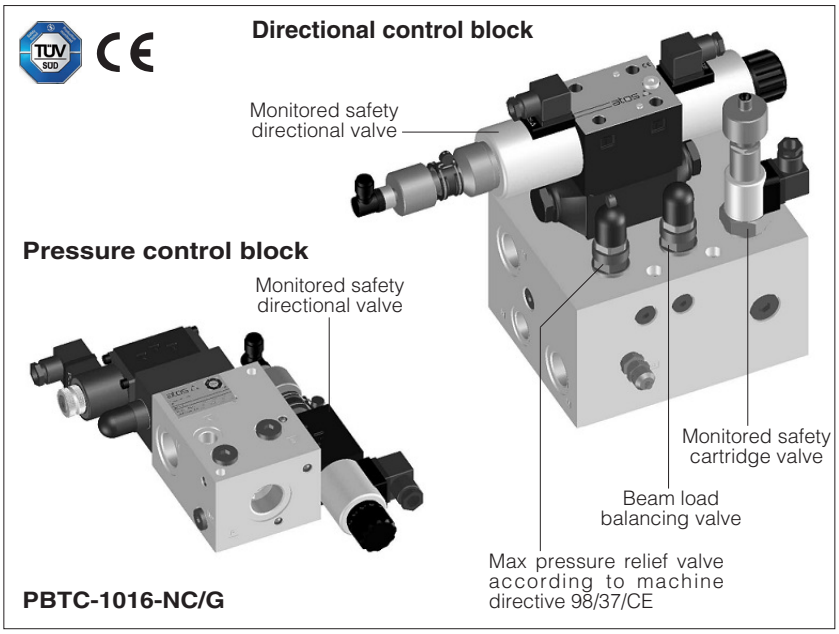
Standard solution for torque bar press brakes

CE and non CE design



New standard electrohydraulic solutions for torque bar press brakes are available in CE (PBTC) or non CE (PBT) design. PBTC design is CE certified by TÜV according to the EN 12622.

They are composed by:

- Directional control block-size 10
- Pressure control block-size 16

Two different executions can be selected depending on the choice of the prefilling function, normally open or closed:

PBT(C)-1016-NO

To be coupled with n°2 prefilling blocks with ISO/DIN normally open cartridges, see section [2].

PBT-1016-NC

To be coupled with n°2 prefilling valves mushroom type (not supplied by Atos).

The mushroom valves are integrated into the cylinder heads.

The NC solution is available with optional pressure reducing valve (option /G) to limit the pilot pressure to the normally closed prefilling valves, as advised by some manifacturers

Safety notes for installation and start-up of the CE blocks are supplied on a separate document enclosed in the shipment envelope.

1 MODEL CODE OF CONTROL BLOCKS SOLUTION

PBT	C	-	10	16	-	NC	/G

PBT — Conventional press brakes solution

C — Certified design
- = non CE
C = CE certified (only for NO version)

10 — Directional control valve size
10 = size 10
16 = size 16

16 — Pressure control block size
16 = size 16

NC — **NO** = normally open Atos PFB prefilling blocks
NC = normally closed prefilling blocks (not available in Atos range)

/G — Optional control block reducing valve, only for -NC

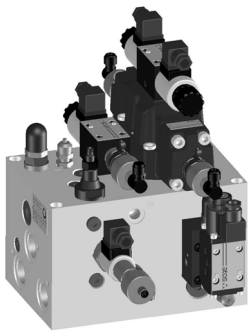
2 MODEL CODE OF PREFILLING BLOCKS

PFB	-	40

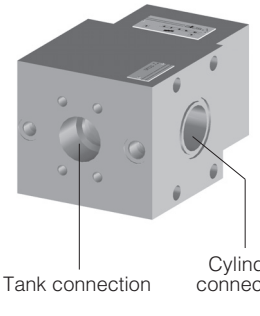
PFB — Prefilling block to be coupled with -NO control block type

40 — Prefilling size:
25, 32, 40 normally coupled with solution type PBT(C)-1016
50, 63 normally coupled with solution type PBT(C)-1616

PBTC-1616-NC/G Control block



PFB Prefilling block



3 TECHNICAL CHARACTERISTICS of PBTC solution and PFB prefilling blocks

Pressing Force (kN)	Pump flow (l/min)	Working pressure (bar)	Size of PBTC control block	PFB prefilling valve size	PFB nominal flow in suction condition (l/min)
400 - 1250	Up to 50	Up to 315	PBTC-1016-NO	25	150
1250 - 2000				32	225
2000 - 3000				40	350
3000 - 5000	Up to 90		PBTC-1616-NO	50	500
6000 - 10000				63	800

Note: The above data are indicative. The selection of the solutions must be checked with Atos technical dept according to the press characteristics

4 MAIN CHARACTERISTICS

Ambient temperature	-20°C to +70°C
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 $\beta_{10} \mu$ 75 (recommended)
Fluid temperature	-20°C +60°C

5 BLOCKS ASSEMBLING -Typical machine configuration

Composition of PBT(C)-1016-*

N°1 size 16 pressure control block ②
N°1 directional control block with size 10 directional solenoid valve ①

Composition of PBT(C)-1616-*

N°1 control block with pressure control plus directional control, with size 16 double stage directional solenoid valve ④

Prefilling blocks model code

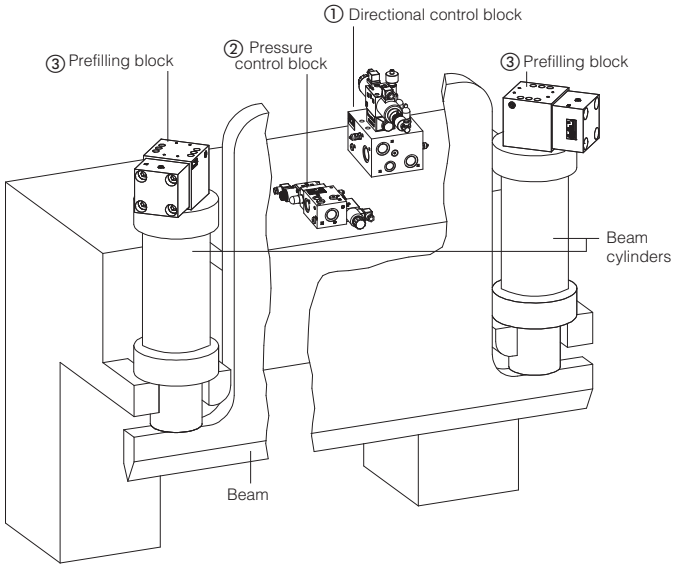
N°2 PFB-25, 32, 40, 50 to be used with solution PBT(C)-1016-NO ③

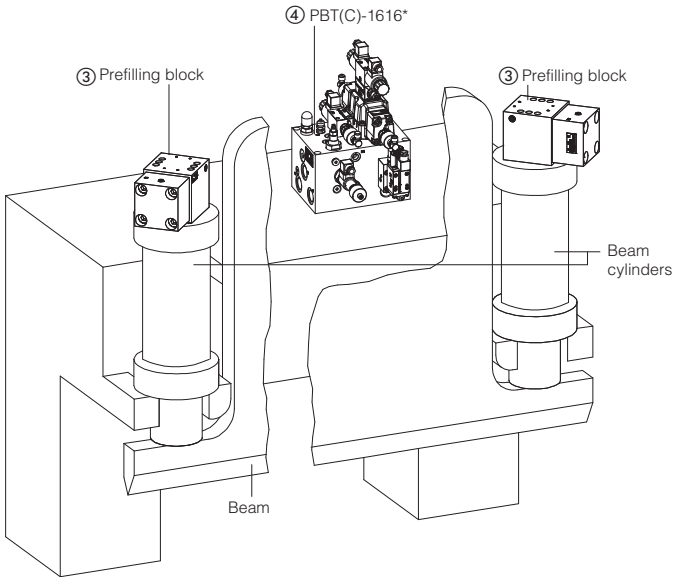
N°2 PFB-50 or 63 to be used with solution PBT(C)-1616-NO ③

Normally closed prefilling valves (not Atos) to be used with solution PBT-1*16-NC

Max downstroke speed limiter

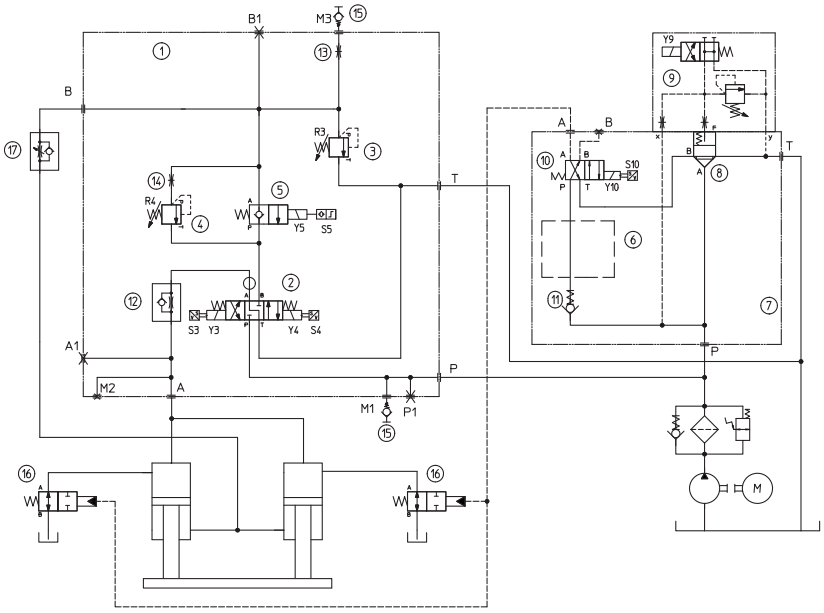
To limit the max downstroke speed in PBT(C)-10* solution, a flow control valve type AQFR-25, in-line mounting (see section 6.1, valve pos. 17), can be optionally connected between the directional control block and the cylinders rod sides.
In PBT(C)-16* solution the flow control valve is standard, mounted inside the block (see section 7.1, valve pos. 17)





6 SOLUTION PBT(C) SIZE 10

6.1 HYDRAULIC SCHEME (PBTC-1016-NO CE solution)



Pos	Descritption	Atos code	PBT	PBTC
1	SUBPLATE		●	●
2	MONITORED SAFETY DIRECTIONAL VALVE	DKE-1716/FV-X		●
2	DIRECTIONAL VALVE	DKE-1716-X	●	
3	SAFETY PRESSURE RELIEF VALVE	CART M6/350/RS	●	●
4	BALANCING VALVE	CART M6/350/R	●	●
5	MONITORED SAFETY VALVE	JO-DL-10-2/NC/FV-X		●
5	CARTRIDGE	JO-DL-10-2/NC-X	●	
6	REDUCING VALVE	HG-031/210	Δ	
7	SUBPLATE		●	●
8	CARTRIDGE	SC LI-16313	●	●
9	CONTROL PRESSURE VALVE	LIMHA-1/350	●	●
10	MONITORED SAFETY DIRECTIONAL VALVE	DHE-0631/2/A/FV-X		●
10	DIRECTIONAL VALVE	DHE-0631/2/A-X	●	
11	CHECK VALVE	CART ADR-10	●	●
12	DECOMPRESSION BLOCK	080279 KR-003	●	●
13	RESTRICTOR		●	●
14	RESTRICTOR		●	●
15	MINIMESS	Y-AK-04-GOR	●	●
16	PREFILLING VALVE	N.O. ATOS PFB BLOCK	o	o
		N.C. CUSTOMER VALVES	N.A.	N.A.
17	FLOW CONTROL VALVE	AQFR-25	o	o

The above scheme refers to PBTC-1016-NO execution coupled with Atos normally open prefilling valves, pos. ⑯

For system with normally closed prefilling valves type () in pos. ⑯

The prefilling valves pilot line must be connected to port B of the solenoid valve in pos. ⑩, port A is plugged

Note: not CE version have the same hydraulic scheme but without monitor signal for valves ② ⑤ ⑩

Δ : optional pressure reducing valve only for normally closed prefilling blocks

o : to be ordered separately

6.2 INSTALLATION DIMENSION

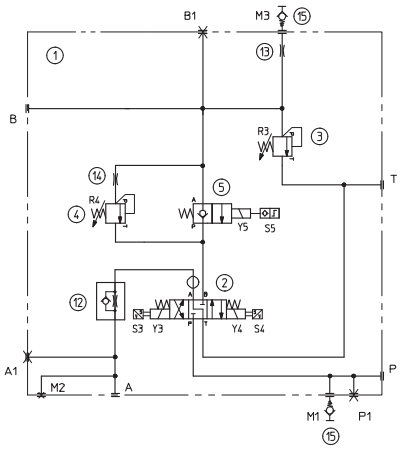
DIRECTIONAL CONTROL BLOCK

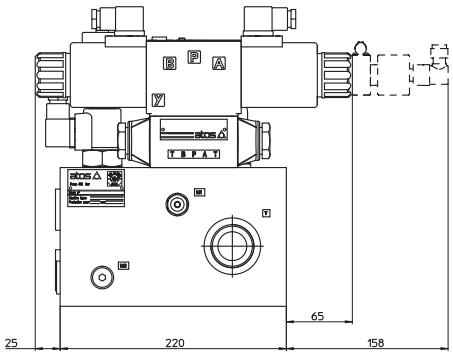
Dotted line = monitored verison for CE block

Fastening bolts:
4 socket head screw M8x140 class 12.9

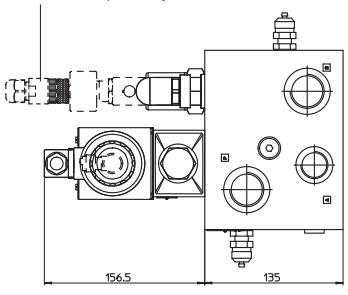
Port dimensions:
P / P1 = G 1”
T = G 1 1/4”
A / A1 = G 3/4”
B / B1 = G 1”
M* = G 1/4”

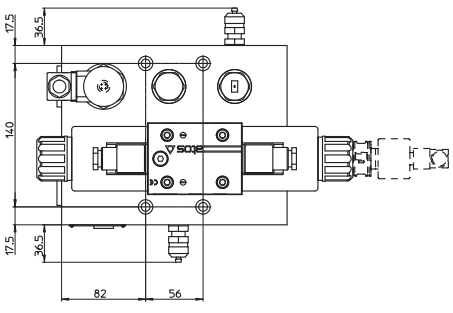
Hydraulic scheme





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





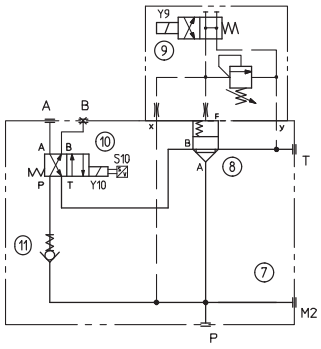
PRESSURE CONTROL BLOCK

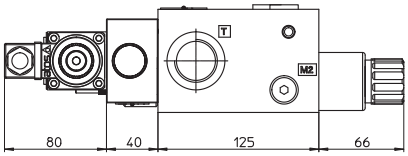
Dotted line = monitored verison for CE block

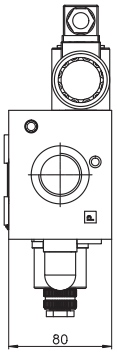
Fastening bolts:
2 socket head screw M8x95 class 12.9

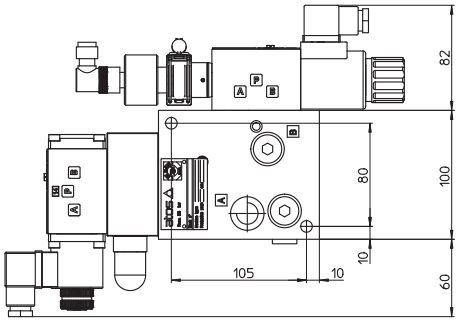
Port dimensions:
P = G 1”
T = G 1”
A = G 3/8”
B = G 3/8”
M2 = G 1/4”

Hydraulic scheme









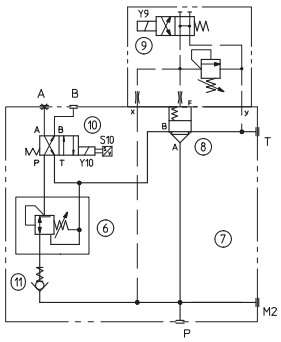
INSTALLATION DIMENSION OF PRESSURE CONTROL BLOCK with option /G

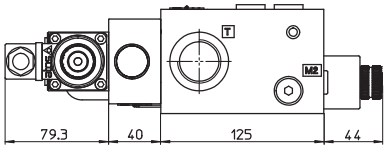
PRESSURE CONTROL BLOCK with option /G (only NC solution)

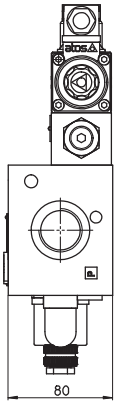
Fastening bolts:
2 socket head screw M8x95 class 12.9

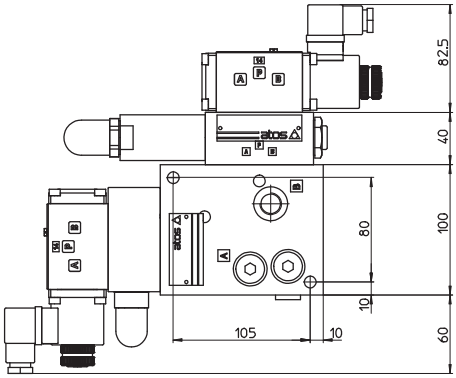
Port dimensions:
P = G 1”
T = G 1”
A = G 3/8”
B = G 3/8”
M2 = G 1/4”

Hydraulic scheme



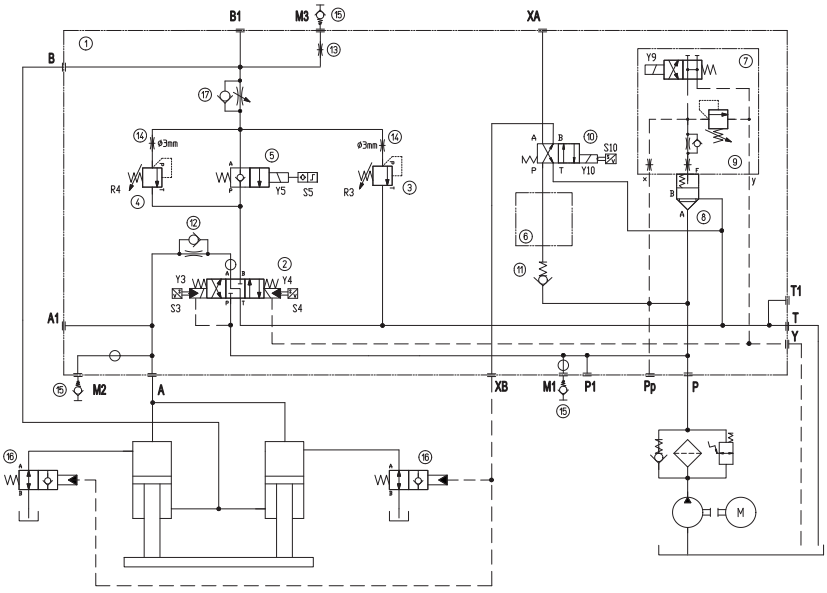






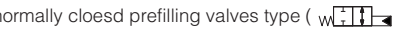
7 SOLUTION PBT(C) SIZE 16

7.1 HYDRAULIC SCHEME (PBTC-1616-NO CE solution)



Pos	Descritption	Atos code	PBT	PBTC
1	SUBPLATE		●	●
2	MONITORED SAFETY DIRECTIONAL VALVE	DPHE-2716/EH/FV-X		●
2	DIRECTIONAL VALVE	DPHE-2716/EH-X	●	
3	SAFETY PRESSURE RELIEF VALVE	CART M-6/330/RS	●	●
4	BALANCING VALVE	CART ARE-15/150/R	●	●
5	MONITORED SAFETY VALVE	JO-DL-10-2/NC/FV-X		●
5	CARTRIDGE	JO-DL-10-2/NC-X	●	
6	REDUCING VALVE	HG-031/210	Δ	
7	CONTROL PRESSURE VALVE	DHI-0639/O	●	●
8	CARTRIDGE	SC LI-16313	●	●
9	CONTROL PRESSURE VALVE	010296 LIMHA-1/P/350	●	●
10	MONITORED SAFETY DIRECTIONAL VALVE	DHE-0631/2/A/FV-X		●
10	DIRECTIONAL VALVE	DHE-0631/2/A-X	●	
11	CHECK VALVE	CART ADR-10/P	●	●
12	DECOMPRESSION BLOCK	020275 CART ADR-15	●	●
13	RESTRICTOR		●	●
14	RESTRICTOR		●	●
15	MINIMESS	Y-AK-04-GOR	●	●
16	PREFILLING VALVE	N.O. ATOS PFB BLOCK	o	o
		N.C. CUSTOMER VALVES	N.A.	N.A.
17	FLOW CONTROL VALVE	CART JPQ-2	●	●

The above scheme refers to PBTC-1616-NO execution coupled with Atos normally open prefilling valves, pos. ⑯

For system with normally cloesd prefilling valves type () in pos. ⑯

The prefilling valves pilot line must be connected to port B of the solenoid valve in pos. ⑩, port A is plugged

Note: not CE version have the same hydraulic scheme but without monitor signal for valves ② ⑤ ⑩

Δ : optional pressure reducing valve only for normally closed prefilling blocks

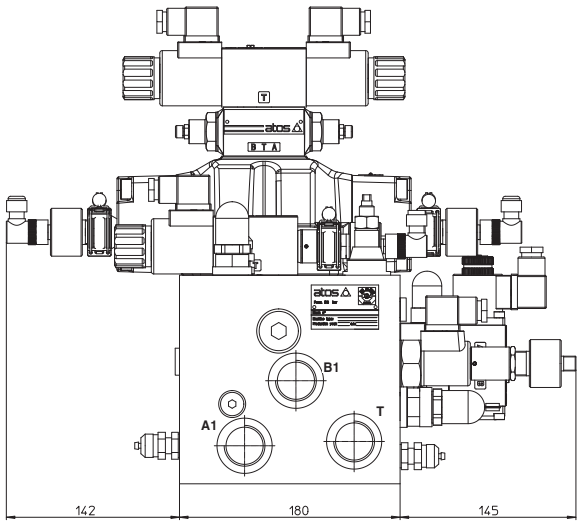
o : to be ordered separately

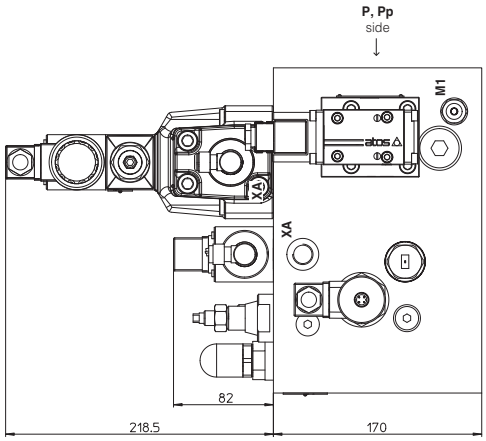
7.2 INSTALLATION DIMENSION

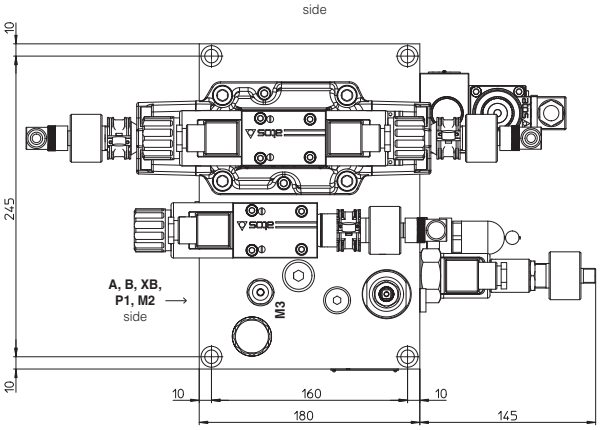
Fastening bolts:
4 socket head screw M10x150 class 12.9

Port dimensions:

P / P1	= G 1"
Pp	= G 1/4"
T	= G 1"
T1	= G 1" 1/4
A / A1	= G 1"
B / B1	= G 1"
XA / XB	= G 3/8"
Y	= G 3/8"
M*	= G 1/4"



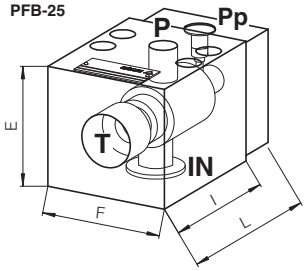




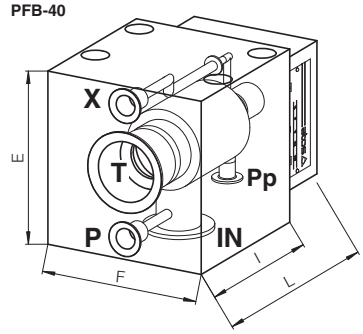
8 INSTALLATION DIMENSION OF PREFILLING BLOCKS TYPE PFB

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

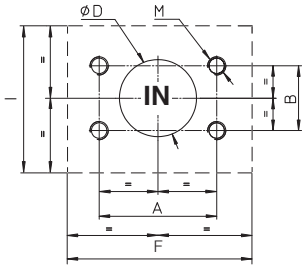
PFB-25



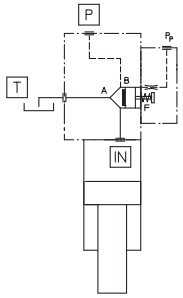
PFB-32
PFB-40



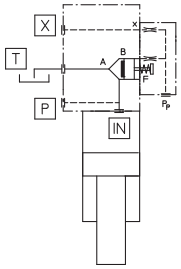
Cylinder surface



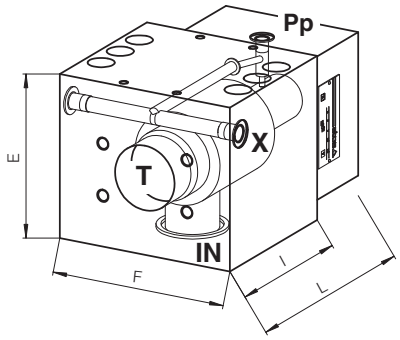
PFB-25
Hydraulic scheme



PFB-32, PFB-40
Hydraulic scheme



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



Cylinder surface