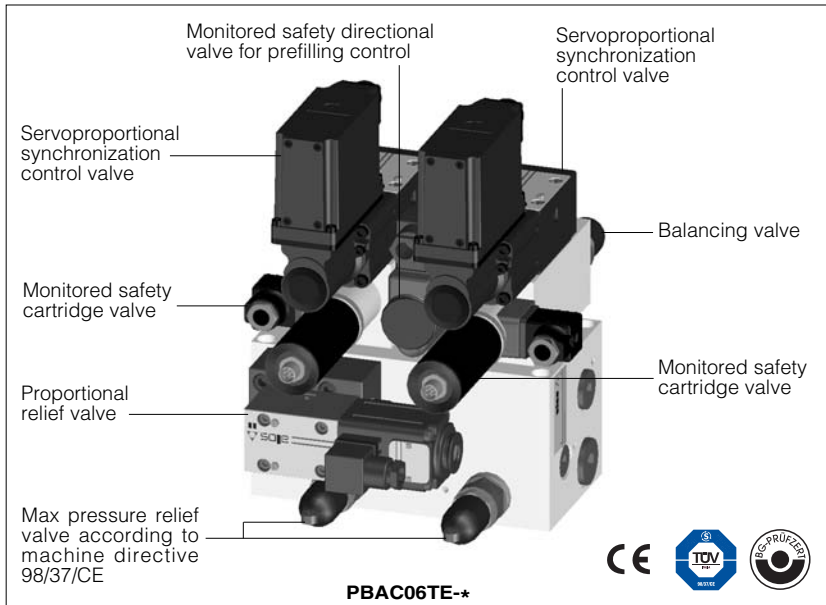


Standard solutions for CNC press brakes

CE and non CE design



New range of standardized electrohydraulic solutions for CNC synchronized press brakes, available in CE or non CE design.

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

PBA(C), solution with central block design for small / medium machines, comprehensive of:

- central manifold including the proportional pressure control, size 06 synchronization servoproportional valves, safety valves

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

PBB(C), solution with modular blocks design for medium / big machines, comprehensive of:

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

PBAC, PBBC designs are CE certified by BG or TÜV according to the EN 12622.

The PBA and PBB are the non CE version without monitored safety valves.

The following proportional controls available:

- For middle performances presses:
 - A** non CE certified execution (PBA and PBB) with electronic driver functions integrated in the machine CNC
 - TFI** as "A" plus on-off output to monitor the central valve position (safety condition) for CE certified execution (PBAC and PBBC). Electronic driver functions are integrated in the machine CNC

- For high performances presses:
 - T** servoproportional valves with integral position transducer and separated double card driver E-ME-T-21H (Eurocard format)
 - TE** servoproportional valves with integral position transducer and integral electronic driver

PBA(C) and PBB(C) solutions are also available with crowning option CR, consisting of a size 06 proportional reducing valve for the compensation of the machine frame deformation, see sections 8, 9

1 MODEL CODE OF CONTROL BLOCKS SOLUTION

PB	A	C	- 06	16	TE	- L51	-	CR
Press brake solution								Optional crowning function, see sections 8, 9
Design solution type A = central block B = modular block						Regulation characteristic (at Δp 15 bar per edge) A (size 06): L2 = 28 l/min (2) L3 = 40 l/min (2) L5 = 50 l/min A (size 10): L3 = 80 l/min L5 = 105 l/min		T, TE (size 06): L31 = 9 l/min L51 = 18 l/min L71 = 27 l/min T, TE (size 10): L31 = 40 l/min L71 = 60 l/min
Design certified C = CE certified - = non CE					Proportional control type A = driver functions included in machine cnc -only for PBA and PBB (1) TFI = as "A" with plus proportional valve spool monitor -only for PBAC and PBBC (1) T = with position transducer TE = with position transducer and integral electronics			
Synchronization servoproportional valves size 06 = for solution type PBA 10 = for solution type PBB								
Pressure control block size 16 = size 16 for PBA(C) and PBB(C) 25 = size 25 only for PBB(C)								

(1): to be used only with ESA/GV machine controller series KWARA
(2): special and not linear hydraulic characteristics

2 MODEL CODE OF PREFILLING BLOCKS

PFB	-	25
Prefilling block		
Prefilling size (2) 25, 32, 40 normally coupled with solution type PBA(C) 50, 63 normally coupled with solution type PBB(C)		(2): Other prefilling sizes or based on customized mounting surfaces available on request

3 TECHNICAL CHARACTERISTICS

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	PBA(C)-0616-A (TFI)	28, 40, 50 for control type A	25	150
1250 - 2000			PBA(C)-0616-T(TE)	9, 18, 27 for control type T, TE	32	225
2000 - 3000					40	350
3000 - 6000	Up to 150		PBB(C)-1016-A (TFI)		50	500
6000 - 10000			PBB(C)-1016-T(TE)	80, 105 for control type A	63	800
10000 - 15000	Up to 220			PBB(C)-1025-A (TFI) PBB(C)-1025-T (TE)	40, 60 for control type T, TE	To be defined, depending to the machine characteristics

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

4 MAIN CHARACTERISTICS

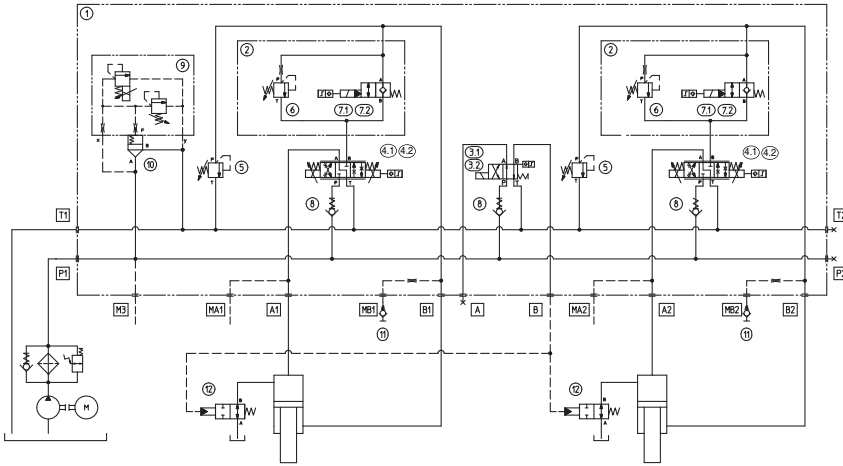
Ambient temperature	-20°C to +70°C for -A execution; -20°C to +60°C for -T and -TE executions.
Fluid	Hydraulic oil as per DIN 51524 535
Recommended viscosity	15 ÷ 100 mm ² /s at 40°C (ISO VG 15 ÷ 100)
Fluid contamination class	ISO 18/15, achieved with in line filters at 10 µm value to β ₁₀ ≥ 75 (recommended)
Fluid temperature	-20°C +60°C

5 BLOCKS ASSEMBLING

Control block solution	Composition	
PBA-0616-A	N° 1 central synchro block ① with size 06 proportional valves, driver functions integrated in the machine CNC, and size 16 proportional pressure control.	<p>② Prefilling block</p> <p>① Central synchro block (TE)</p> <p>② Prefilling block</p> <p>Beam cylinders</p> <p>Beam</p>
PBAC-0616-TFI	As PBA-06A plus proportional valves spool monitor for CE certified execution	
PBA(C)-0616-T	N° 1 central block ① with size 06 servoproportional valves with position transducer and size 16 proportional pressure control. N° 1 driver E-ME-T-21H.	
PBA(C)-0616-TE	N° 1 central block ① with size 06 servoproportional valves with transducer and integral electronics, size 16 proportional pressure control.	
Control block solution	Composition	
PBB-1016-A PBB-1025-A	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>① Synchro block (TE)</p> <p>② Prefilling block</p> <p>③ Pressure block</p> <p>① Synchro block (TE)</p> <p>② Prefilling block</p> <p>Beam cylinders</p> <p>Beam</p> <p>Synchro blocks mounted on the prefilling blocks</p>
PBBC-1016-TFI PBBC-1025-TFI	As PBA-10A plus proportional valves spool monitor for CE certified execution	
PBB(C)-1016-T PBB(C)-1025-T	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.	<p>① Synchro block (TE)</p> <p>② Prefilling block</p> <p>③ Pressure block</p> <p>① Synchro block (TE)</p> <p>② Prefilling block</p> <p>Beam cylinders</p> <p>Beam</p> <p>Synchro blocks mounted separated from the prefilling blocks</p>
PBB(C)-1016-TE PBB(C)-1025-TE	N° 1 proportional pressure control block size 16 or size 25 ③. N° 2 synchronization blocks ① with size 10 servoproportional valves with transducer and integral electronics.	
Prefilling block model code	Description	
PFB-25, 32, 40	Separated prefilling blocks ②, size 25, 32, 40 to be selected according to the machine characteristics - normally coupled with PBA(C) solution	
PFB-50, 63	Prefilling blocks ②, size 50 or 63 to be selected according to the machine characteristics - normally coupled with PBB(C) solution	

6 CENTRAL BLOCK DESIGN TYPE PBA(C)

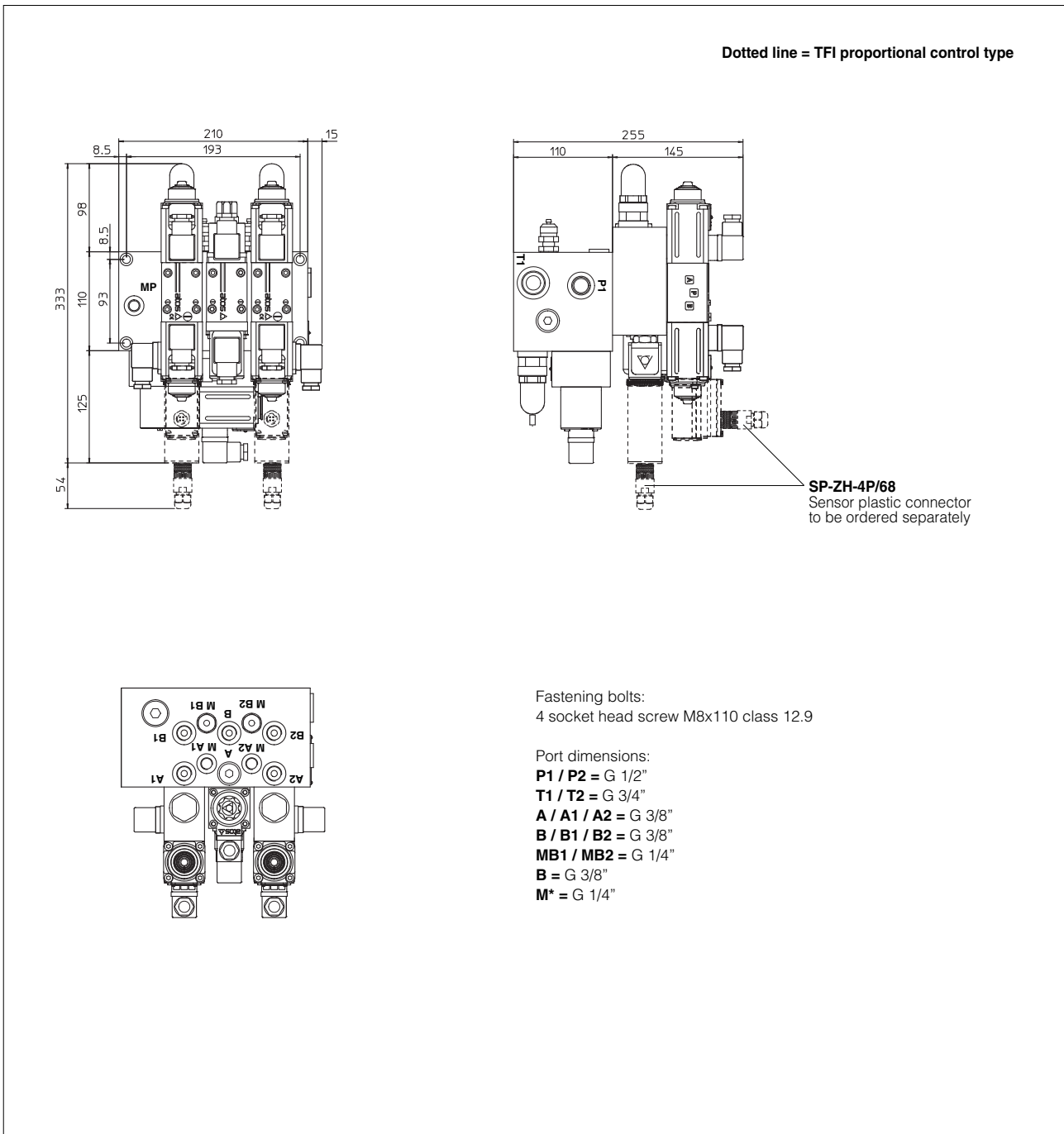
6.1 Certified hydraulic scheme (with -TFI proportional control type)



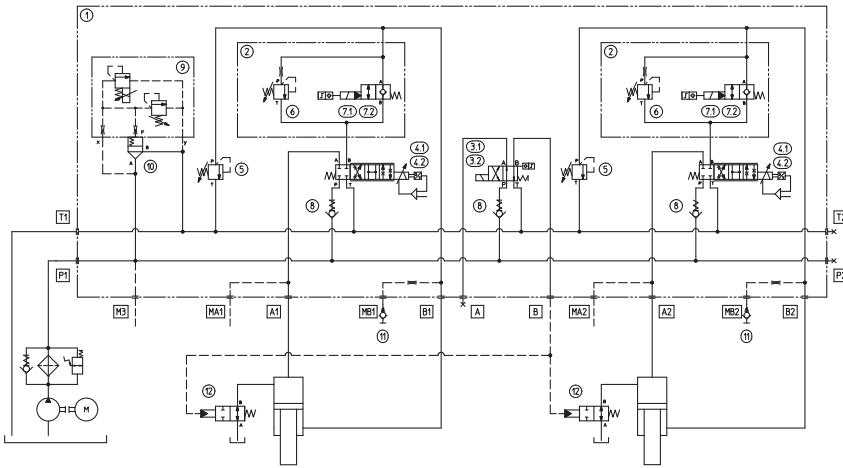
Pos	Description	Atos code	PBA	PBAC
1	SUBPLATE		●	●
2	SUBPLATE		●	●
3.1	SAFETY VALVE	DHU-0631/2/FIE/NC-X		●
3.2	DIRECTIONAL VALVE	DHU-0631/2/-X	●	
4.1	PROPORTIONAL VALVE	DHZO-TFI-071-L*		●
4.2	PROPORTIONAL VALVE	DHZO-A-071-L*	●	
5	SAFETY PRESSURE RELIEF VALVE	CART M6/350/RS	●	
6	BALANCING VALVE	CART M6/350/R	●	●
7.1	SAFETY VALVE	JO-DL-4-2/NC/FI-X		●
7.2	CARTRIDGE	JO-DL-4-2/NC-X	●	
8	CHECK VALVE	DR-5/G	●	●
9	PROP. RELIEF VALVE	LIMZO-A-1/315/18	●	●
10	CARTRIDGE	SC LI-16312	●	●
11	MINIMESS	Y-AK-04-GOR	●	●
12	PREFILLING VALVE		●	●

Note: the PBA solution has the same hydraulic scheme but without monitor signal on valves ④ and ⑦

6.2 Installation dimensions of PBA(C) central block



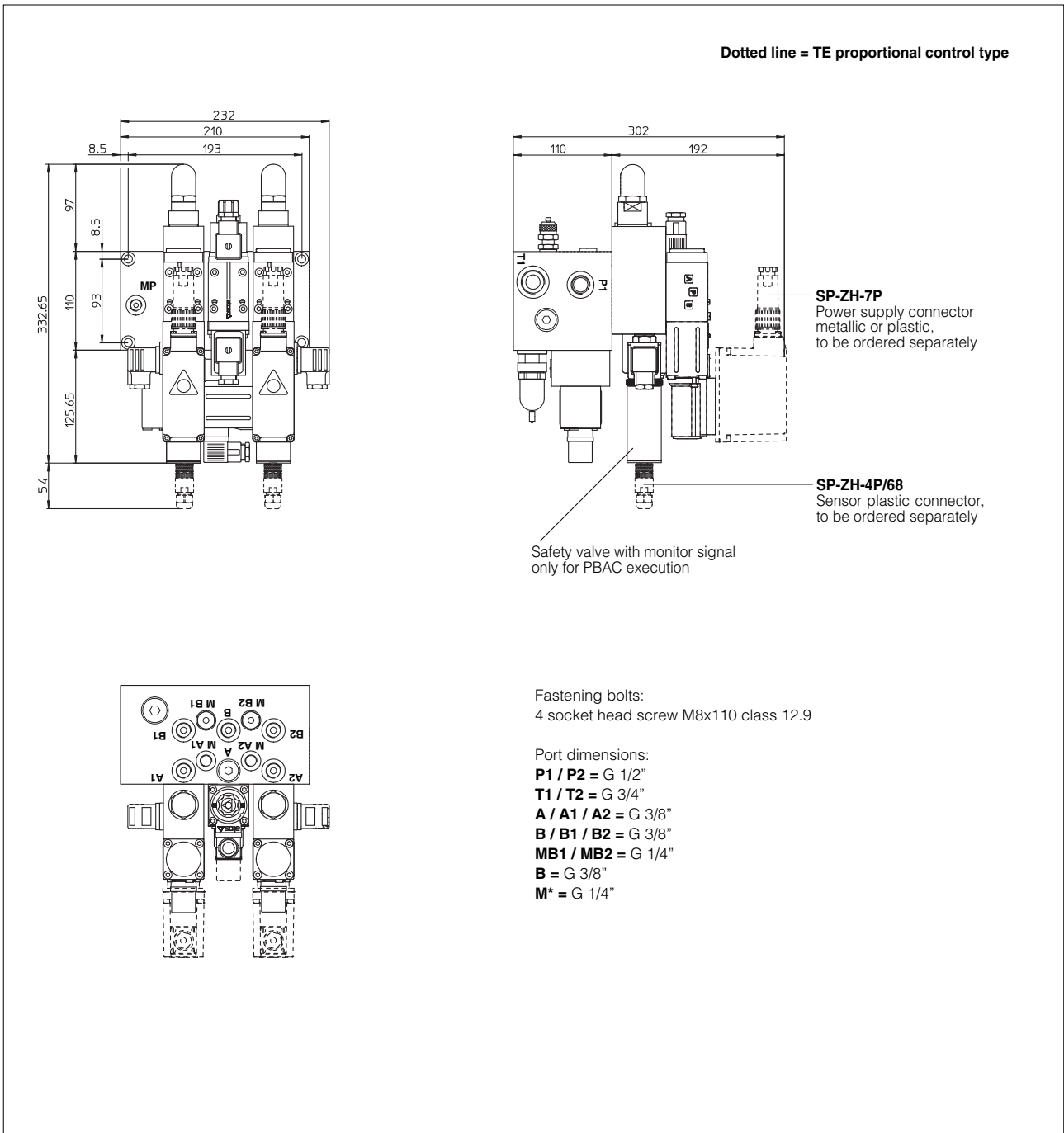
6.3 Certified hydraulic scheme (with -T , -TE proportional control type)



Pos	Description	Atos code	PBA	PBAC
1	SUBPLATE		●	●
2	SUBPLATE		●	●
3.1	SAFETY VALVE	DHU-0631/2/IE/NC-X		●
3.2	DIRECTIONAL VALVE	DHU-0631/2/-X	●	
4.1	SERVOPROPORTIONAL VALVE	DLHZO-T-040-L-	●	●
4.2	SERVOPROPORTIONAL VALVE	DLHZO-TE-040-L-	●	●
5	SAFETY PRESSURE RELIEF VALVE	CART M6/350/RS	●	●
6	BALANCING VALVE	CART M6/350/R	●	●
7.1	SAFETY VALVE	JO-DL-4-2/NC/FI-X		●
7.2	CARTRIDGE	JO-DL-4-2/NC-X	●	
8	CHECK VALVE	DR-5/G	●	●
9	PROP. RELIEF VALVE	LIMZO-A-1/315/18	●	●
10	CARTRIDGE	SC LI-16312	●	●
11	MININESS	Y-AK-04-GOR	●	●
12	PREFILLING VALVE		●	●

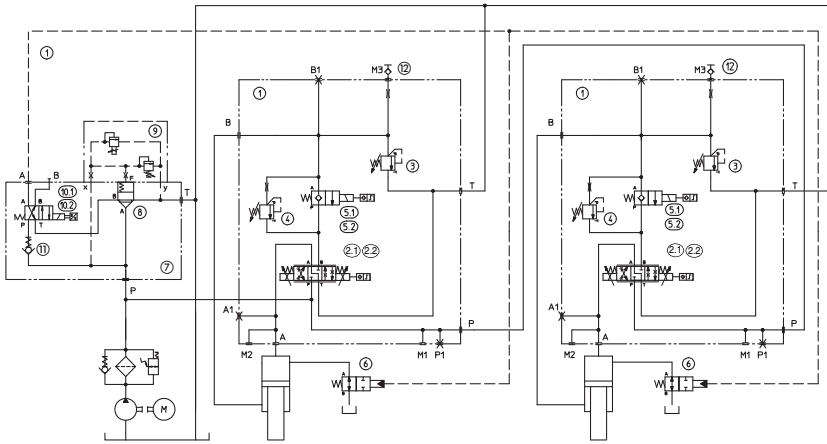
Note: the PBA solution has the same hydraulic scheme but without monitor signal on valves ③ and ⑦

6.4 Installation dimensions of PBA(C) central block



7 MODULAR BLOCK DESIGN TYPE PBB(C)

7.1 Certified hydraulic scheme (with -TFI proportional control type)



Pos	Description	Atos code	PBB	PBBC
1	SUBPLATE		●	●
2.1	PROPORTIONAL VALVE	DKZOR-TFI-171-L*		●
2.2	PROPORTIONAL VALVE	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/Fl-X		●
5.2	CARTRIDGE	JO-DL-10-2/NC-X	●	
6	PREFILLING VALVE		●	●
7	SUBPLATE	SEE SECTION 7.5		
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 ② and ⑩

7.2 Installation dimensions of PBB(C) synchronization block (for pressure control blocks see section 7.6)

SYNCHRONIZATION CONTROL BLOCK

Fastening bolts:
4 socket head screw M8x140 class 12.9

Port dimensions:

P / P1 = G 1"

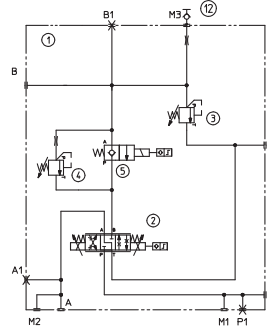
T = G 1 1/4"

A / A1 = G 3/4"

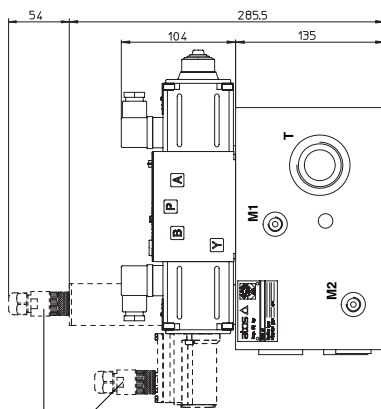
B / B1 = G 1"

M* = G 1/4"

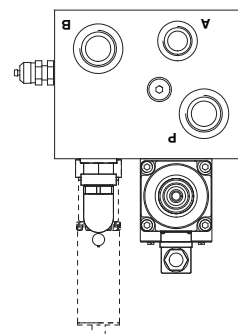
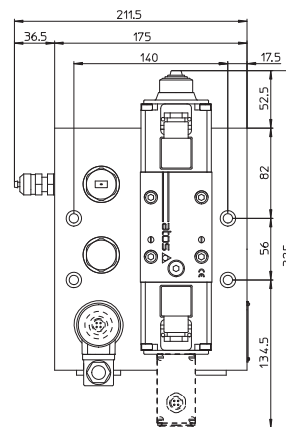
Hydraulic scheme



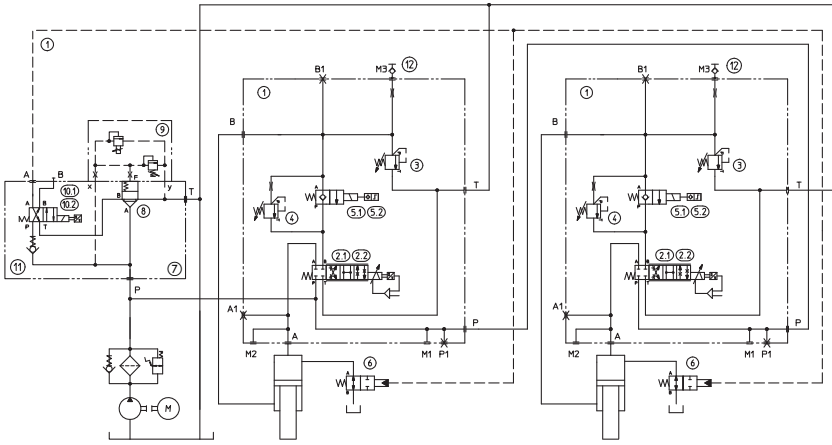
Dotted line = TFI proportional control type



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



7.3 Certified hydraulic scheme (with -TE proportional control type)



Pos	Description	Atos code	PBB	PBBC
1	SUBPLATE		●	●
2.1	SERVOPROPORTIONAL VALVE	DLKZOR-TE-140-L*	●	●
2.2	SERVOPROPORTIONAL VALVE	DLKZOR-T-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 7.5		
8	CARTRIDGE			
9	PROP. PRESSURE VALVE			
10.1	SAFETY VALVE			
10.2	DIRECTIONAL VALVE			
11	CHECK VALVE			
12	MININESS	Y-AK-04-GOR	●	●

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

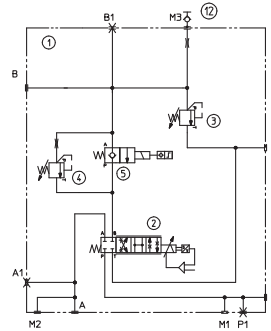
7.4 Installation dimensions of PBB(C) synchronization block (for pression control blocks see section 7.6)

SYNCHRONIZATION CONTROL BLOCK

Fastening bolts:
4 socket head screw M8x140 class 12.9

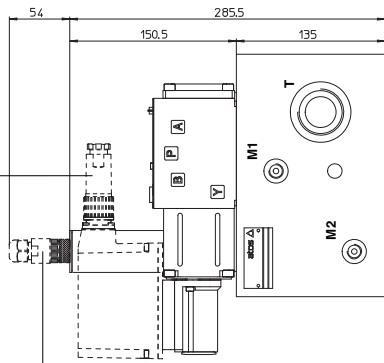
Port dimensions:
P / P1 = G 1"
T = G 1 1/4"
A / A1 = G 3/4"
B / B1 = G 1"
M* = G 1/4"

Hydraulic scheme

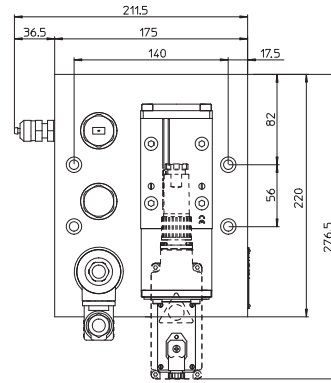


Dotted line = TE proportional control type

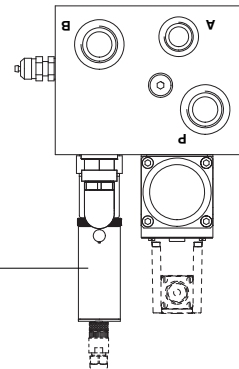
SP-ZH-7P
Power supply connector metallic or plastic, to be ordered separately



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

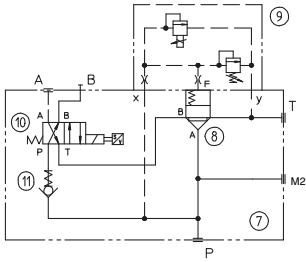


Safety valve with monitor signal only for PBAC execution



7.5 Hydraulic scheme of pressure control blocks for PBB(C)

Hydraulic scheme



Composition of pressure control block size 16

Pos	Description	Atos code	PBB	PBBC
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	PBB	PBBC
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	●	●

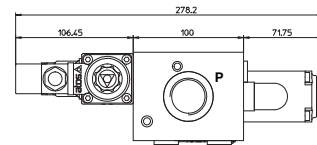
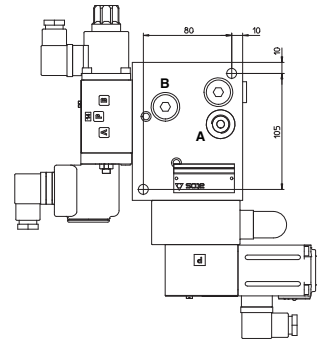
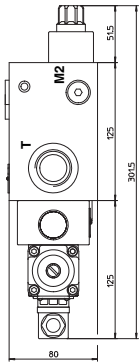
7.6 Installation dimensions of PBB(C) pressure control blocks

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"

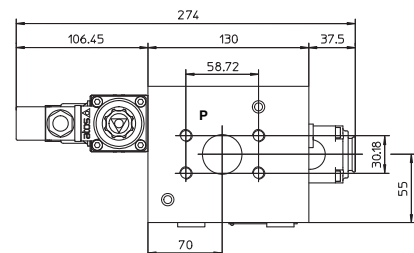
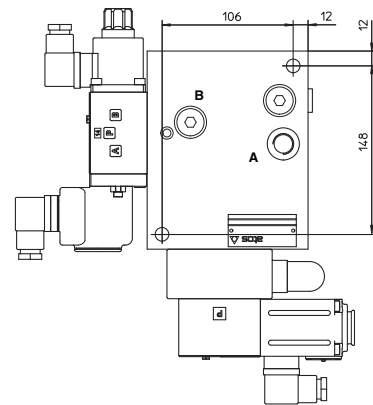
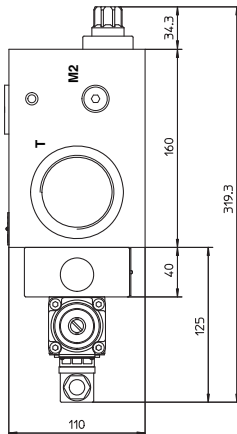


PRESSURE CONTROL BLOCK size 25

Fastening bolts:
2 socket head screw M10x115 class 12.9

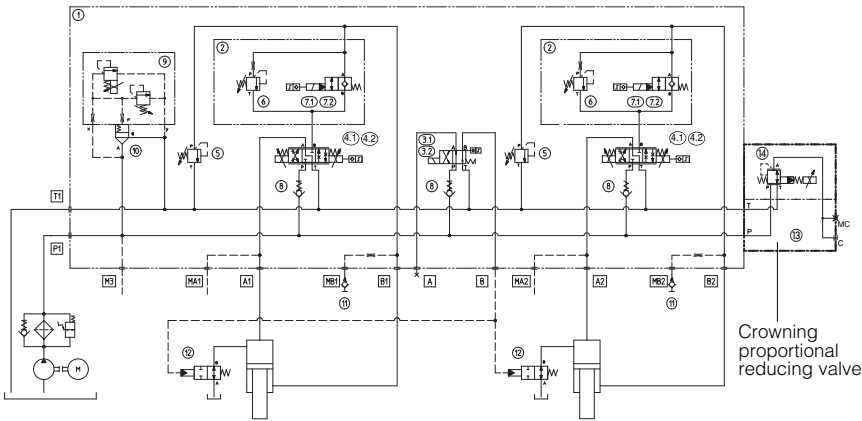
Port dimensions:

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



8 CROWNING OPTION FOR CENTRAL BLOCK DESIGN TYPE PBA(C)

8.1 Certified hydraulic scheme with crowning option (example with -TFI proportional control type)

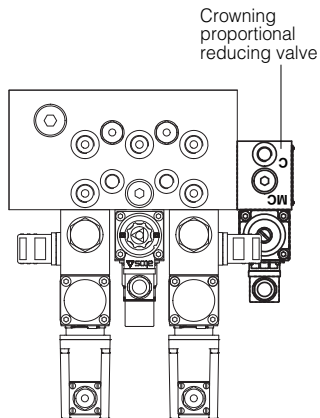
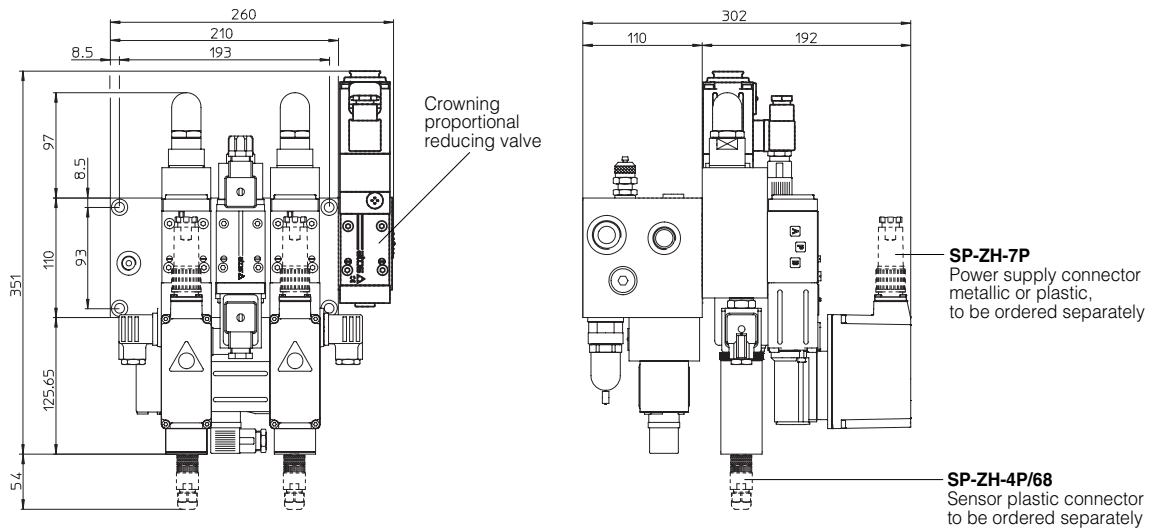


Composition of crowning option

Pos	Description	Atos code	PBA	PBAC
13	SUBPLATE		●	●
14	CROWNING PROP. REDUCING VALVE	RZGO-A-033	●	●

Note: the PBA solution has the same hydraulic scheme but without monitor signal on valves ③ and ⑦

8.2 Installation dimensions of PBA(C) central block with crowning option (example with -TE proportional control type)



CENTRAL BLOCK

Fastening bolts:
4 socket head screw M8x110 class 12.9

Port dimensions:

- P1 / P2** = G 1/2"
- T1 / T2** = G 3/4"
- A / A1 / A2** = G 3/8"
- B / B1 / B2** = G 3/8"
- MB1 / MB2** = G 1/4"
- B** = G 3/8"
- M*** = G 1/4"

CROWNING BLOCK

Fastening bolts:
4 socket head screw M6x50 class 12.9

Port dimensions:

- C** = G1/4"
- MC** = G1/4"

9 CROWNING OPTION FOR MODULAR BLOCK DESIGN TYPE PBB(C)

9.1 Installation dimensions of pressure control block with crowning option for PBB(C) solution

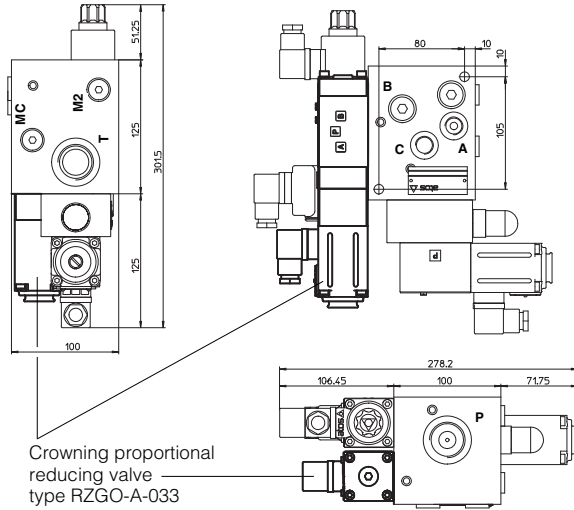
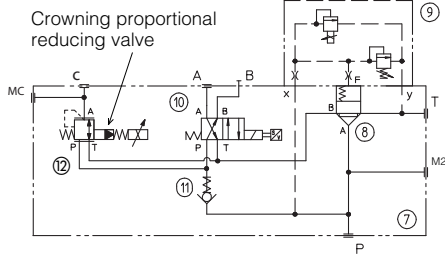
For solution PBB(C) the crowning proportional reducing valve ⑫ is installed on the pressure control block

Fastening bolts:
2 socket head screw M8x115 class12.9

Port dimensions:

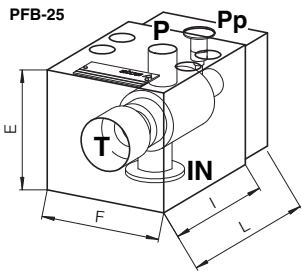
- P** = G 1"
- T** = G 1"
- A** = G 3/8"
- B** = G 3/8"
- C** = G 3/8"
- M2** = G 1/4"
- MC** = G 1/4"

Block's hydraulic scheme

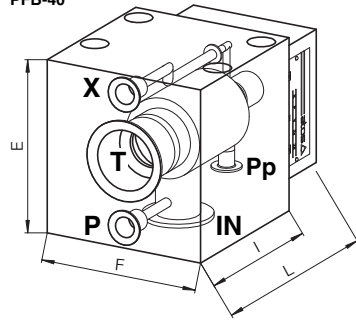


10 INSTALLATION DIMENSIONS OF PREFILLING BLOCKS TYPE PFB-*

PFB-25

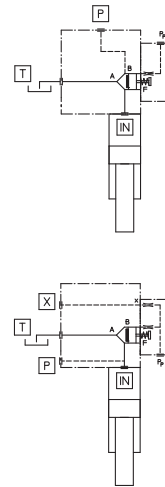
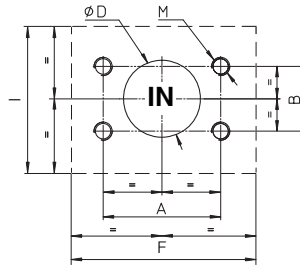


PFB-32
PFB-40

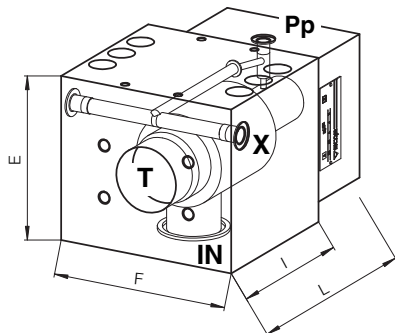


Model code	Size	Dimensions							Bolts M	Seal	Port			
		A	B	D	E	F	I	L			T	X	P	Pp
PFB-25	25	70	28	∅24	90	95	115	155	M10X90	OR 4137	G1"1/4	-	G3/8"	G1/4"
PFB-32	32	100	62	∅32	130	125	185	125	M12X125	OR 149	G1"1/2	G3/8"	G3/8"	G1/4"
PFB-40	40	78	122	∅50	165	150	250	150	M16X170	OR 4237	2" SAE 3000	G3/8"	G1/2"	G1/4"

Cylinder surface



Model code	Size	Dimensions							Bolts M	Seal	Port		
		D	E	F	I	L	N	P			T	X	Pp
PFB-50	50	∅50	160	180	160	270	17.5	270	M16X150	OR 4237	2"½ SAE 3000	G3/8"	G1/4"
PFB-63	63	∅63	200	200	200	330	27.5	330	M16X190	OR 4275	3" SAE 3000	G3/8"	G3/8"



Cylinder surface

