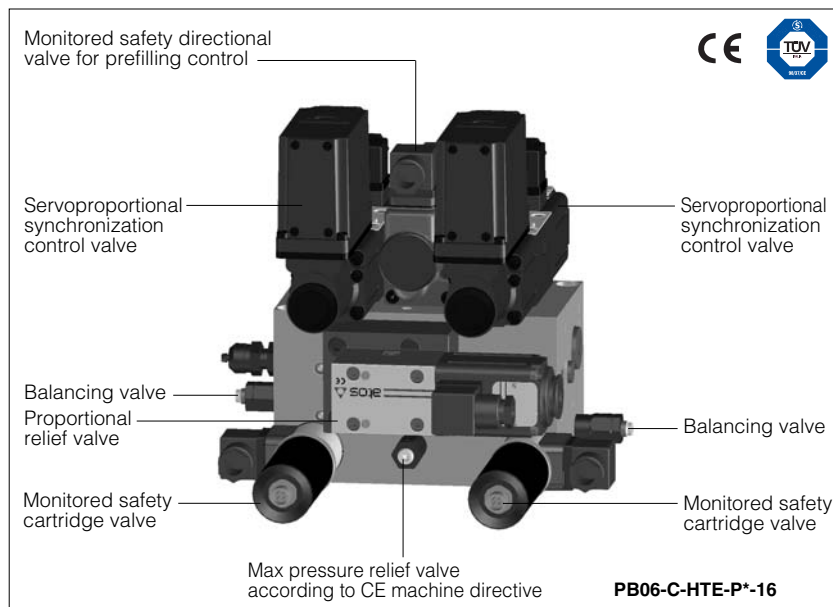


# Standard solutions for CNC press brakes

CE and non CE design



New range of standard electrohydraulic solutions for CNC synchronized press brakes is available in CE (option C) or non CE (option N) design.

Standard press brake solutions are available in two sizes with different executions:

**PB06**, solution with central block design for small / medium machines, including:

- central manifold with proportional pressure control, size 06 synchronization servoproportional valves, safety valves.

The PB06 solution is normally coupled with n°2 PFB-\* prefilling blocks, at choice size 25, 32 or 40 to be installed on the cylinders heads.

**PB10**, solution with modular blocks design for medium / big machines, including:

- Size 16 or 25 pressure control block
- n°2 size 10 synchronization control blocks, at choice to be installed on the prefilling blocks or assembled in any other point of the press brake.

The PB10 solution is normally coupled with n°2 PFB-\* prefilling blocks, at choice size 50 and 63 to be installed on the cylinders heads.

**PB11**, solution like PB10, but with size 10P pilot operated proportional directional valves for synchronization control with high flow performances

PB\*-C designs are CE certified by TÜV according to the EN 12622.

PB\*-N are non CE version, without monitored safety valves.

The following proportional controls are available in different executions:

- A** proportional valves with electronic driver functions integrated in the machine CNC
- T** servoproportional valves with integral position transducer and separated card driver E-ME-T-2\*H (Eurocard format)
- TE** servoproportional valves with integral position transducer and integral electronic driver

All block solutions are also available with CR crowning option, consisting of a size 06 proportional reducing valve for the compensation of the machine frame deformation, see sections [10](#), [11](#)

## 1 MODEL CODE OF BLOCKS SOLUTION

PB	06	-	N	-	H	A	P3	-	16	-	CR
Press brake solution											Optional crowning function, see sect. <a href="#">10</a> , <a href="#">11</a>
Size and design											Pressure control block size
<b>06</b> = size 06, central block											<b>16</b> = size 16 for PB06 and PB10
<b>10</b> = size 10, modular block											<b>25</b> = size 25 for PB10 and PB11
<b>11</b> = size 10P, modular block											Regulation characteristic (at $\Delta p$ 15 bar per edge)
Design certified											<b>size 06-H:</b>
<b>C</b> = CE certified											<b>P2</b> = 28 l/min
<b>N</b> = non CE											<b>P3</b> = 40 l/min
											<b>P5</b> = 50 l/min
Synchronization proportional valve											<b>size 06-L:</b>
<b>H</b> = double solenoid 3 position, 4 way											<b>L31</b> = 9 l/min
<b>L</b> = single solenoid 4 position, 4 way (only for size 06, 10)											<b>L51</b> = 18 l/min
											<b>L71</b> = 27 l/min
Proportional control type											<b>size 10-H:</b>
<b>A</b> = driver function included in machine cnc (only for 06-H, 10-H)											<b>P2</b> = 60 l/min
<b>T</b> = with position transducer (1)											<b>P3</b> = 80 l/min
<b>TE</b> = with position transducer and integral electronics											<b>P5</b> = 105 l/min
											<b>size 10-L:</b>
											<b>L31</b> = 40 l/min
											<b>L71</b> = 60 l/min
											<b>size 10P-H:</b>
											<b>P5</b> = 160 l/min

(1): including separated card driver E-ME-T-2\*H (Eurocard format)

## 2 MODEL CODE OF PREFILLING BLOCKS

PFB	-	25
Prefilling block		
Prefilling size (2)		
<b>25, 32, 40</b>	normally coupled with solution type PB06	
<b>50, 63</b>	normally coupled with solution type PB10 (11)	
		(2): Other prefilling sizes or based on customized mounting surfaces available on request

## 3 BASIC FOR THE SIZING OF THE BLOCKS SOLUTIONS

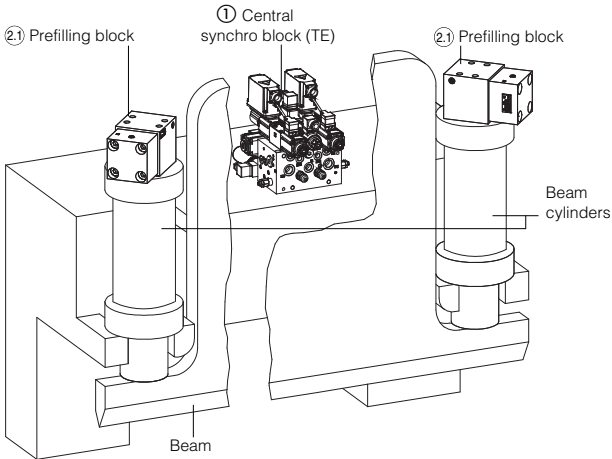
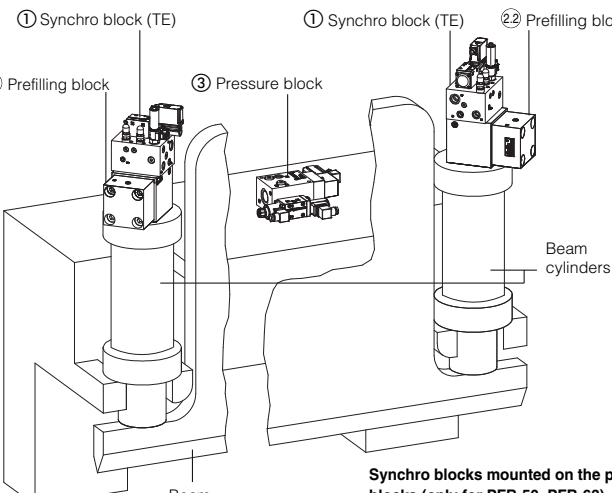
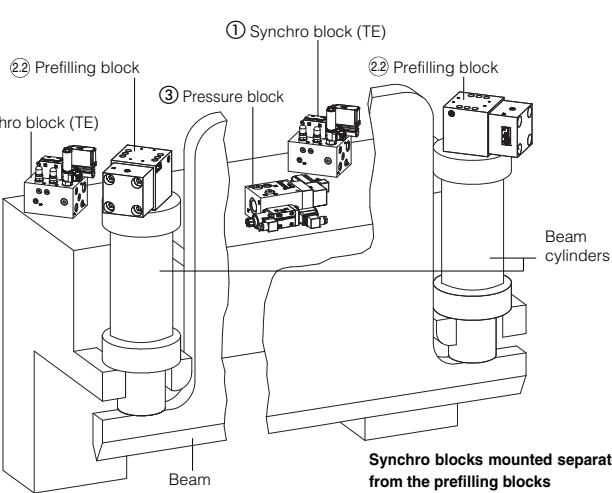
Pressing Force (kN)	Pump flow (l/min)	Working pressure (bar)	Block solution model code	Proportional valve nominal flow at Δp 15 bar per edge (l/min)	Typical Prefilling valve size	Nominal prefilling valve flow in suction condition (l/min)
400 - 1250	Up to 50	Up to 315	PB06-C(N)-HA*-16	28, 40, 50 for control type HA, HT, HTE  9, 18, 27 for control type LT, LTE	25	150
1250 - 2000			PB06-C(N)-HT(E)*-16		32	225
2000 - 3000			PB06-C(N)-LT(E)*-16		40	350
3000 - 6000	Up to 150		PB10-C(N)-HA*-16	60, 80, 105 for control type HA, HT, HTE	50	500
6000 - 10000			PB10-C(N)-HT(E)*-16		63	800
			PB10-C(N)-LT(E)*-16			
10000 - 15000	Up to 220		PB10-C(N)-HA*-25 PB10-C(N)-HT(E)*-25 PB10-C(N)-LT(E)*-25 PB11-C(N)-HT(E)*-25	40, 60 for control type LT, LTE	To be defined, depending to the machine characteristics	

Note: The above data are indicative. The sizing of the block solutions must be checked by Atos according to the specific machine characteristics

#### 4 MAIN CHARACTERISTICS

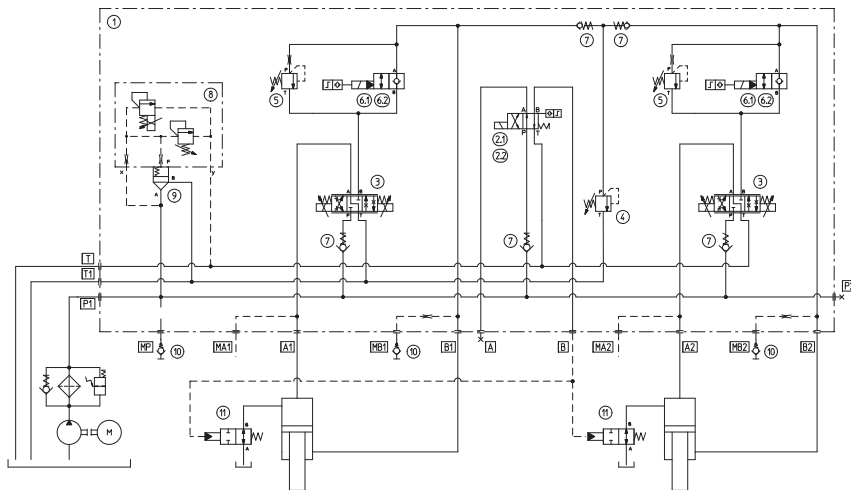
Ambient temperature	-20°C to +70°C for -A execution; -20°C to +60°C for -T and -TE executions.
Fluid	Hydraulic oil as per DIN 51524 .... 535
Recommended viscosity	15 ÷ 100 mm²/s at 40°C (ISO VG 15 ÷ 100)
Fluid contamination class	ISO 18/15, achieved with in line filters at 10 µm value to $\beta_{10} \geq 75$ (recommended)
Fluid temperature	-20°C +60°C

#### 5 BLOCKS ASSEMBLING

Control block solution	Composition	
<b>PB06-*-HA/*</b>	N° 1 central synchro block ① with size 06 proportional valves, driver functions integrated in the machine CNC, and size 16 proportional pressure control.	
<b>PB06-*-HT/*</b>	N° 1 central block ① with size 06 double solenoid proportional valves with position transducer and size 16 proportional pressure control. N° 1 driver E-ME-T-25H.	
<b>PB06-*-HTE/*</b>	as PB06-*-HT but with size 06 servoproportional valves, with transducer and integral electronics	
<b>PB06-*-LT/*</b>	as PB06-*-HT but with size 06 single solenoid servoproportional valves, with transducer	
<b>PB06-*-LTE/*</b>	as PB06-*-HT but with size 10 single solenoid servoproportional valves, with transducer and integral electronics	
Control block solution	Composition	
<b>PB10-*-HA/*-16</b> <b>PB10-*-HA/*-25</b>	N° 1 proportional pressure control block size 16 or size 25 ③. N° 2 synchronization blocks ① with size 10 proportional valves, driver functions integrated in the machine CNC.	 <p><b>Synchro blocks mounted on the prefilling blocks (only for PFB-50, PFB-63)</b></p>
<b>PB10-*-HT/*-16</b> <b>PB10-*-HT/*-25</b>	N° 1 proportional pressure control block size 16 or size 25 ③. N° 2 synchronization blocks ① with size 10 servoproportional valves with transducer. N° 1 driver E-ME-T-21H.	
<b>PB10-*-HTE/*-16</b> <b>PB10-*-HTE/*-25</b>	as PB10-*-HT but with size 10 servoproportional valves, with transducer and integral electronics	
<b>PB10-*-LT/*-16</b> <b>PB10-*-LT/*-25</b>	as PB10-*-HT but with size 10 single solenoid servoproportional valve with position transducer	
<b>PB10-*-LTE/*-16</b> <b>PB10-*-LTE/*-25</b>	as PB10-*-HT but with size 10 single solenoid servoproportional valve with position transducer and integral electronics	
<b>PB11-*-HT/*-25</b>	as PB10-*-HT but with size 10P pilot operated servoproportional valve, with position transducer	 <p><b>Synchro blocks mounted separated from the prefilling blocks</b></p>
<b>PB11-*-HTE/*-25</b>	as PB10-*-HT but with size 10P pilot operated servoproportional valve, with position transducer and integral electronics	
Prefilling block model code	Description	
<b>PFB-25, 32, 40</b>	Separated prefilling blocks ②1, size 25, 32, 40 to be selected according to the machine characteristics - normally coupled with PB06 solution	
<b>PFB-50, 63</b>	Prefilling blocks ②2, size 50 or 63 to be selected according to the machine characteristics - normally coupled with PB10, PB11 solution	

## 6 CENTRAL BLOCK DESIGN TYPE PB06

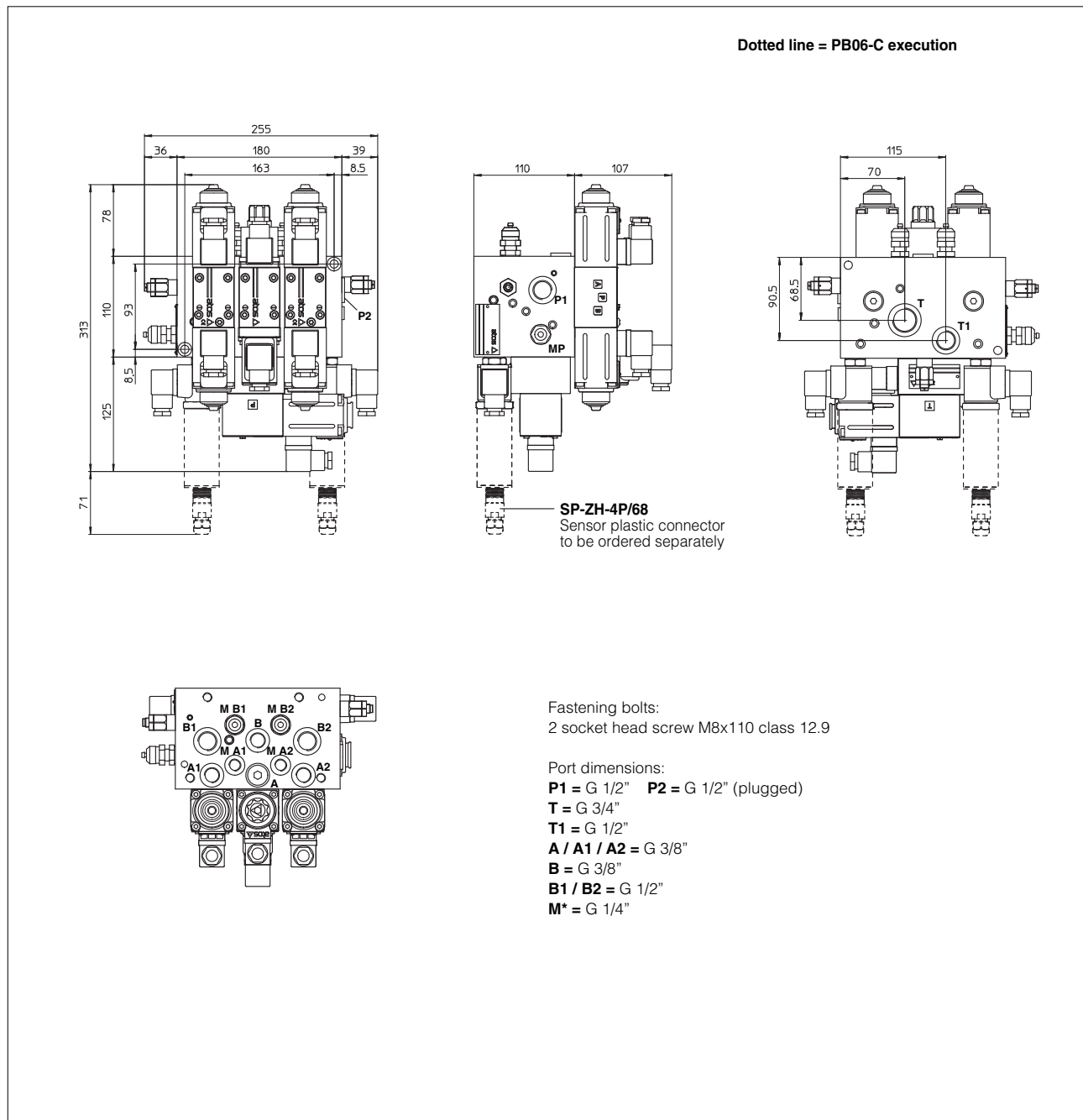
### 6.1 Certified hydraulic scheme -C (with -HA proportional control type)



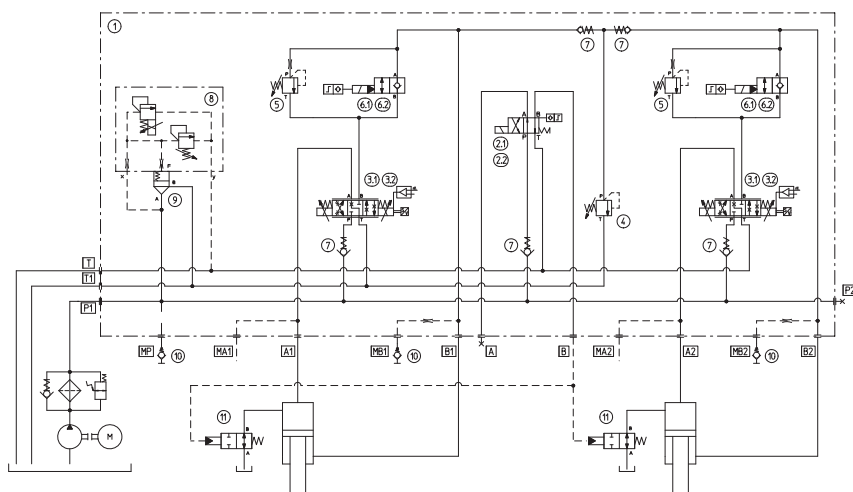
Pos	Description	Atos code	-N	-C
1	SUBPLATE		●	●
2.1	SAFETY VALVE	DHU-0631/2/FIE/NC-X		●
2.2	DIRECTIONAL VALVE	DHU-0631/2/-X	●	
3	PROPORTIONAL VALVE	090290 DHZO-A-071-L*	●	●
4	SAFETY PRESSURE RELIEF VALVE	CART M4/350/RS	●	●
5	BALANCING VALVE	CART M4/350/R	●	●
6.1	SAFETY VALVE	JO-DL-4-2/NC/FI-X		●
6.2	CARTRIDGE	JO-DL-4-2/NC-X	●	
7	CHECK VALVE	DR-5/G	●	●
8	PROP. RELIEF VALVE	LIMZO-A-1/315/18	●	●
9	CARTRIDGE	SP-15 -KM-503600	●	●
10	MINIMESS	Y-AK-04-GOR	●	●
11	PREFILLING VALVE		●	●

Note: the -N solution has the same hydraulic scheme but without monitor signal on valves ② and ⑥

### 6.2 Installation dimensions of PB06\*-HA central block



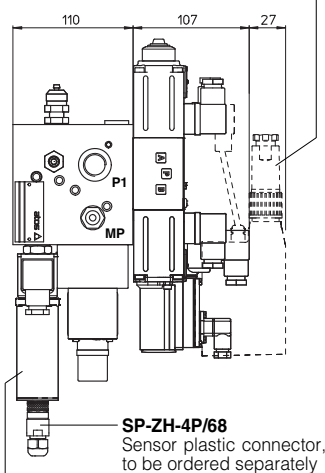
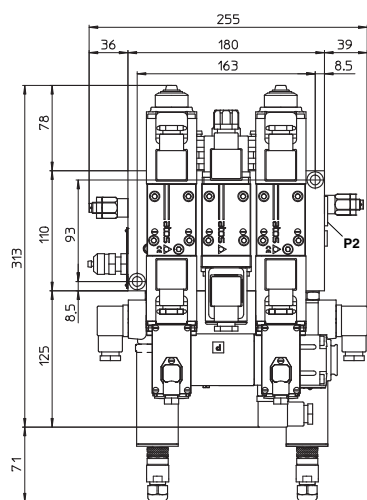
### 6.3 Certified hydraulic scheme -C (with -HT , -HTE proportional control type)



Pos	Description	Atos code	-N	-C
1	SUBPLATE		●	●
2.1	SAFETY VALVE	DHU-0631/2/FIE/NC-X		●
2.2	DIRECTIONAL VALVE	DHU-0631/2/-X	●	
3.1	PROPORTIONAL VALVE	090290 DHZO-T-071-L*	●	●
3.2	PROPORTIONAL VALVE	090290 DHZO-TE-071-L*	●	●
4	SAFETY PRESSURE RELIEF VALVE	CART M4/350/RS	●	●
5	BALANCING VALVE	CART M4/350/R	●	●
6.1	SAFETY VALVE	JO-DL-4-2/NC/FI-X		●
6.2	CARTRIDGE	JO-DL-4-2/NC-X	●	
7	CHECK VALVE	DR-5/G	●	●
8	PROP. RELIEF VALVE	LIMZO-A-1/315/18	●	●
9	CARTRIDGE	SP-15 -KM-503600	●	●
10	MINISS	Y-AK-04-GOR	●	●
11	PREFILLING VALVE		●	●

Note: the -N solution has the same hydraulic scheme but without monitor signal on valves ② and ⑥

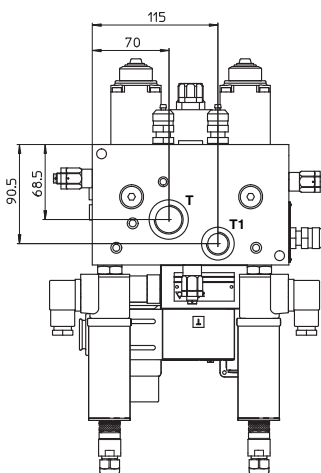
### 6.4 Installation dimensions of PB06\*-HT(E) central block



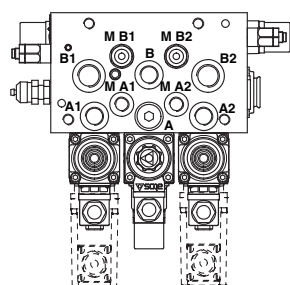
Safety valves with monitor signal only for -C execution

Dotted line = HTE proportional control type

**SP-ZH-7P**  
Power supply connector metallic or plastic, to be ordered separately



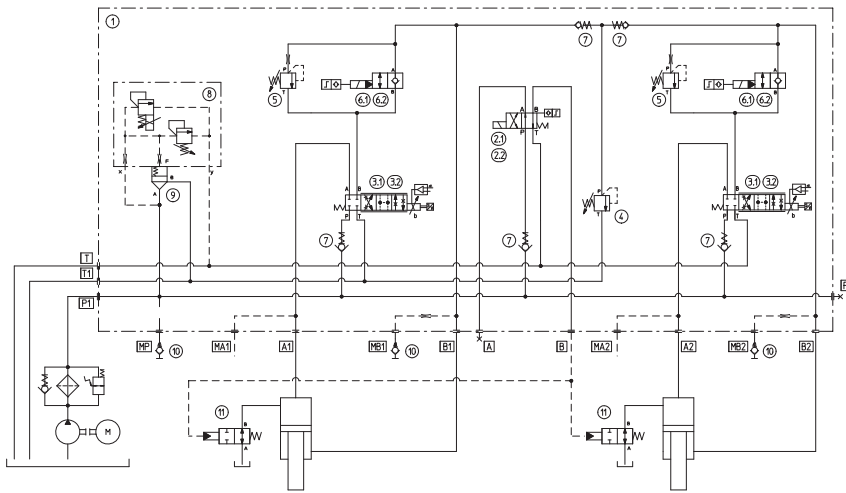
**SP-ZH-4P/68**  
Sensor plastic connector, to be ordered separately



Fastening bolts:  
2 socket head screw M8x110 class 12.9

Port dimensions:  
**P1** = G 1/2"    **P2** = G 1/2" (plugged)  
**T** = G 3/4"  
**T1** = G 1/2"  
**A / A1 / A2** = G 3/8"  
**B** = G 3/8"  
**B1 / B2** = G 1/2"  
**M\*** = G 1/4"

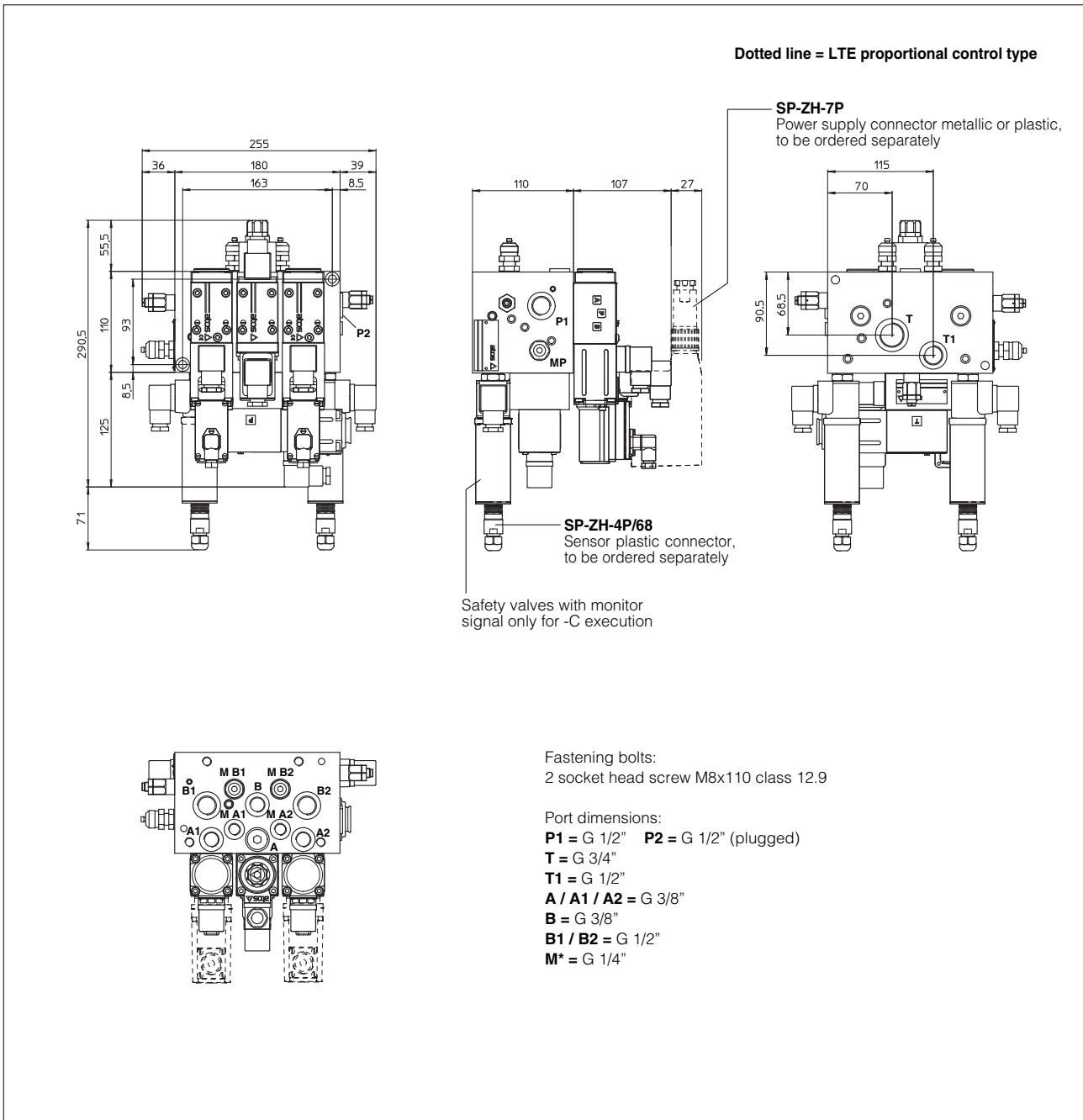
## 6.5 Certified hydraulic scheme -C (with -LT , -LTE proportional control type)



Pos	Description	Atos code	-N	-C
1	SUBPLATE		●	●
2.1	SAFETY VALVE	DHU-0631/2/FIE/NC-X		●
2.2	DIRECTIONAL VALVE	DHU-0631/2/-X	●	
3.1	SERVOPROPORTIONAL VALVE	DLHZO-T-040-L*	●	●
3.2	SERVOPROPORTIONAL VALVE	DLHZO-TE-040-L*	●	●
4	SAFETY PRESSURE RELIEF VALVE	CART M4/350/RS	●	●
5	BALANCING VALVE	CART M4/350/R	●	●
6.1	SAFETY VALVE	JO-DL-4-2/NC/FI-X		●
6.2	CARTRIDGE	JO-DL-4-2/NC-X	●	
7	CHECK VALVE	DR-5/G	●	●
8	PROP. RELIEF VALVE	LIMZO-A-1/315/18	●	●
9	CARTRIDGE	SP-15 -KM-503600	●	●
10	MININESS	Y-AK-04-GOR	●	●
11	PREFILLING VALVE		●	●

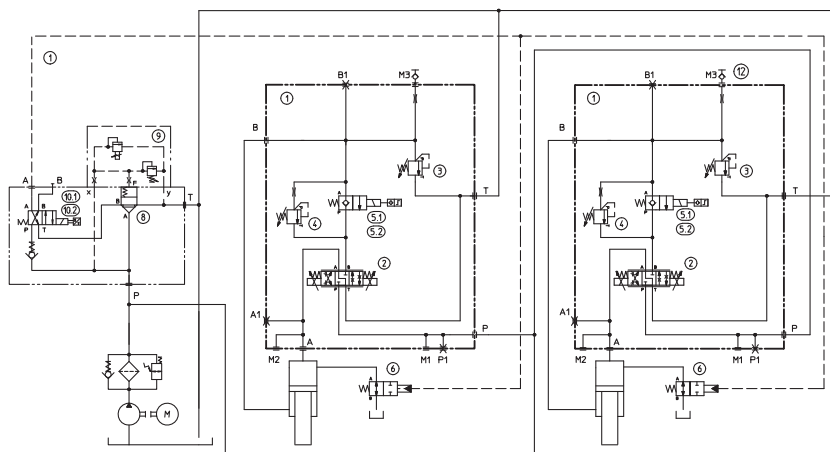
Note: the -N solution has the same hydraulic scheme but without monitor signal on valves ② and ⑥

## 6.6 Installation dimensions of PB06\*-LT(E) central block



## 7 MODULAR BLOCK DESIGN TYPE PB10

### 7.1 Certified hydraulic scheme -C (with -HA proportional control type)



Pos	Description	Atos code	-N	-C
1	SUBPLATE		●	●
2	PROPORTIONAL VALVE	070256 DKZOR-A-171-L*	●	●
3	SAFETY PRESSURE RELIEF VALVE	CART M6/350/RS	●	●
4	BALANCING VALVE	CART M6/350/R	●	●
5.1	SAFETY VALVE	JO-DL-10-2/NC/FI-X		●
5.2	CARTRIDGE	JO-DL-10-2/NC-X	●	
6	PREFILLING VALVE		●	●
7	SUBPLATE	SEE SECTION 9		
8	CARTRIDGE			
9	PROP. PRESSURE VALVE			
10.1	SAFETY VALVE			
10.2	DIRECTIONAL VALVE			
11	CHECK VALVE			
12	MINIMEISS	Y-AK-04-GOR	●	●

Note: the -N solution has the same hydraulic scheme but without monitor signal on valves ⑤ and ⑩

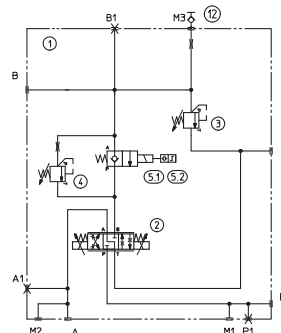
### 7.2 Installation dimensions of PB10\*-HA synchronization block (for pressure control blocks see section 9.2)

#### SYNCHRONIZATION CONTROL BLOCK

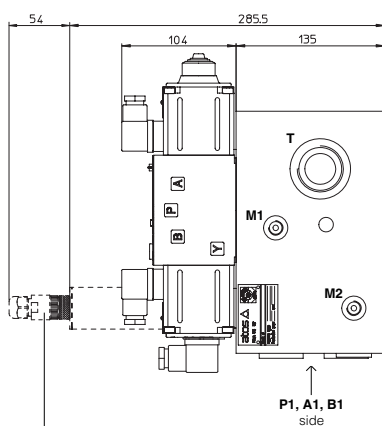
Fastening bolts:  
4 socket head screw M8x140 class 12.9

Port dimensions:  
**P** = G 1" **P1** = G 1" (plugged)  
**T** = G 1 1/4"  
**A / A1** = G 3/4"  
**B / B1** = G 1"  
**M\*** = G 1/4"

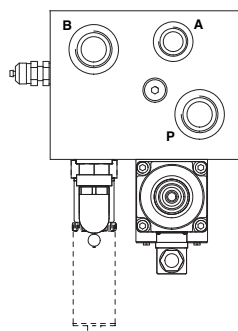
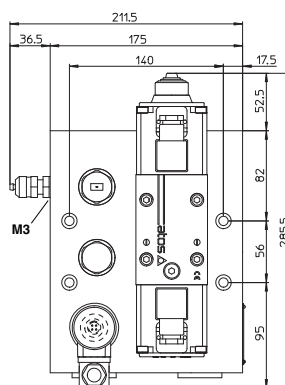
#### Hydraulic scheme



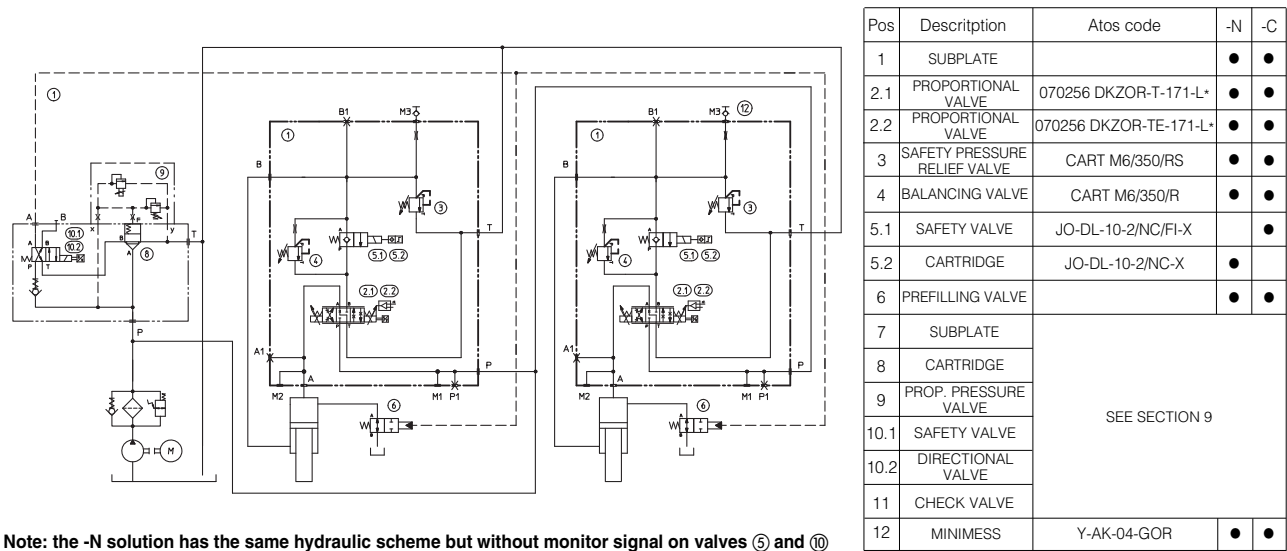
Dotted line = PBBC execution



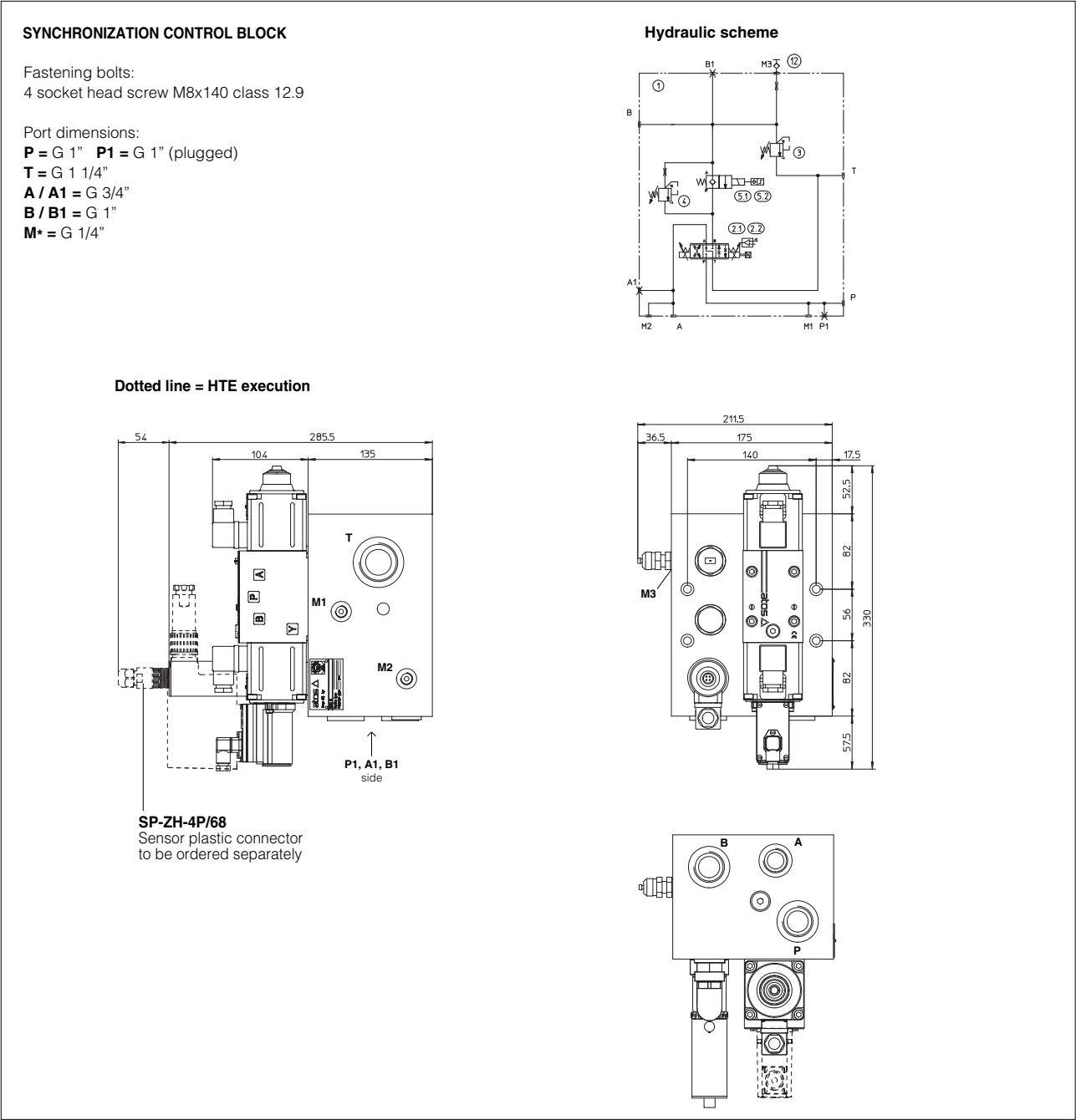
**SP-ZH-4P/68**  
Sensor plastic connector  
to be ordered separately



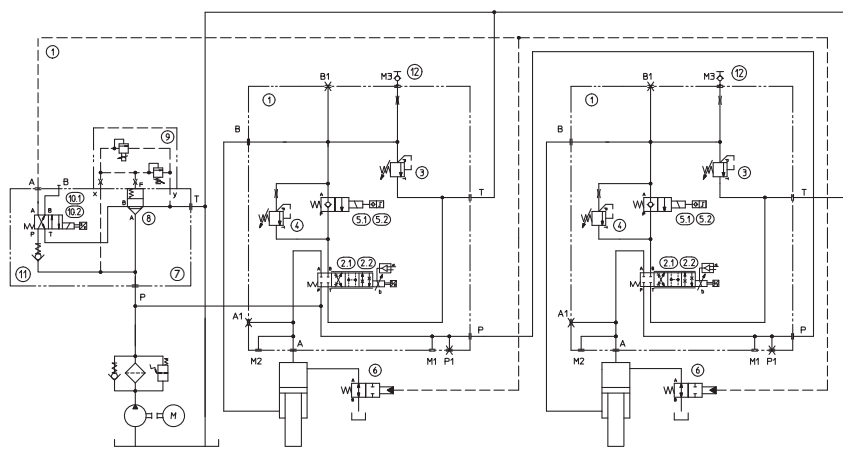
7.3 Certified hydraulic scheme -C (with -HT , -HTE proportional control type)



7.4 Installation dimensions of PB10-HT(E) synchronization block (for pressure control blocks see section 9.2)



7.5 Certified hydraulic scheme -C (with -LT, -LTE proportional control type)



Pos	Description	Atos code	-N	-C
1	SUBPLATE		●	●
2.1	SERVOPROPORTIONAL VALVE	DLKZOR-T-140-L*	●	●
2.2	SERVOPROPORTIONAL VALVE	DLKZOR-TE-140-L*	●	●
3	SAFETY PRESSURE RELIEF VALVE	CART M6/350/RS	●	●
4	BALANCING VALVE	CART M6/350/R	●	●
5.1	SAFETY VALVE	JO-DL-10-2/NC/FI-X		●
5.2	CARTRIDGE	JO-DL-10-2/NC-X	●	
6	PREFILLING VALVE		●	●
7	SUBPLATE	SEE SECTION 9		
8	CARTRIDGE			
9	PROP. PRESSURE VALVE			
10.1	SAFETY VALVE			
10.2	DIRECTIONAL VALVE			
11	CHECK VALVE			
12	MINIMESS	Y-AK-04-GOR	●	●

Note: the PBB solution has the same hydraulic scheme but without monitor signal on valves 5 and 10

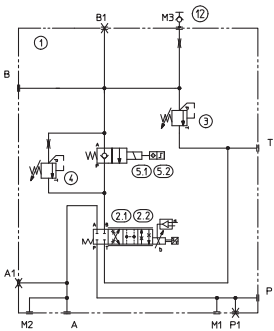
7.6 Installation dimensions of PB10\*-LT(E) synchronization block (for presson control blocks see section 9.2)

SYNCHRONIZATION CONTROL BLOCK

Fastening bolts:  
4 socket head screw M8x140 class 12.9

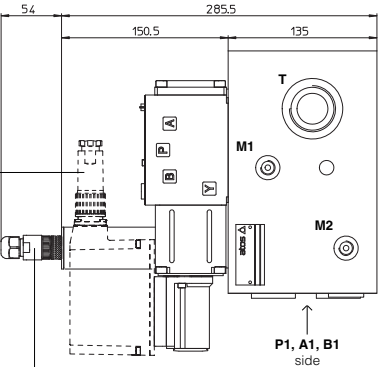
Port dimensions:  
**P** = G 1" **P1** = G 1" (plugged)  
**T** = G 1 1/4"  
**A / A1** = G 3/4"  
**B / B1** = G 1"  
**M\*** = G 1/4"

Hydraulic scheme

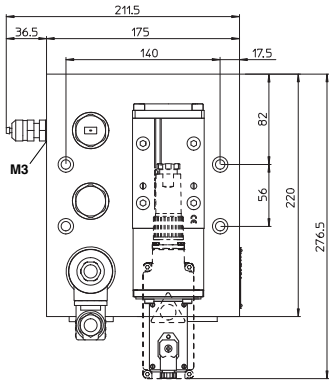


Dotted line = TE proportional control type

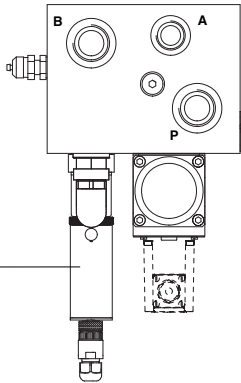
**SP-ZH-7P**  
Power supply connector  
metallic or plastic,  
to be ordered separately



**SP-ZH-4P/68**  
Sensor connector plastic  
to be ordered separately



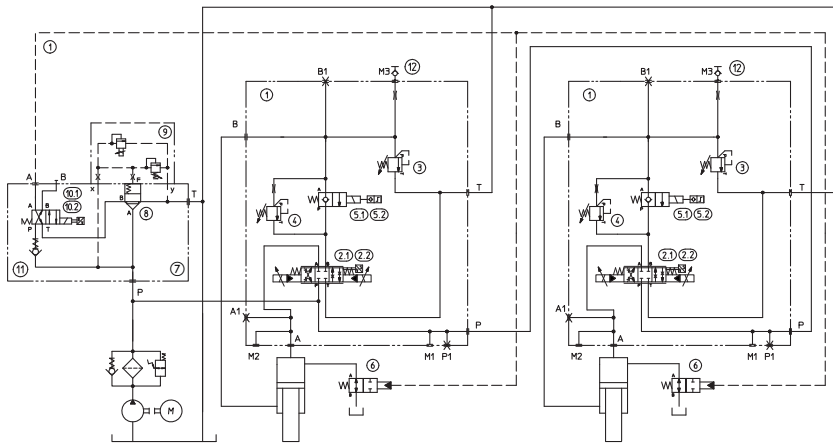
Safety valve with  
monitor signal only  
for -C execution





## 8 MODULAR BLOCK DESIGN TYPE PB11

### 8.1 Certified hydraulic scheme -C (with -HT, -HTE proportional control type)



Pos	Description	Atos code	-N	-C
1	SUBPLATE		●	●
2.1	PROPORTIONAL VALVE	100270 DPZO-T-171-L5	●	●
2.2	PROPORTIONAL VALVE	100270 DPZO-TE-171-L5	●	●
3	SAFETY PRESSURE RELIEF VALVE	CART M6/350/RS	●	●
4	BALANCING VALVE	CART M6/350/R	●	●
5.1	SAFETY VALVE	JO-DL-10-2/NC/FI-X		●
5.2	CARTRIDGE	JO-DL-10-2/NC-X	●	
6	PREFILLING VALVE		●	●
7	SUBPLATE	SEE SECTION 9		
8	CARTRIDGE			
9	PROP. PRESSURE VALVE			
10.1	SAFETY VALVE			
10.2	DIRECTIONAL VALVE			
11	CHECK VALVE			
12	MINIMESS	Y-AK-04-GOR	●	●

Note: the PBB solution has the same hydraulic scheme but without monitor signal on valves ⑤ and ⑩

### 8.2 Installation dimensions of PB11\*-HT(E) synchronization block (for pression control blocks see section 9.2)

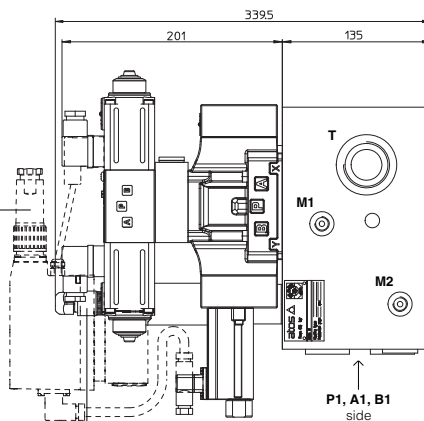
#### SYNCHRONIZATION CONTROL BLOCK

Fastening bolts:  
4 socket head screw M8x140 class 12.9

Port dimensions:  
P = G 1" P1 = G 1" (plugged)  
T = G 1 1/4"  
A / A1 = G 3/4"  
B / B1 = G 1"  
M\* = G 1/4"

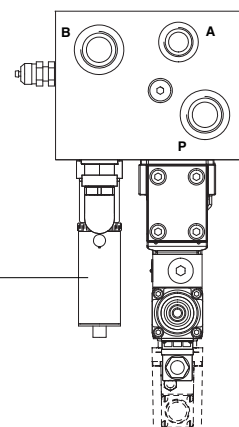
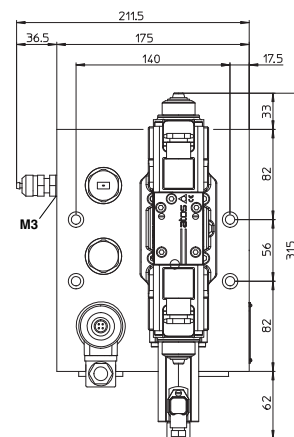
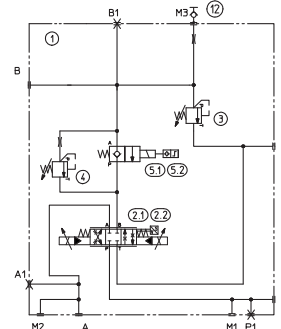
Dotted line = TE proportional control type

**SP-ZH-7P**  
Power supply connector  
metallic or plastic,  
to be ordered separately



**SP-ZH-4P/68**  
Sensor connector plastic  
to be ordered separately

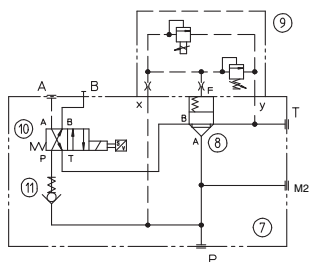
#### Hydraulic scheme



Safety valve with  
monitor signal only  
for -C execution

## 9 PRESSURE CONTROL BLOCK (FOR PB-10 AND PB-11)

### 9.1 Hydraulic scheme of pressure control blocks for PB1\*



Composition of pressure control block size 16

Pos	Description	Atos code	-N	-C
7	SUBPLATE		●	●
8	CARTRIDGE	SC LI-16313	●	●
9	PROP. PRESSURE VALVE	LIMZO-A-1/315/18	●	●
10.1	SAFETY VALVE	DHU-0631/2/AFIE/NC-X		●
10.2	DIRECTIONAL VALVE	DHU-0631/2/A/NC-X	●	
11	CHECK VALVE	CART ADR-10	●	●

Composition of pressure control block size 25

Pos	Description	Atos code	-N	-C
7	SUBPLATE		●	●
8	CARTRIDGE	SC LI-25313	●	●
9	PROP. PRESSURE VALVE	LIMZO-A-2/315/18	●	●
10.1	SAFETY VALVE	DHU-0631/2/AFIE/NC-X		●
10.2	DIRECTIONAL VALVE	DHU-0631/2/A/NC-X	●	
11	CHECK VALVE	CART ADR-10	●	●

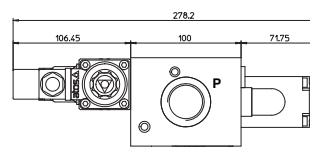
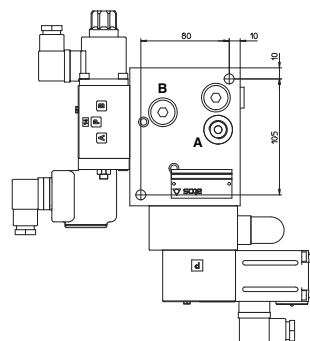
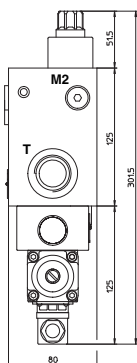
### 9.2 Installation dimensions of PB10 and PB11 pressure control blocks

#### PRESSURE CONTROL BLOCK size 16

Fastening bolts:  
2 socket head screw M8x95 class 12.9

Port dimensions:

**P** = G 1"  
**T** = G 1"  
**A** = G 3/8"  
**B** = G 3/8"  
**M2** = G 1/4"

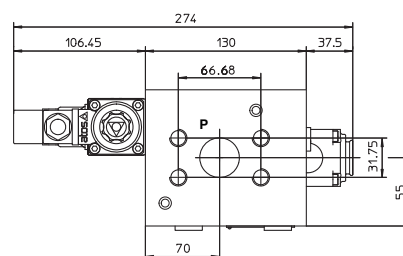
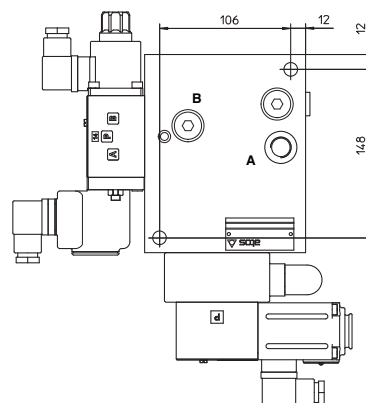
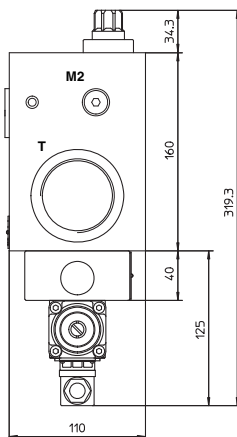


#### PRESSURE CONTROL BLOCK size 25

Fastening bolts:  
2 socket head screw M10x115 class 12.9

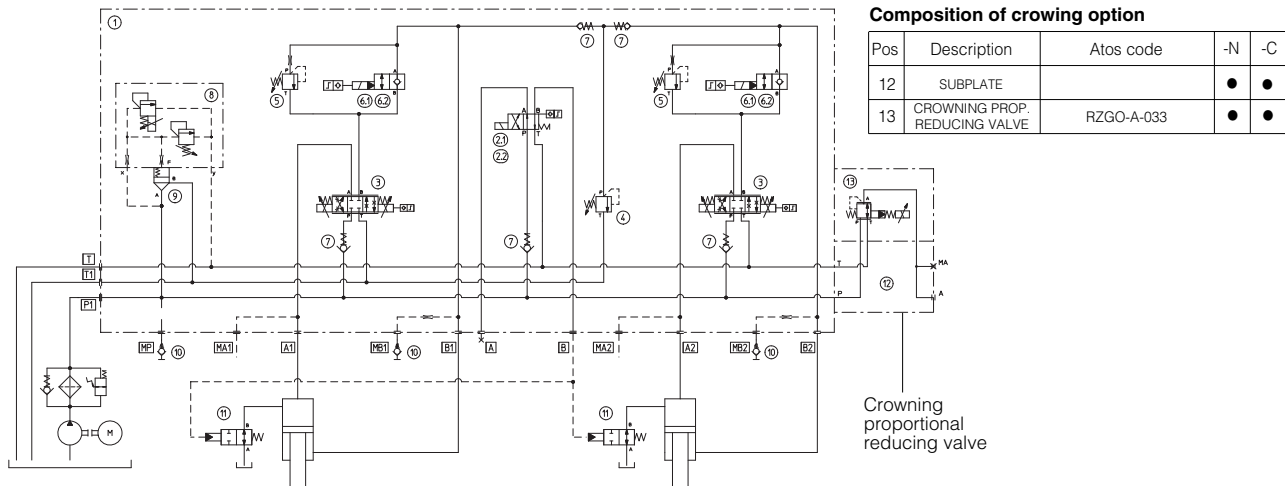
Port dimensions:

**P** = 1 1/4" SAE 6000  
**T** = G 2"  
**A** = G 3/8"  
**B** = G 3/8"  
**M2** = G 1/4"



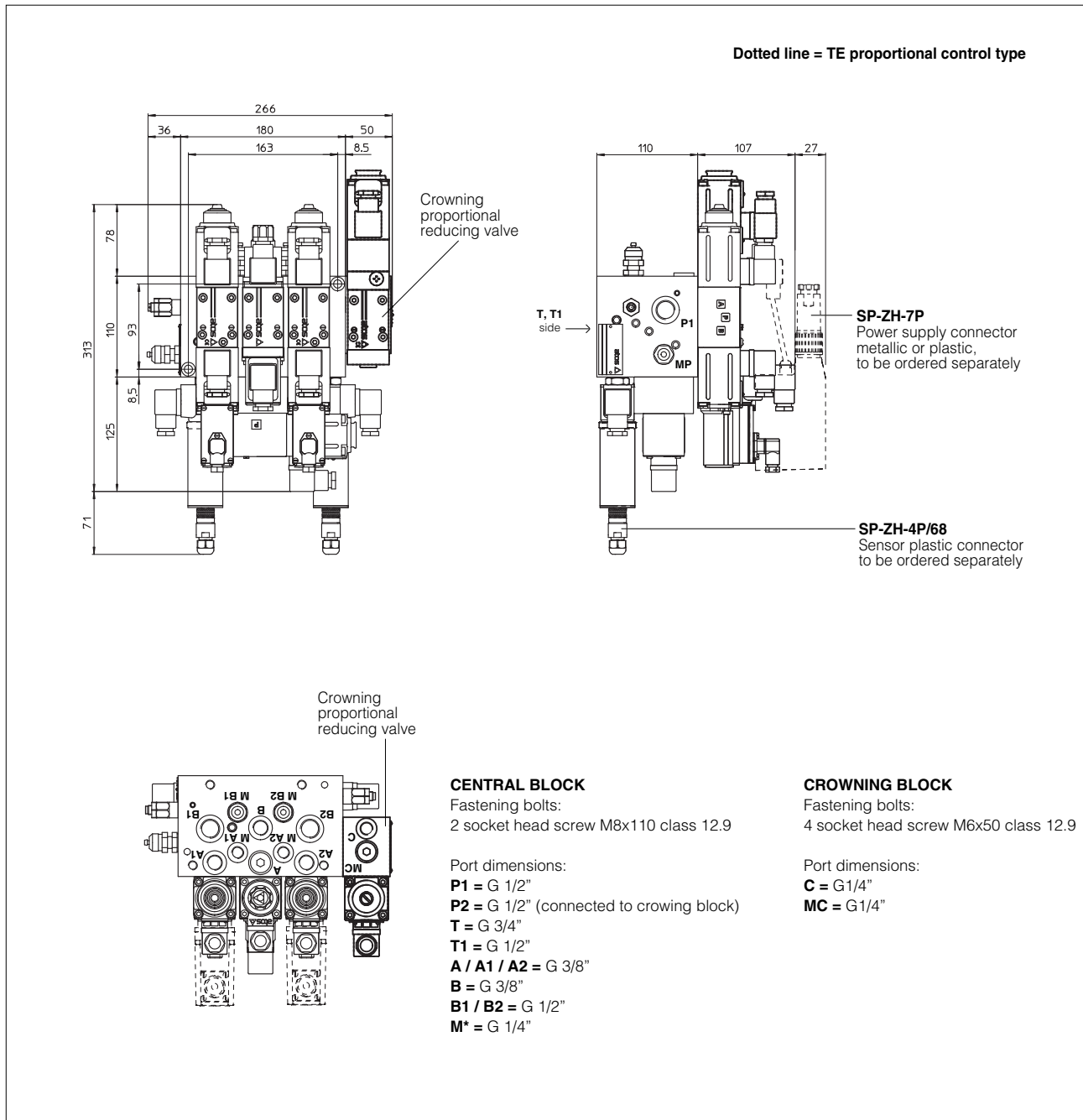
## 10 CROWNING OPTION FOR CENTRAL BLOCK DESIGN TYPE PB06

### 10.1 Certified hydraulic scheme with crowning option PB-06C (example with -HT\* proportional control type)



Note: the PB06-N solution has the same hydraulic scheme but without monitor signal on valves ② and ⑥

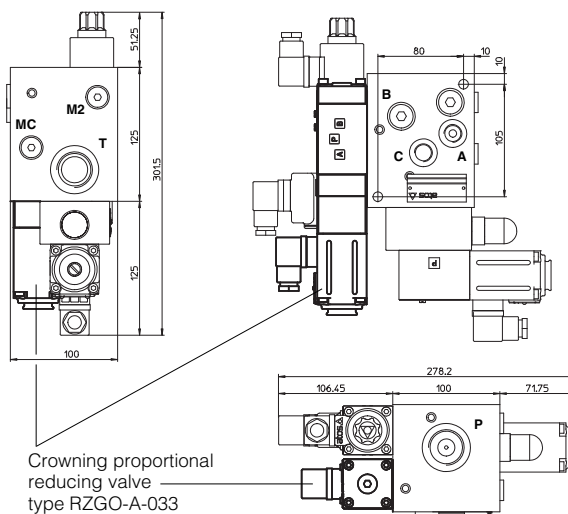
### 10.2 Installation dimensions of PB06-\* central block with crowning option (example with -T\* proportional control type)



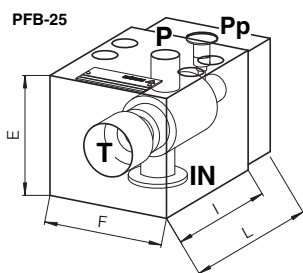
### 11.1 Installation dimensions of pressure control block with crowning option for PB1\* solution

Fastening bolts:  
2 socket head screw M8x115 class12.9

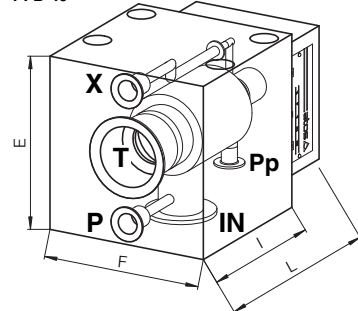
**T** = G 1"  
**A** = G 3/8"  
**B** = G 3/8"  
**C** = G 3/8"  
**M2** = G 1/4"  
**MC** = G 1/4"

[illegible]

**PFB-25**

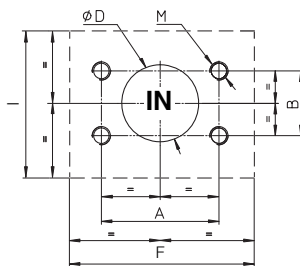


PFB-32  
PFB-40



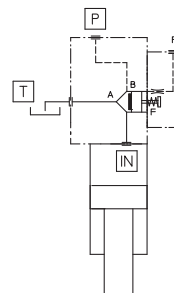
Model code	Size	Dimensions							Bolts	Seal	Port			
		A	B	D	E	F	I	L	M		T	X	P	Pp
<b>PFB-25</b>	25	70	28	Ø24	90	95	115	155	M10X90	OR 4137	G 1 1/4"	-	G3/8"	G1/4"
<b>PFB-32</b>	32	100	62	Ø32	130	125	125	185	M12X125	OR 149	G 1 1/2"	G3/8"	G3/8"	G1/4"
<b>PFB-40</b>	40	122	78	Ø50	165	150	150	250	M16X170	OR 4237	2"SAE 3000	G3/8"	G1/2"	G1/4"

### Cylinder surface

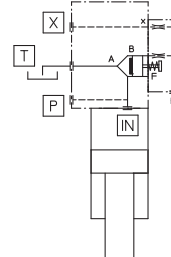


### PFB-25

#### Hydraulic scheme



### PFB-32, PFB-40 Hydraulic scheme



Model code	Size	Dimensions							Bolts	Seal	Port		
		D	E	F	I	L	N	P	M		T	X	Pp
<b>PFB-50</b>	50	Ø50	160	180	160	270	45.5	17.5	M16X150	OR 4237	2½" SAE 3000	G3/8"	G1/4"
<b>PFB-63</b>	63	Ø63	200	200	200	330	62.5	27.5	M16X190	OR 4275	3" SAE 3000	G3/8"	G3/8"

### Cylinder surface

