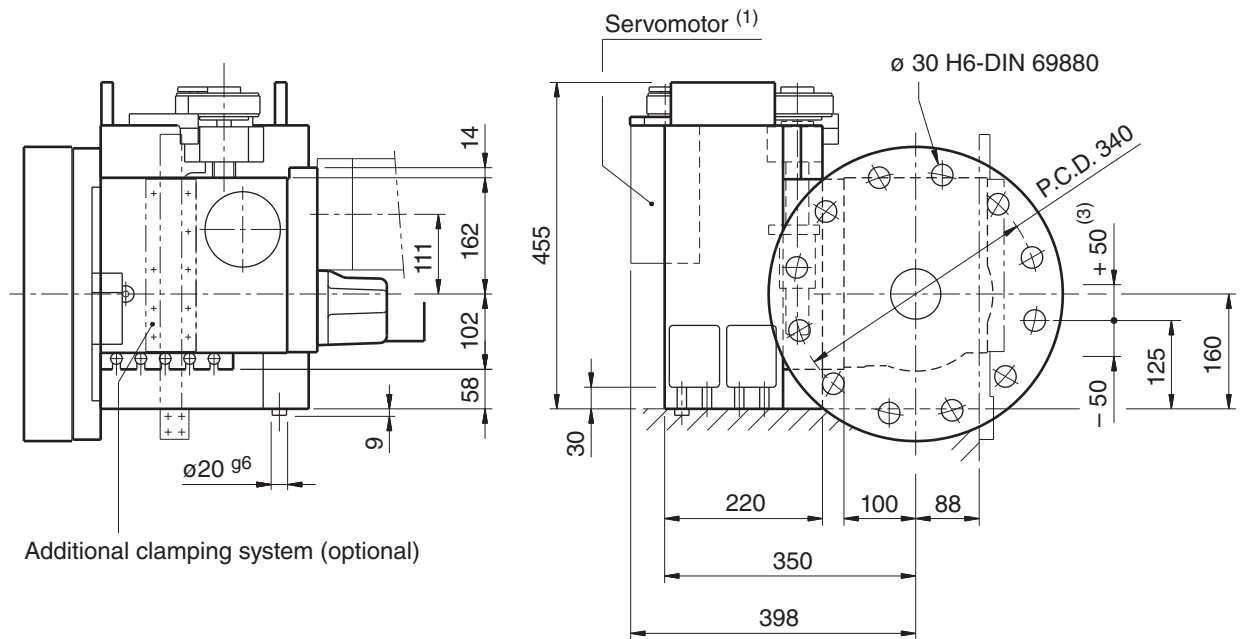
LEFT VERSION:  
Overall dimensions are mirror-image

- (1) Excluded from our supply.
- (2) Fixing screws center distance.
- (3) Working stroke  $\pm 40$  mm.
- (4) "Y" axis hydraulic connections.
- (5) Turret connections (see I.T. 6445).



# TMY-BA 16 / series 11

## OVERALL DIMENSIONS

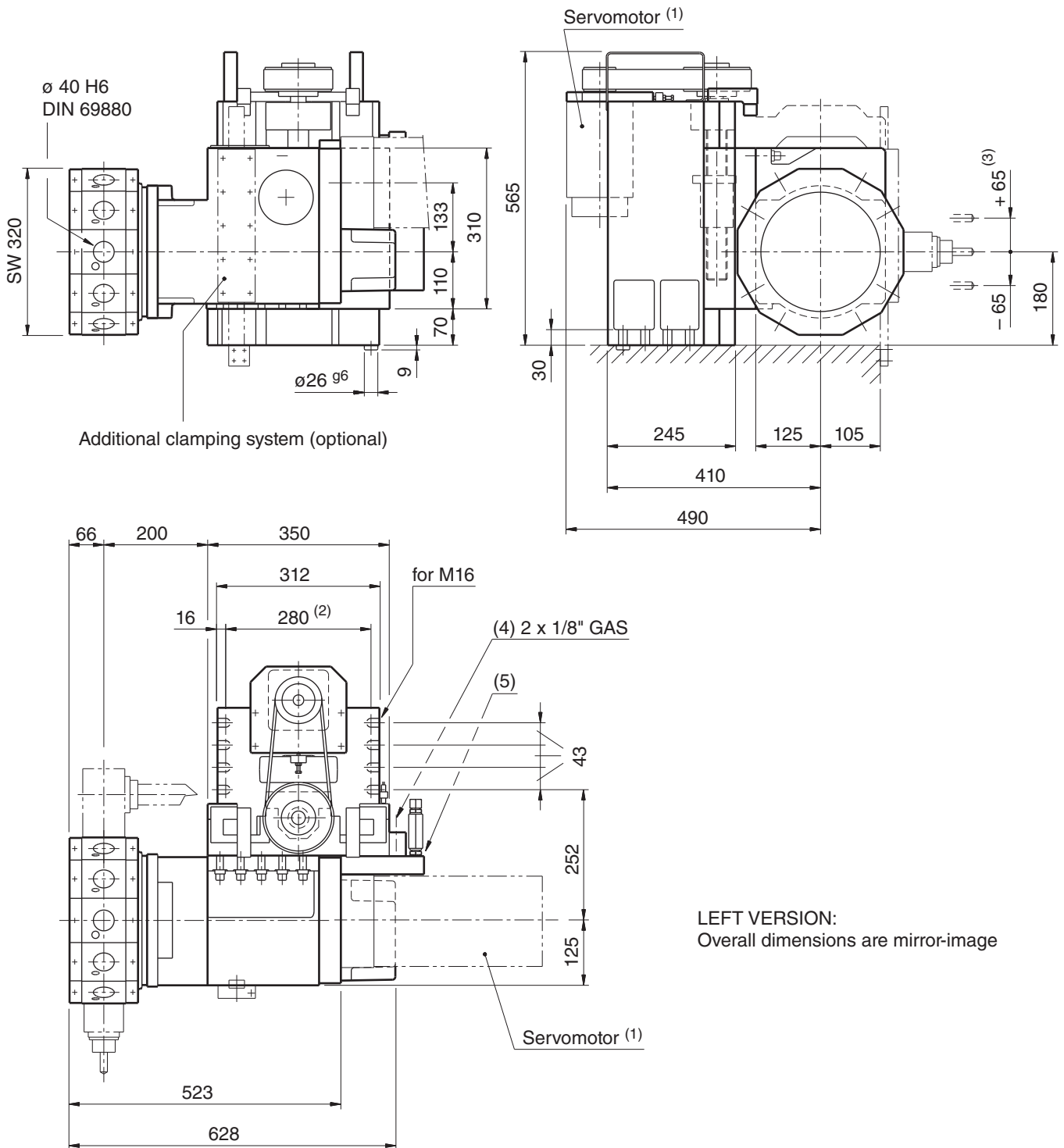


LEFT VERSION:  
Overall dimensions are mirror-image

- (1) Ecluded from our supply.
- (2) Fixing screws center distance.
- (3) Working stroke  $\pm 40$  mm.
- (4) "Y" axis hydraulic connections.
- (5) Turret connections (see I.T. 6445).

# TMY-BR 20 / series 11

## OVERALL DIMENSIONS



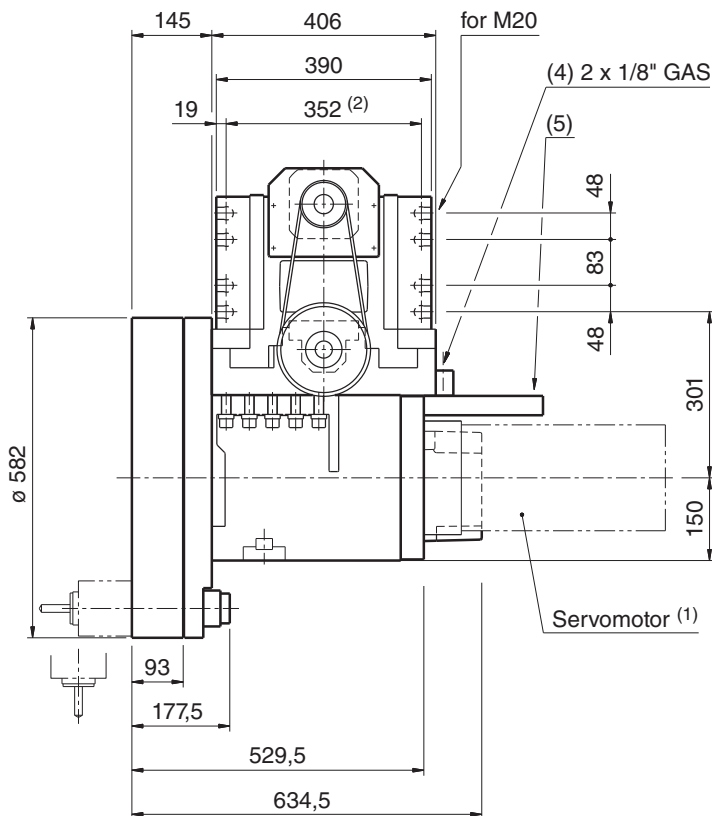
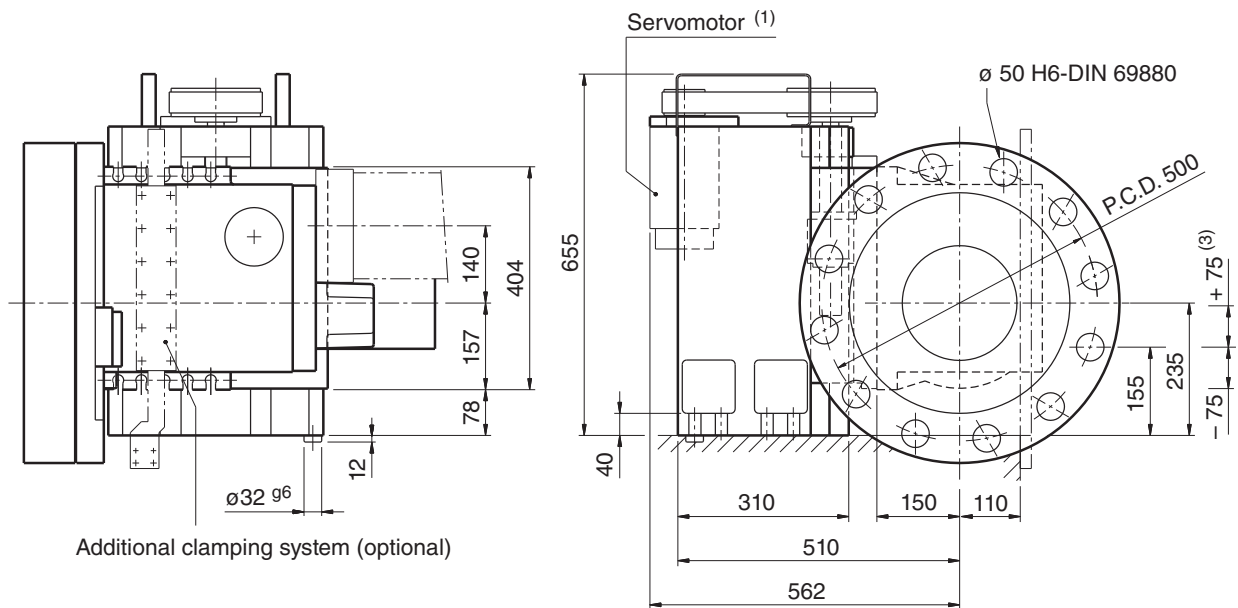
- (1) Ecluded from our supply.
- (2) Fixing screws center distance.
- (3) Working stroke  $\pm 60$  mm.
- (4) "Y" axis hydraulic connections.
- (5) Turret connections (see I.T. 6445).





# TMY-BA 25 / series 11

## OVERALL DIMENSIONS



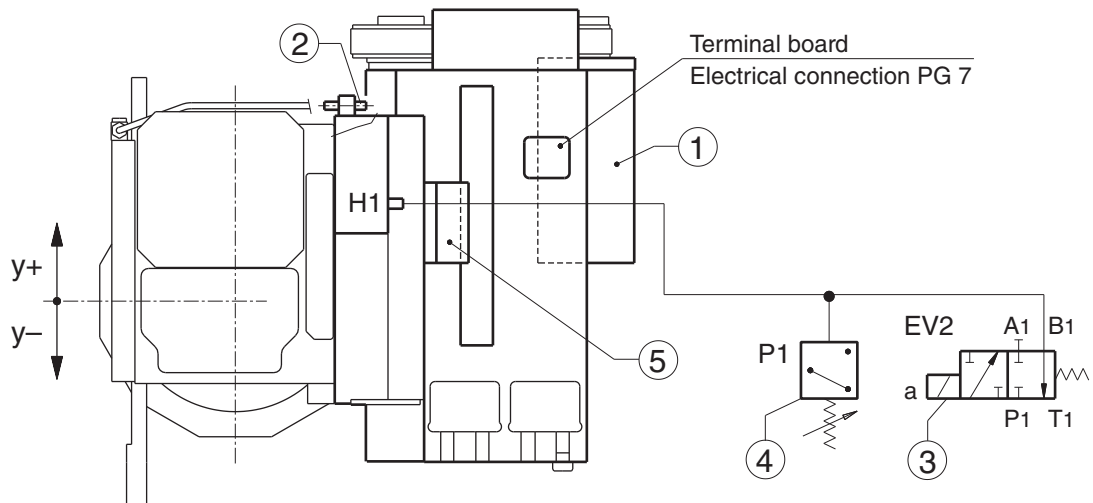
LEFT VERSION:  
Overall dimensions are mirror-image

- (1) Ecluded from our supply.
- (2) Fixing screws center distance.
- (3) Working stroke  $\pm 70$  mm.
- (4) "Y" axis hydraulic connections.
- (5) Turret connections (see I.T. 6445).

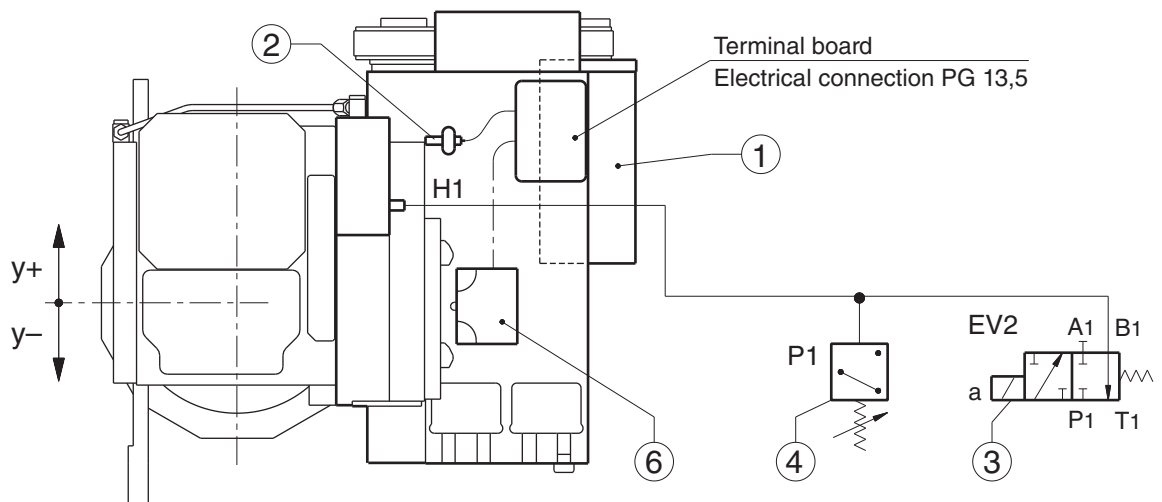
# TMY-B\* / series 11

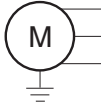
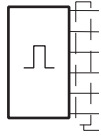
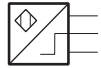
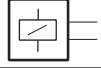
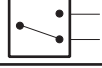
## WIRING DIAGRAM

### “Linear encoder” application (optional)

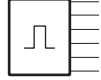
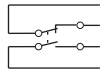
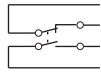


### “Limit switches” application (optional)

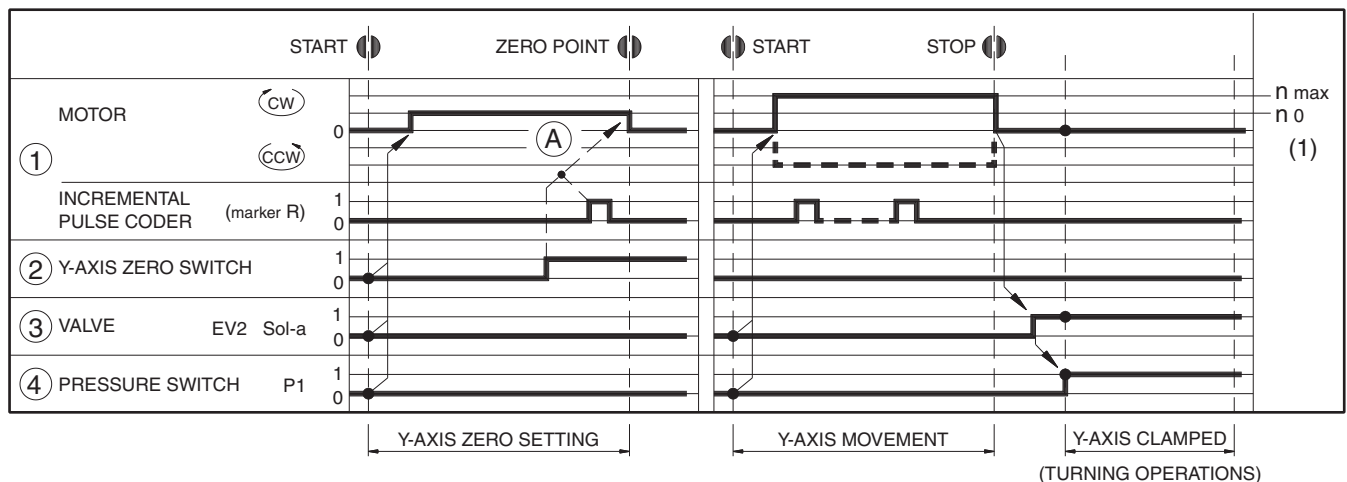


REF.	COMPONENT	CHARACTERISTICS	SIMBOLS	SIGNALS
①	MOTOR	See data sheet of selected motor		See data sheet of selected motor
	INCREMENTAL PULSE CODER	See data sheet of selected motor		See data sheet of selected motor
②	Y-AXIS ZERO SWITCH	24V D.C. ± 10% 200 mA (load) OUTPUT-PNP-NO		+ V D.C. OUTPUT 0 V D.C.
③	Y-AXIS CLAMPING VALVE EV2 sol-a	See data sheet of selected valve		+ COMMON
④	PRESSURE SWITCH "P1"	See data sheet of selected component		NO COMMON

### OPTIONAL

⑤	LINEAR ENCODER	HEIDENHAIN "LS" type		
⑥	LIMIT SWITCH Y+	EUCHNER ES 502 E See relevant data sheet		COMMON NC NO COMMON
	LIMIT SWITCH Y-			COMMON NC NO COMMON

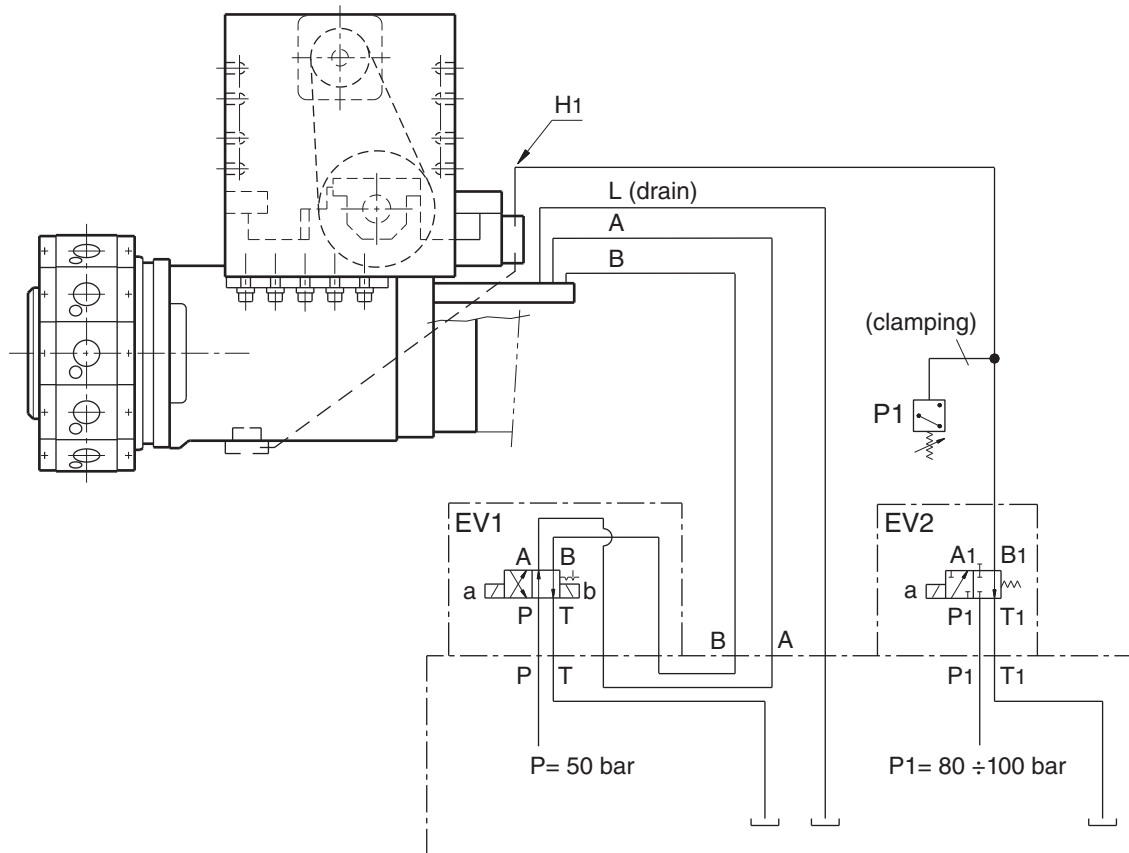
## 5.2 - Cycle



Ⓐ The distance between coder marker and Y-axis zero position must be set.

(1) •  $n_{max}$  = 4.000 RPM.

•  $n_0$  = ..... RPM. The motor speeds for Y-axis zero setting must be according to CN/ driver specs.



Size	SM-B*	12	16	20	25
Required oil volume					
[cm <sup>3</sup> ]	Clamping	20	27,5	53	61
	Unclamping	5	9,5	23	25
Needed instant flow	[l/m]	9	12	18	18
	for Tb	0,14 s	0,14 s	0,18 s	0,22 s

#### Supply:

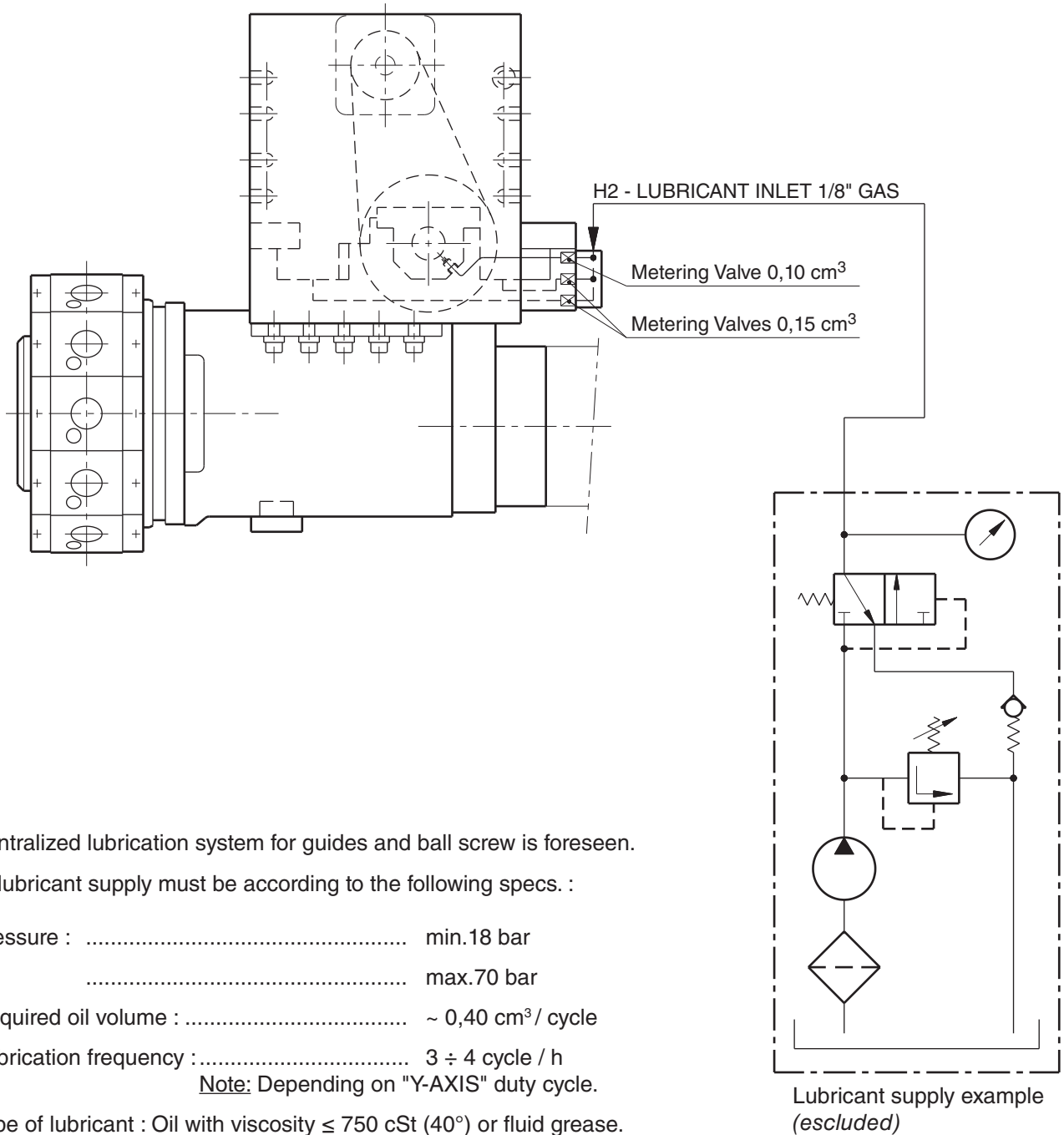
- Filtering ..... 20 µm
- Oil viscosity ..... 32 ÷ 46 mm<sup>2</sup>/s
- Recommended oil temperature .. 35 ÷ 55 °C
- Working pressure :
  - + 5%
  - Turret ..... 50 - 20% bar
  - Clamping system ..... 80 ÷ 100 bar

Hydraulic connections					
A	GAS	1/4"	1/4"	3/8"	1/2"
B	GAS	1/4"	1/4"	3/8"	1/2"
L	GAS	1/8"	1/8"	1/4"	1/4"
H1	GAS	1/8"	1/8"	1/8"	1/8"

DN recommended nominal diameter for hydraulic line					
Lenght	≤ 6 m	6	8	10	12
	> 6 m	8	10	12	15

Functions	EV1		EV2
	sol. a	sol. b	sol. a
Clamping turret	-	+	
Unclamping turret	+	-	
"Y" Axis clamped			+
"Y" Axis unclamped			-

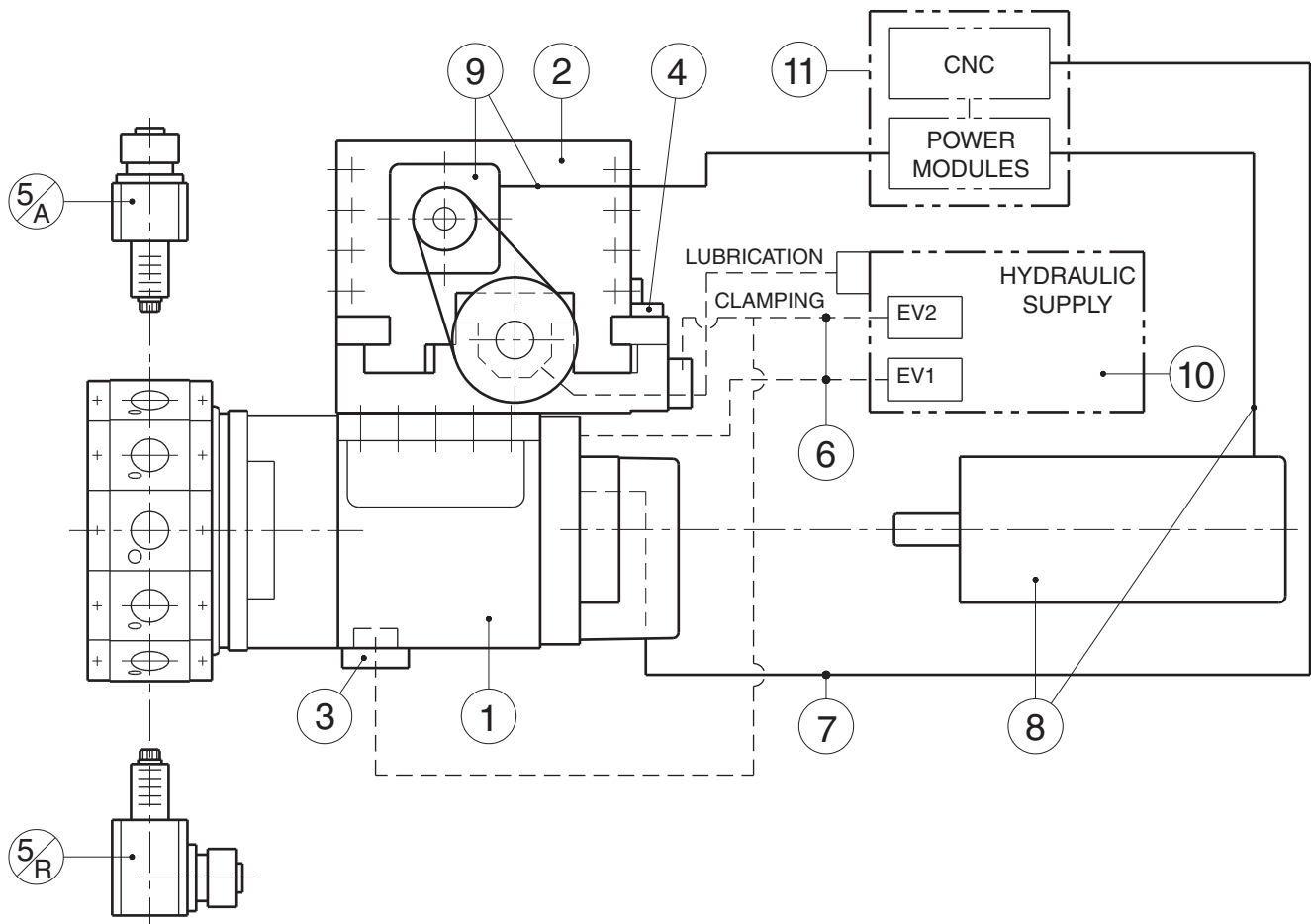




A centralized lubrication system for guides and ball screw is foreseen.

The lubricant supply must be according to the following specs. :

- Pressure : ..... min.18 bar  
..... max.70 bar
- Required oil volume : ..... ~ 0,40 cm<sup>3</sup>/ cycle
- Lubrication frequency : ..... 3 ÷ 4 cycle / h  
Note: Depending on "Y-AXIS" duty cycle.
- Type of lubricant : Oil with viscosity ≤ 750 cSt (40°) or fluid grease.



### DIPLOMATIC SUPPLY

- ① **SM-B\*** Turret with tool disc  
[ With interface group for servomotor ..... ]
- ② **TMY-B\*** "Y" Axis  
[ With interface group for servomotor ..... ]

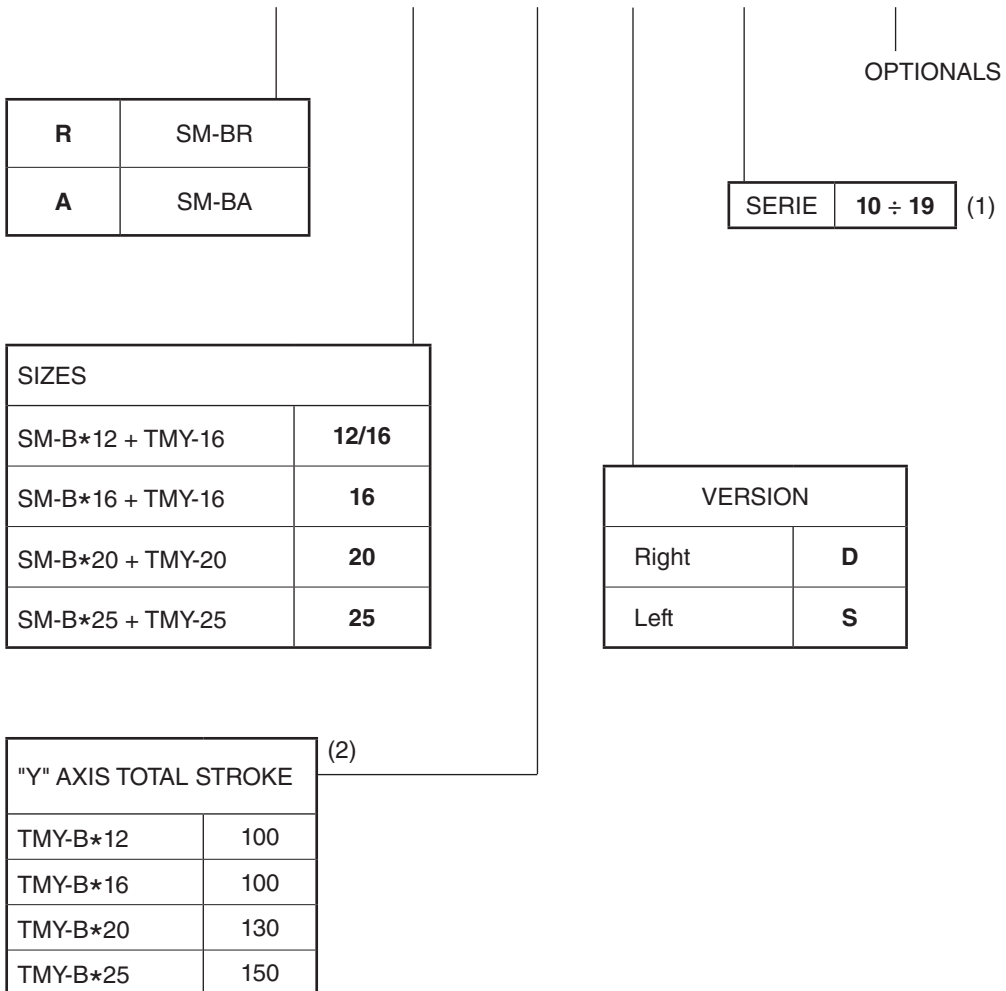
### OPTIONAL

- ③ Additional clamping system
- ④ Linear encoder pre setting
- ⑤ Rotating tool-holders
- ⑥ Hydraulic connections
- ⑦ Turret electrical connections

### EXCLUDED

- ⑧ Servomotor for Turret and its electrical connections
- ⑨ Servomotor for "Y" Axis and its electrical connections
- ⑩ Hydraulic equipment and power pack
- ⑪ Power modules

# TMY-B\* - \*/\* - \* - \* / 1\* - ( \* )



(1) From 10 to 19 the performance and the overall dimensions do not change.  
 (2) For different strokes, please contact our Technical Department.

**DIPLOMATIC AUTOMATION S.r.l.**  
20025 LEGNANO (MI) - ITALY  
P.LE BOZZI, 1  
PHONE 0331/472111  
FAX 0331/455161



**DIPLOMATIC**  
AUTOMATION

e-mail: [info@diplomatic.it](mailto:info@diplomatic.it)

come visit Diplomatic homepage:  
[www.diplomaticautomation.com](http://www.diplomaticautomation.com)