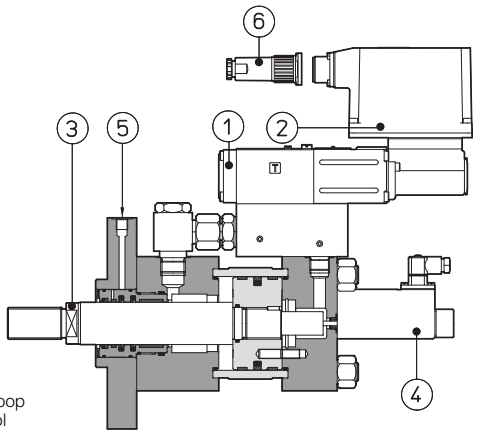
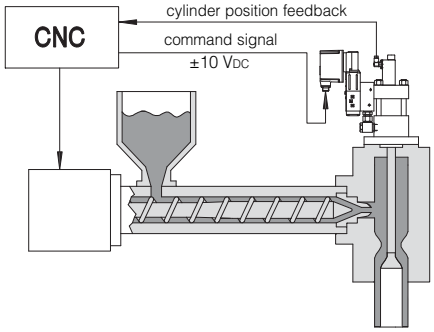
Actuators for PARISON controls

in blow molding machines



① pilot valve
② integral electronics with closed loop position control of the valve spool
③ servocylinder
④ cylinder position transducer
⑤ rod drain port
⑥ power supply connector



Schematic of wall thickness distribution for continuous extrusion process

Description:
The Parison control is a well known process used in the plastic blow molding machines for the wall thickness distribution of continuous extruded profiles.
It is mainly used to obtain hollow items, as plastic bottles, tanks, etc, whose thickness can be modulated depending to the required localized mechanical resistance. The wall thickness is realized by means of a specific servoactuator operated in position closed loop control (see below the application scheme).
The Atos actuators CKG are special servo cylinders operated by a high dynamic proportional valve providing high performance and high regulation repeatability.
The integral and compact execution ensures the best stiffness of the hydraulic system and it permits high dynamics and position accuracy.

Characteristics:
The actuator is composed by:
- Special cylinder equipped with low friction seals and with LVDT position transducer. The rod end is threaded for the connection to the extrusion head
- High dynamic servo proportional valve with zero lapped spool and LVDT position transducer

Available sizes: ø63/28, ø80/36, ø100/45, ø125/45, ø160/70, ø200/90 mm.
Stroke: 12 mm.

1 MODEL CODE

060820 CKG - H L - N - 1 0 - 80/36 *0012 - A

Mounting flange type: with threaded holes

Actuator type: **CKG** = ISO 6020-2

Control type: **H** = proportional control

Position/speed transducer type: **L** = LVDT

No pressure/force transducer

Proportional valve size:
1 = size 06 (only for cylinder size 63/28, 80/36, 100/45)
2 = size 10 (only for cylinder size 160/70 and 200/90)

Subplate type: **0** = standard

Piston/rod size [mm]
63/28 80/36 100/45 125/45 160/70 200/90

Stroke = 12 mm

Front flange attachment

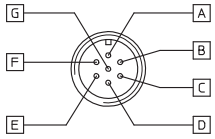
2 ACTUATOR COMPOSITION

Actuator model code	Servocylinder code	Servo proportional pilot valve code (see tab. F180)
060820 CKG-HL-N-10-63/28*0012-A	07K0323 CKT/10-9-63/28*0012-A002-L-B1X1	DLHZO-TE-040-L51/B
060820 CKG-HL-N-10-80/36*0012-A	02K1260 CKT/10-9-80/36*0012-A002-L-B1X1	
060820 CKG-HL-N-10-100/45*0012-A	06K0120 CKT/10-9-100/45*0012-A002-L-B1X1	
060820 CKG-HL-N-10-125/45*0012-A	06K0122 CKT/10-9-125/45*0012-A002-L-B1X1	
060820 CKG-HL-N-20-160/70*0012-A	06K0219 CKT/20-9-160/70*0012-A002-L-B1X1	DLKZOR-TE-140-L31/B
060820 CKG-HL-N-20-200/90*0012-A	08X0125 CKT/20-9-200/90*0012-A002-L-B1X1	

3 MAIN CHARACTERISTICS

Bore diameter	[mm]	63	80	100	125	160	200
Rod diameter	[mm]	28	36	45	45	70	90
Working stroke	[mm]	12					
Max pressure	[bar]	160					
Max force (kN)	Pull	40	64	100	170	260	400
	Push	50	80	125	190	320	500
Max speed	[m/s]	0,5					
Command signal	[VDC]	±10 VDC					
Linearity		0,03 %					
Response time at step signal (0-100%)	[ms]	85	115	300	320	300	

4 INTEGRAL ELECTRONICS WIRING



POWER SUPPLY CONNECTOR
(front view)

POWER SUPPLY CONNECTOR		
PIN	SIGNAL DESCRIPTION	TECHNICAL SPECIFICATION
A	Power supply 24 VDC	Stabilized: +24VDC
B	Power supply zero	Filtered and rectified: V_{rms} = 21 ÷ 33 (ripple max $2V_{pp}$)
C	Signal zero	Reference 0 VDC
D	Input signal +	±10 VDC
E	Input signal -	
F	Monitor (Spool position)	±10 VDC
G	Earth	Connect only when the power supply is not conform to VDE 0551 (CEI 14/6)

POSITION TRANSDUCER CONNECTOR OF PILOT VALVE	
PIN	Signal description
1	OUTPUT SIGNAL 0÷10 VDC (0 VDC = rod fully in; 10 VDC = rod fully out)
2	SUPPLY -15 VDC
3	SUPPLY +15 VDC
4	GND

Notes:
- electrical signals (e.g. actual - feedback signals) acquired via valve electronics must not be used to switch off the machine safety functions. This is in accordance with the European standards (Safety requirements of fluid technology systems and components - hydraulics, EN-892)
- installation notes with basic information for commissioning and start-up, are always supplied with relevant components, together with the specific technical tables

4.1 Model codes of power supply and transducer

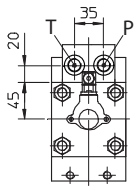
	Power supply		Transducer
CONNECTOR CODE	**SP-ZM-7P** (1)	**SP-ZH-7P** (1)	**SP-345**
PROTECTION DEGREE	**IP66**	**IP67**	**IP67**

(1) to be ordered separately

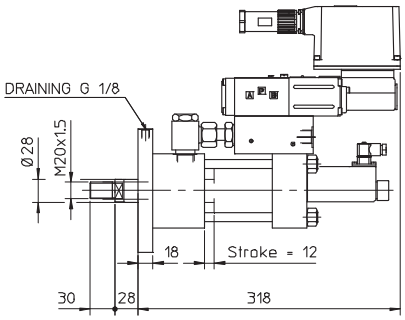
5 INSTALLATION DIMENSIONS [mm]

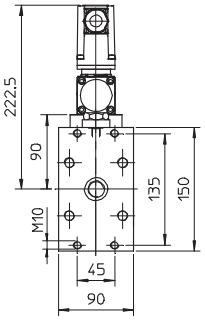
060820 CKG-HL-N-10-63/28*0012-A

P, T = 3/8”



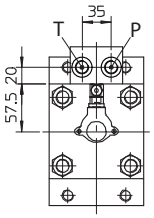
Mass: 18 kg



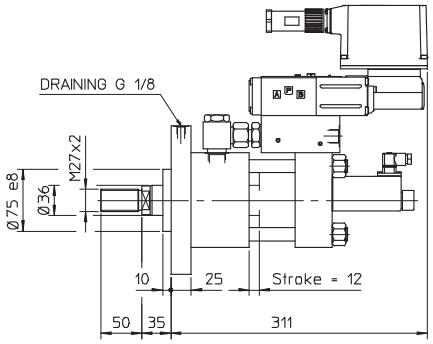


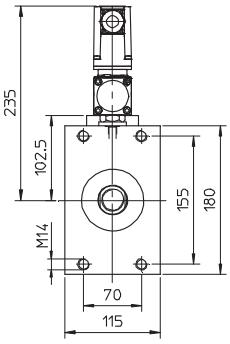
060820 CKG-HL-N-10-80/36*0012-A

P, T = 3/8”



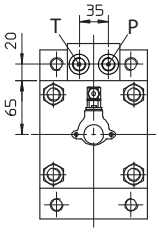
Mass: 26 kg



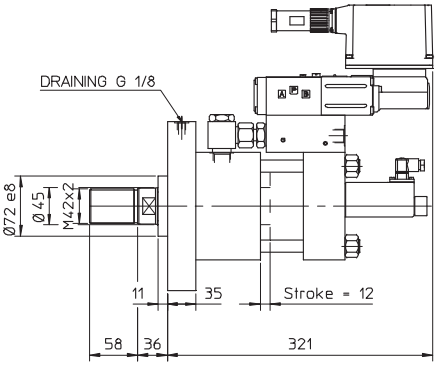


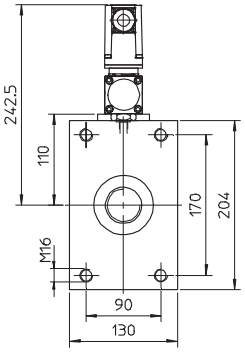
060820 CKG-HL-N-10-100/45*0012-A

P, T = 3/8”



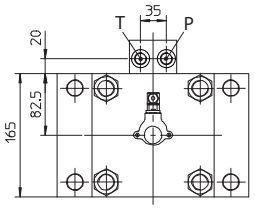
Mass: 36 kg

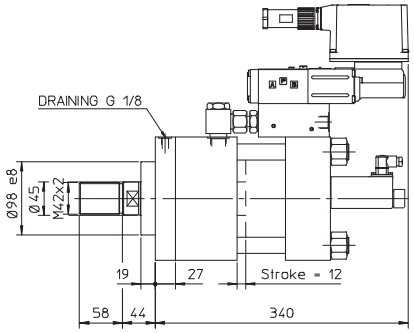


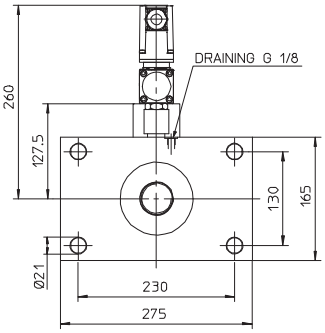


060820 CKG-HL-N-10-125/45*0012-A

P, T = 3/8”



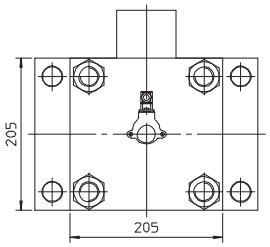


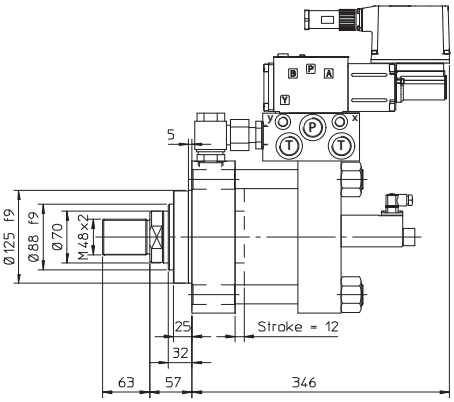


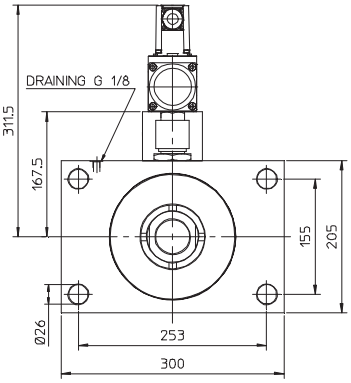
Mass: 53 kg

060820 CKG-HL-N-10-160/70*0012-A

P, T = 3/4”
X, Y = 1/4”



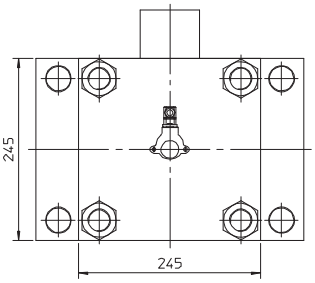


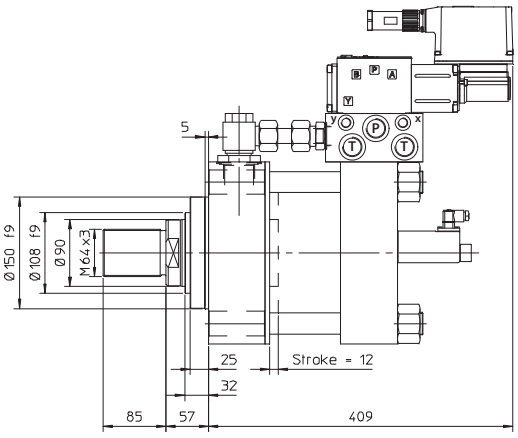


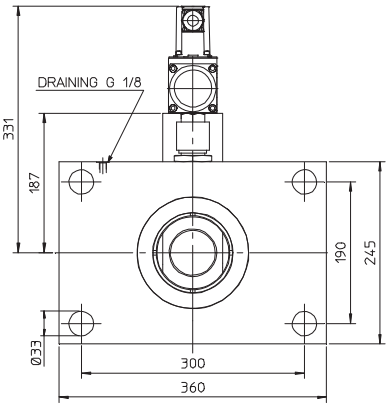
Mass: 83 kg

060820 CKG-HL-N-10-200/90*0012-A

P, T = 3/4”
X, Y = 1/4”







Mass: 145 kg