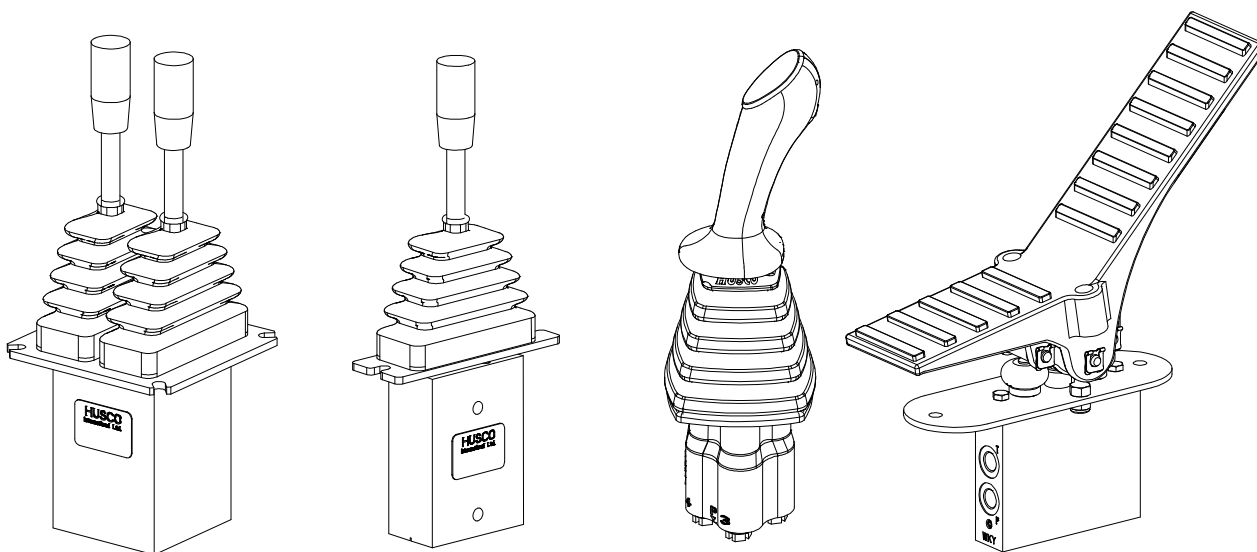


## 206, 226 and 404 Series

For the remote control of hydraulic valves, pumps and motors



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Functional description	3
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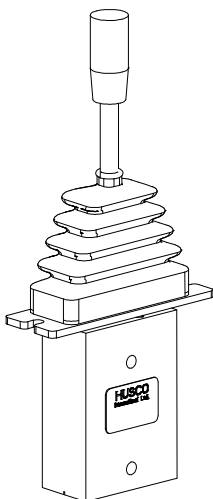
### Features

- . Precise proportional metering
- . Robust construction
- . Variety of handle options
- . Low operator efforts
- . Compact design
- . Lightweight aluminium housing on 404
- . IP69K protection on 404

## Product Overview

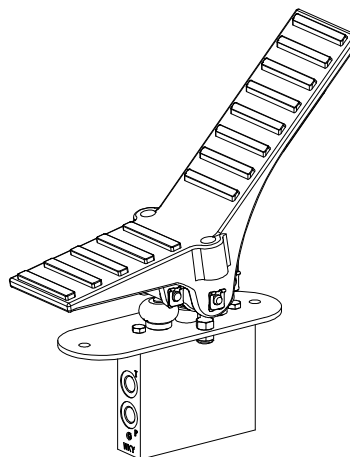
### 206 Series - Lever

The 206 Series pilot pressure controller is a single axis device for controlling a single double-acting spool. Applications for this controller include auxiliary functions on wheel loaders, backhoes or telehandlers.



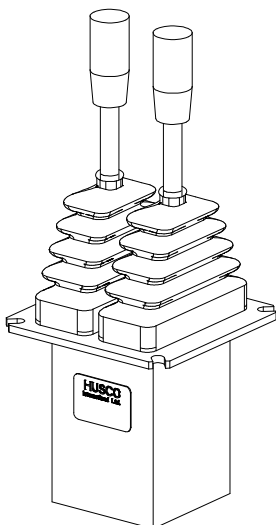
### 206 Series - Pedal

The 206 Series pilot pressure controller is a single axis device for controlling a single double-acting spool via a foot pedal. This controller can also be used to control pumps or motors making it suitable for travel functions.



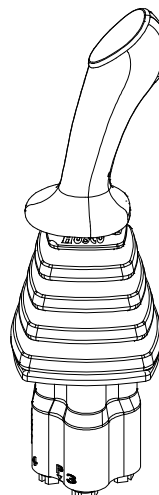
### 226 Series

The 226 Series pilot pressure controller allows dual single axis control in a convenient monoblock design. Each lever can be used to control a single double-acting spool making this controller ideal for such applications as stabiliser control on backhoe loaders, telehandlers, cranes and drill-rigs



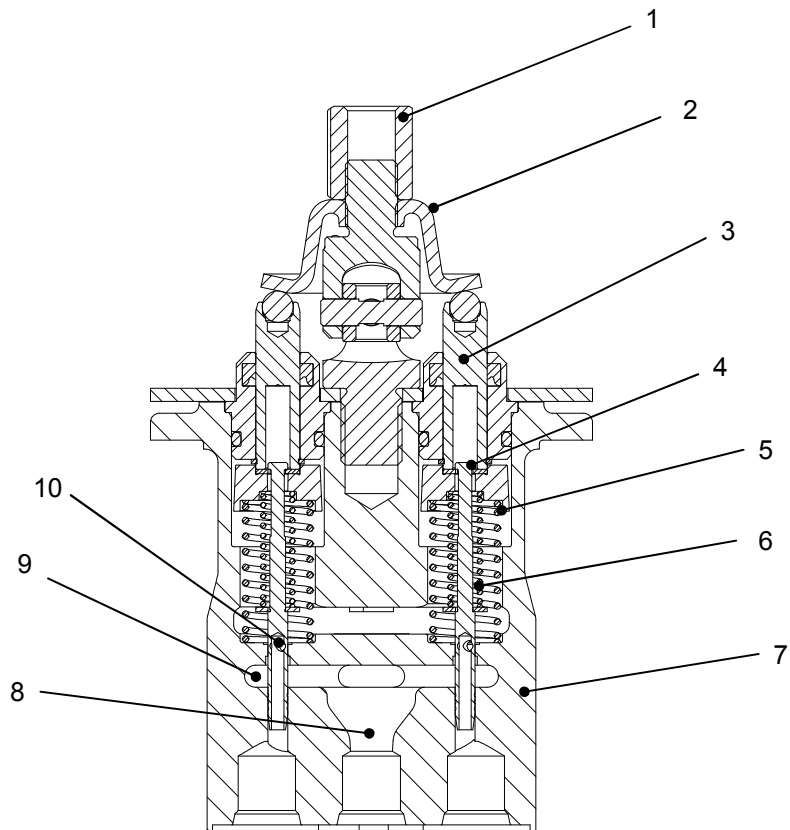
### 404 Series

The 404 Series pilot pressure controller is the latest development in the HUSCO range. This aluminium bodied dual axis controller is ideally suited to applications such as backhoe loaders, mini-excavators, cranes and drill-rigs. The ergonomic HA3000 series handle offers comfort for the operator and a range of switch configurations.



## Functional Description

1. Handle Adaptor
2. Wobble Plate
3. Plunger
4. Control Spool
5. Return Spring
6. Metering Spring
7. Housing
8. Supply Pressure
9. Tank Pressure
10. Orifice



The diagram above and the following functional description are based on the 404 dual axis joystick controller. The 206 single axis and 226 twin axis controllers operate on the same principle.

In the neutral position, the handle (1) is held in position by the return spring (5) and the control ports are connected to tank via the orifice (10).

When the handle is operated, the plunger (3) pushes against the return spring (5) and the metering spring (6). The metering spring moves the control spool (4) downwards and closes the connection between the control port and tank. At the same time the control port is connected to supply pressure via the orifice (10). Fine control is possible once the control spool (4) has achieved a balance between the metering spring force and the control port pressure.

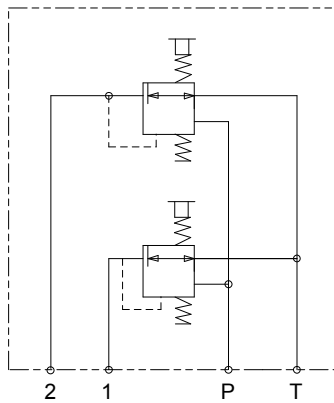
Therefore, the pressure in the control port is proportional to the stroke of the plunger (3) and thus the position of the handle (1).

## Technical Data

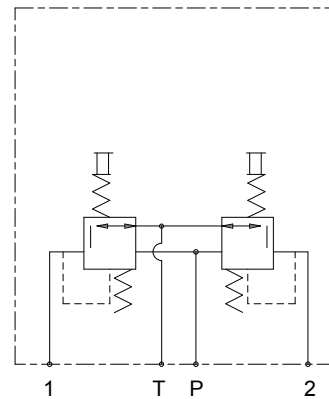
		206 Lever	206 Pedal	226	404
Inlet Pressure - Max	bar	100	100	100	50
Back pressure - Max	bar	3			
Pilot flow - Max	l/min	10	10	10	6
Fluid type		Mineral oil (HL, HLP) to DIN 51524			
Fluid temperature range	°C	-40 to +105			
Fluid viscosity range	mm <sup>2</sup> /s	10 to 380			
Fluid cleanliness level		ISO 4406 20/18/15			
Maximum torque at handle	Nm	10			
Housing material		Cast Iron	Cast Iron	Cast Iron	Aluminium
Weight (approximate)	kg	1.8	2.2	2.5	1.9

## Hydraulic Schematics

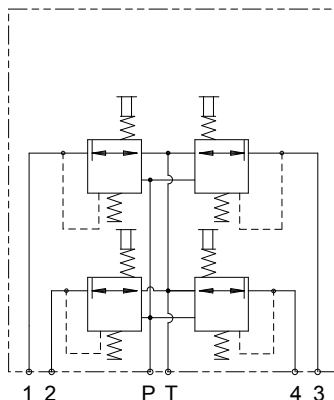
206 Series - Lever



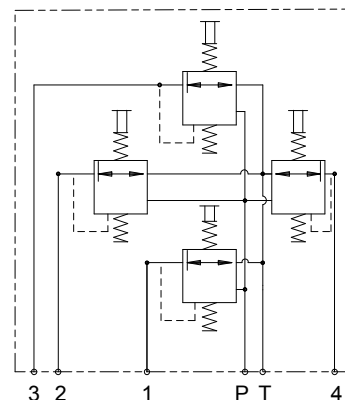
206 Series - Pedal



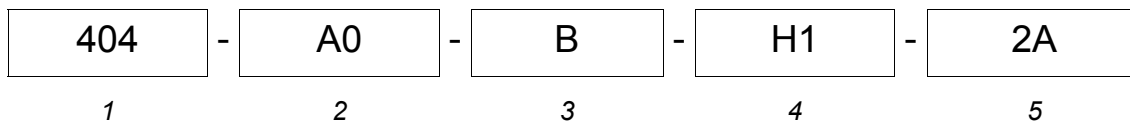
226 Series



404 Series



## Model Code



**1 = PPC Series**

- 206 - Single axis controller
- 226 - Twin single axis controller
- 404 - Dual axis controller

**2 = Revision Level**

- A0 - Subject to change

**3 = Port Type**

- B - BSP ports
- M - Metric ports
- S - SAE ports

**4 = Handle Type**

- N - No handle
- L - HA1103-1 lever, suitable for 226 and 206 lever type only
- P - Pedal, suitable for 206 pedal type only
- H0 - HA3010 handle without switches, suitable for 404 only
- H1 - HA3008 handle with 1 switch, suitable for 404 only
- H2 - HA3009 handle with 2 switches, suitable for 404 only

**5 = Control Characteristic**

- 1 - Proportional 5 to 25 bar with terminal rise
- 2A - Proportional 5 to 31 bar
- 2B - Proportional 0 to 14 bar (not available on 404)

## Standard Products

Model Code	Part Number
206-A0-B-N-1	206-1022
206-A0-B-N-2A	206-1023
206-A0-B-N-2B	206-1024
206-A0-B-P-2B	206-1025-1900

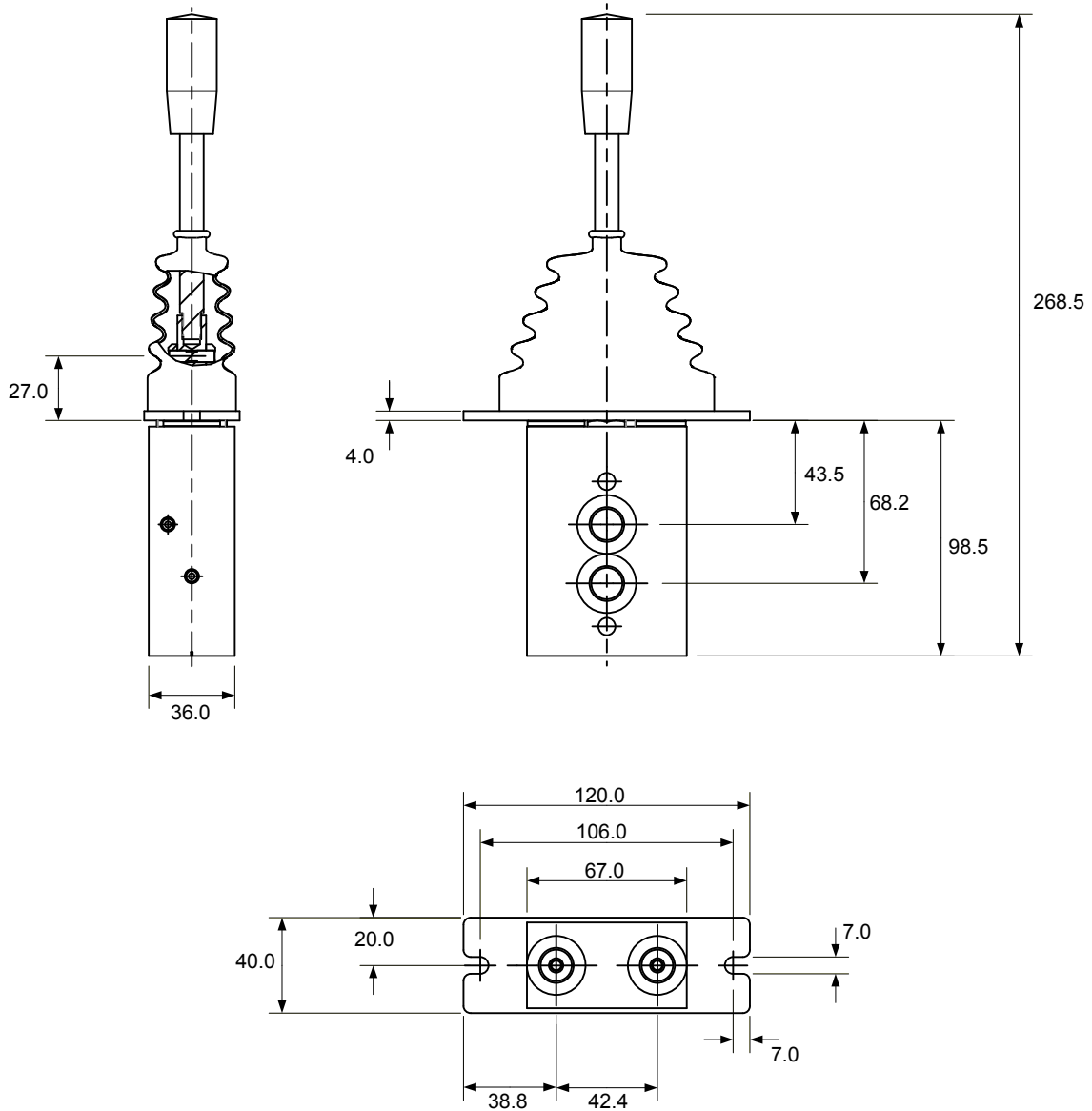
Model Code	Part Number
226-A0-B-N-1	226-1011
226-A0-B-N-2A	226-1012
226-A0-B-N-2B	226-1013

Model Code	Part Number
404-A0-B-N-1	404-1006
404-A0-B-N-2A	404-1007

## Unit Dimensions 206 Lever Operated

All dimensions in millimetres

The drawing below shows the 206 with handle HA1103-1 fitted for reference.



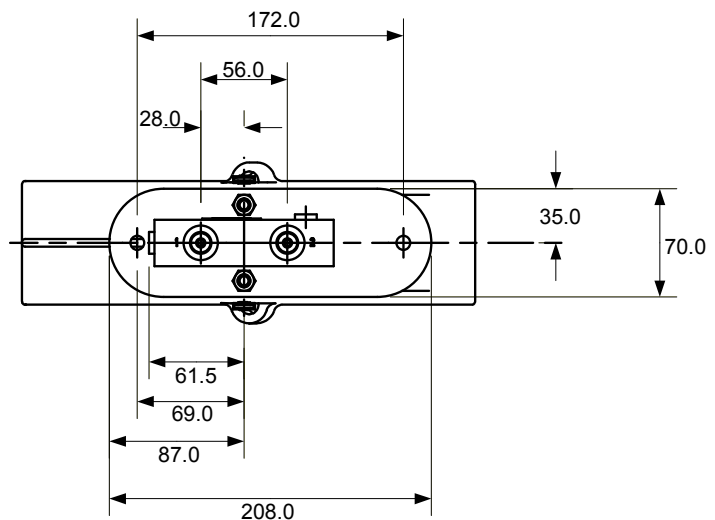
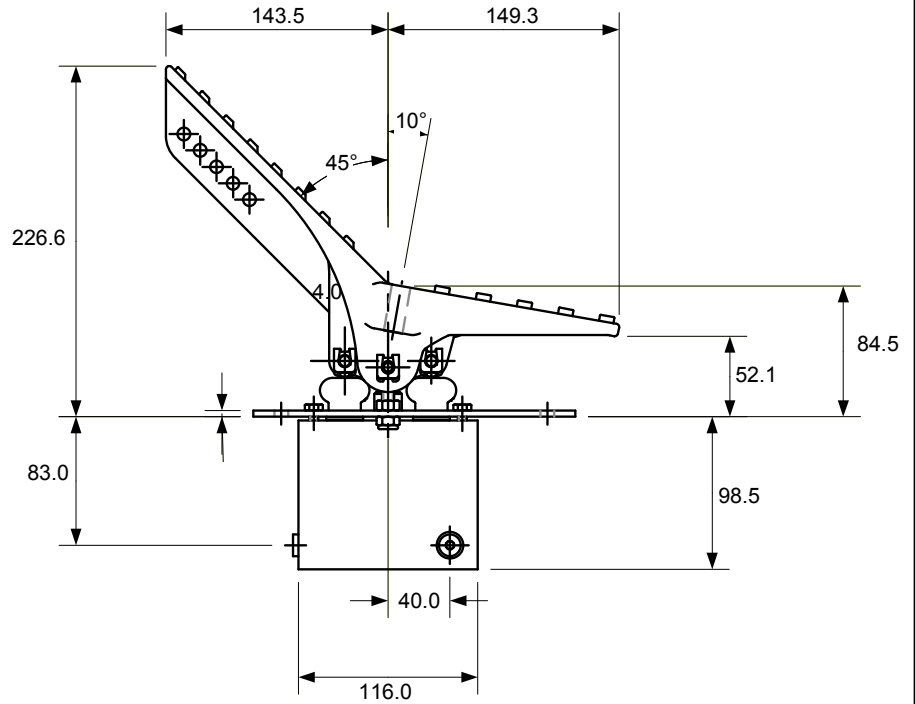
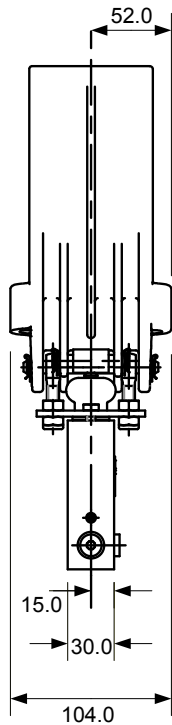
### Port Options - all ports are equal size

SAE	9/16-18 UNF
BSP	G1/4
Metric	M14 x 1.5

## Unit Dimensions 206 Pedal Operated

All dimensions in millimetres.

The 206 pedal operated version is supplied with the foot pedal assembly as standard.



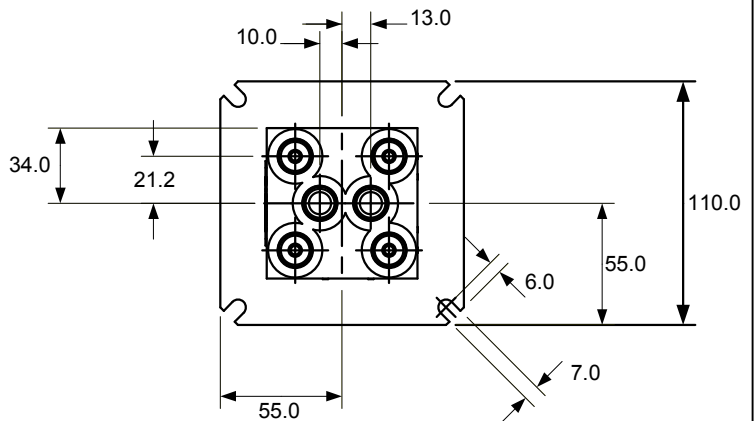
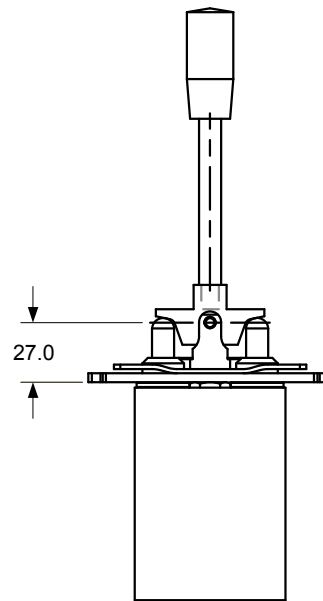
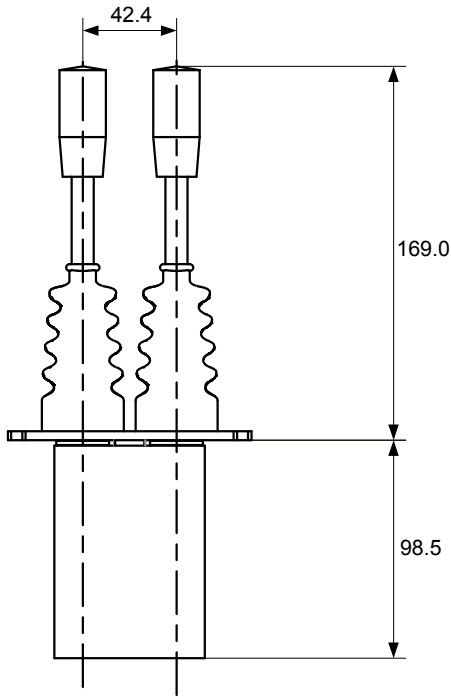
### Port Options - all ports are equal size

SAE	Not Available
BSP	G1/4
Metric	M14 x 1.5

## Unit Dimensions 226 Lever Operated

All dimensions in millimetres

The installation drawing below shows the 226 with HA1103-1 handles fitted for reference.



### Port Options - all ports are equal size

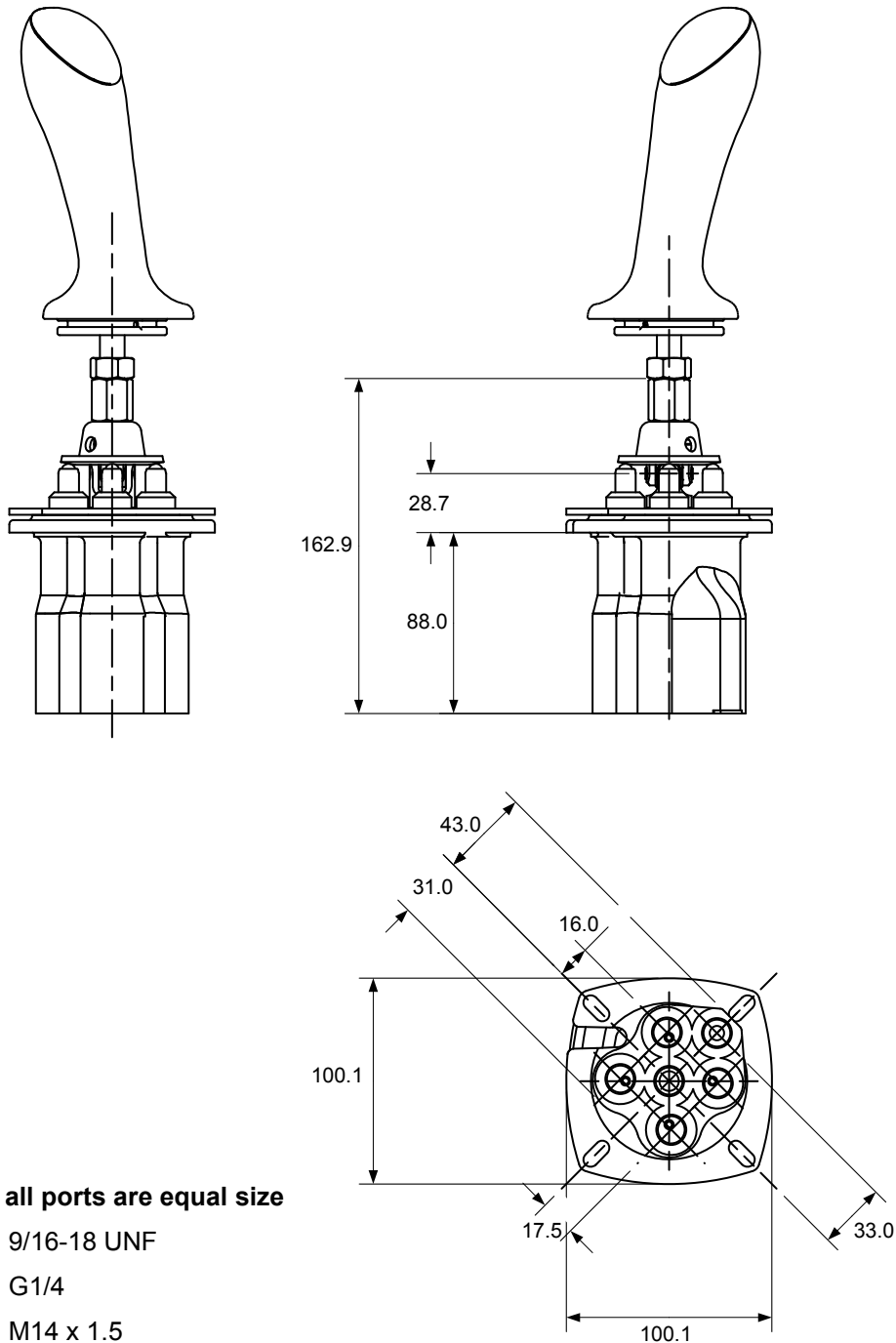
SAE	9/16-18 UNF
BSP	G1/4
Metric	M14 x 1.5



## Unit Dimensions 404 Joystick Operated

All dimensions in millimetres.

The installation drawing below shows the 404 with handle HA3010 fitted for reference. The 404 is supplied with a protective boot which is not shown on the drawing.



**Port Options - all ports are equal size**

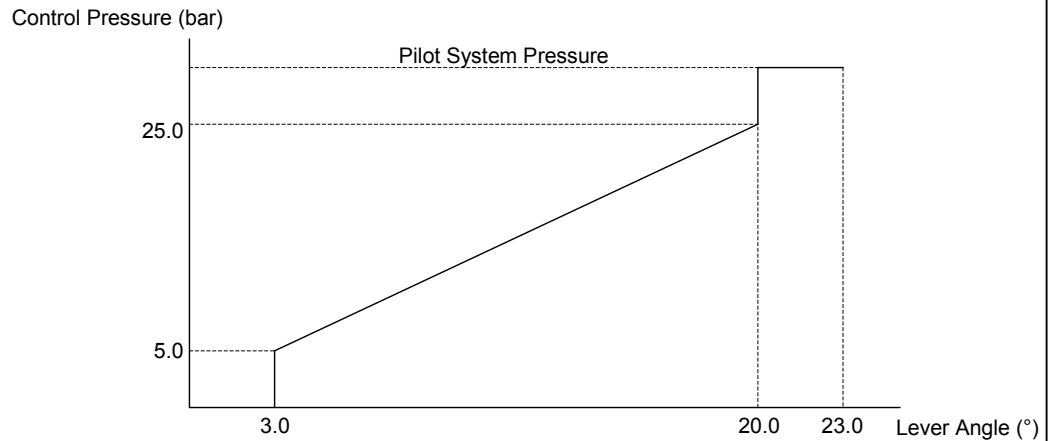
SAE	9/16-18 UNF
BSP	G1/4
Metric	M14 x 1.5

## Pilot Pressure Control Curves

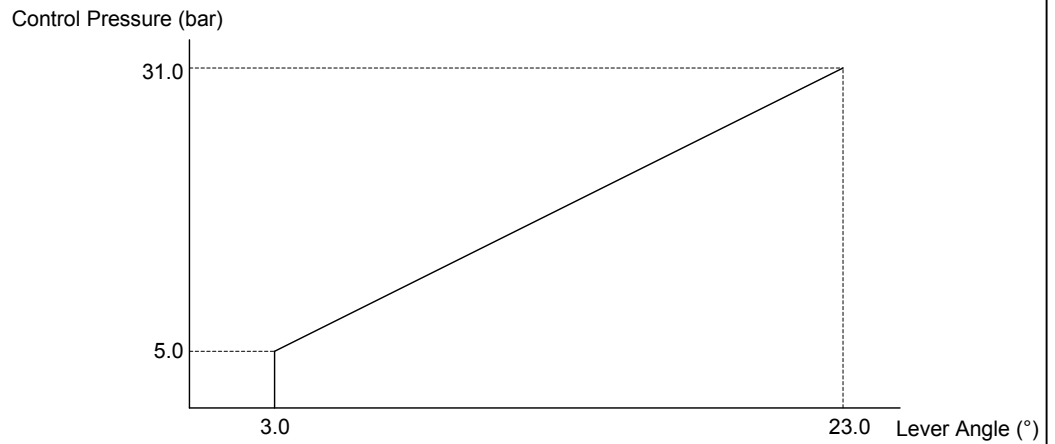
The following curves represent the standard pilot pressure control characteristics for HUSCO pilot pressure controllers.

If alternative control characteristics are required please contact HUSCO.

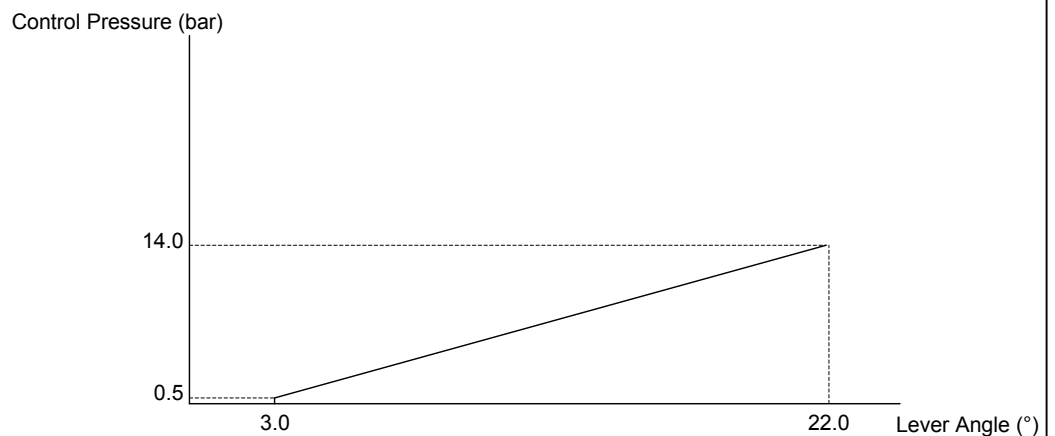
### Type 1



### Type 2A

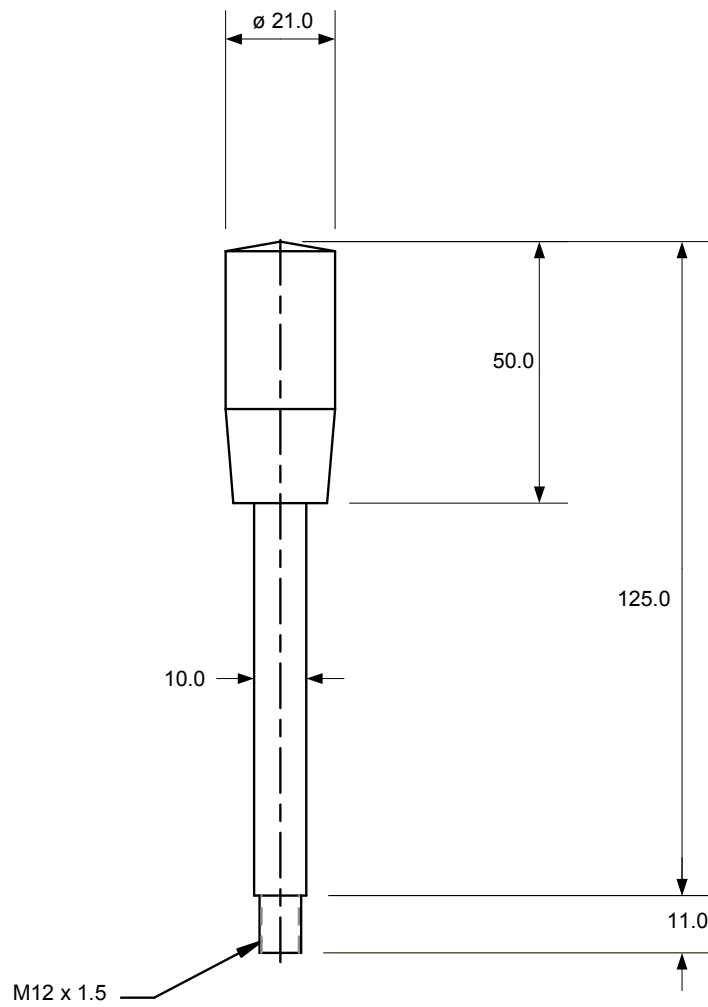


### Type 2B



## HA1103-1 Type Handle

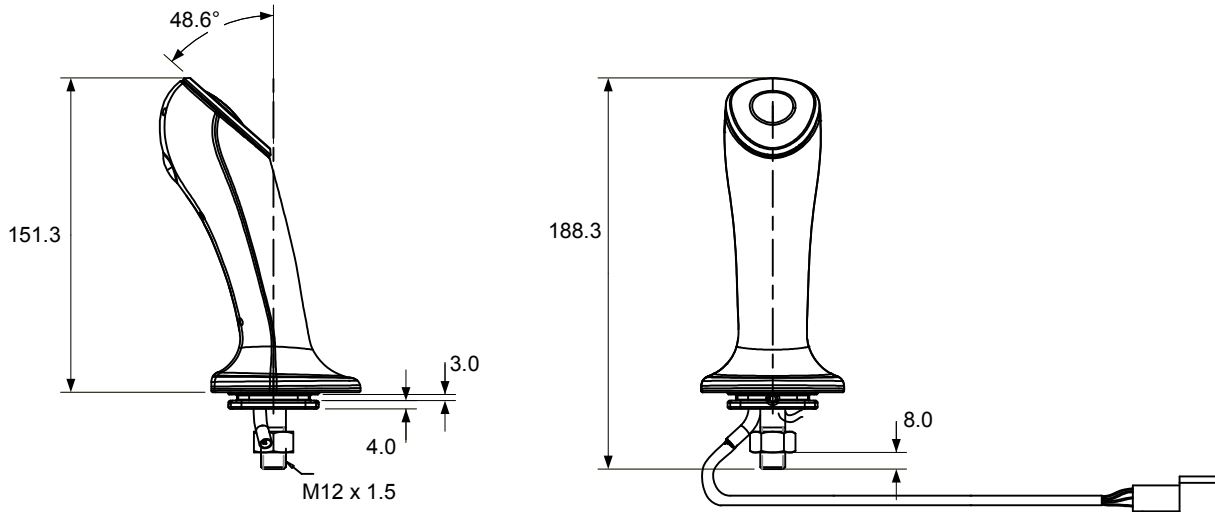
All dimensions in millimetres



For alternative handle lengths please contact HUSCO

## HA3000 Type Handle

All dimensions in millimetres



### Electrical Connector:

For HA3008 handle with 1 switch

- 2 Pin Deutsch Connector DT04-2P-P005

For HA3009 handle with 2 switches

- 4 Pin Deutsch Connector DT04-4P-P005

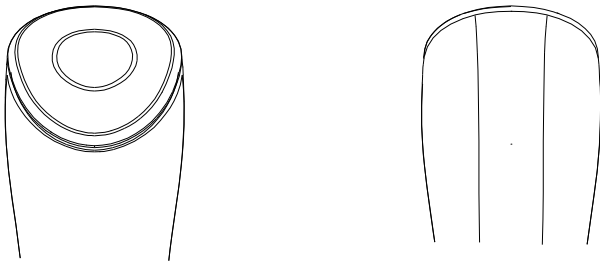
### Electrical Data

For HA3008 and HA3009 handles

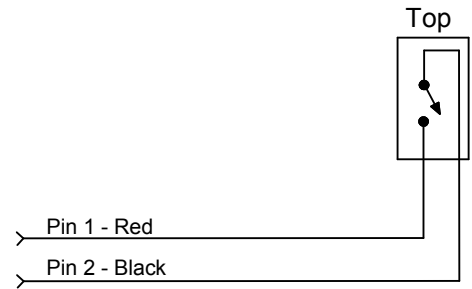
Switching capacity			
minimal current	resistive load	100mA at 0 - 30V DC	
maximum current	resistive load	5A at 0 - 30V DC	
Microswitch lifetime			
resistive load at 0 - 30V DC		100 to 500mA 5A	5,000,000 cycles 50,000 cycles
inductive load L/R=5ms at 12V or 24V DC		3A	50,000 cycles
Handle protection		IP69K	

## HA3000 Type Handle Switch Options

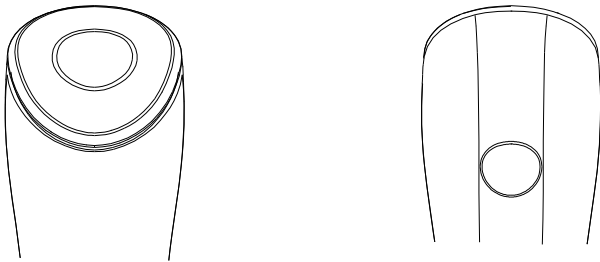
### HA3008 - 1 Switch



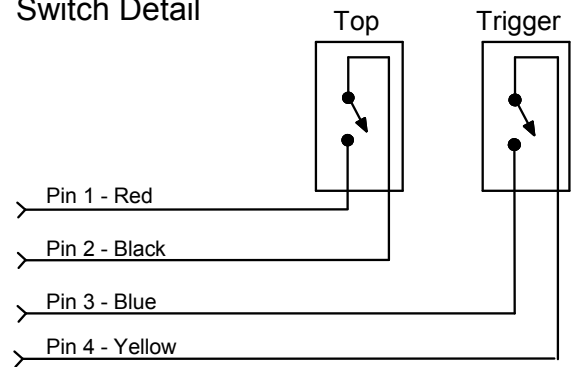
Switch Detail



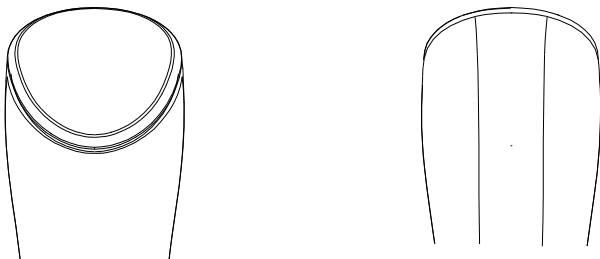
### HA3009 - 2 Switches



Switch Detail



### HA3010 - No Switches



For alternative handle options please contact HUSCO

## HA2000 Electronic Handle Driver

### Durable

- HUSCO International environmental standards (EMC, EMI, shock, etc.) are much higher than industry standards
- IP67 rating for mounting in open vehicles or outside the cab—encapsulated electronics
- Rugged Aluminum Housing
- AMPSEAL23 and 8 pin connectors

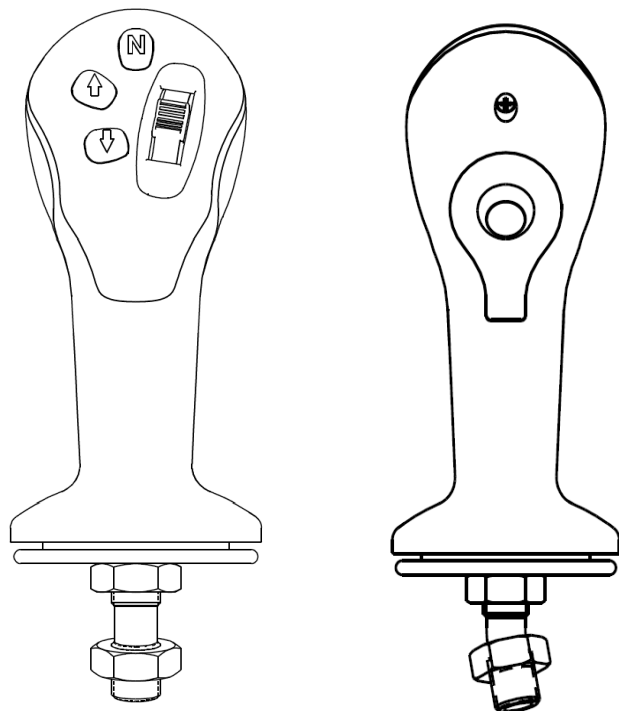
### Valve Optimized

- HUSCO International has expertise in their valve performance and can optimize the valve by adjusting the electrical signals to the valve
- 4 Current controlled PWM signals with integral current feedback

### Features

- CAN 2.0B connection
- Powerful 8-bit processor
- Built-in watchdog timer
- Supply voltage range for 9-18VDC
- Supports the following handle features
  - 2 roller inputs (0-5V 10-bit resolution)
  - 3 button inputs (active low, internal pull-up to 5V)

External W	
Pin	Des
EC1	G
EC2	Vehi
EC3	PW
EC4	P



## **Control Focused - Technology Driven**

*For over 50 years, HUSCO International has been designing and producing some of the most important custom hydraulic and electrohydraulic products in the construction, agricultural and material handling industries. Today you will find HUSCO products on the leading off-highway equipment all over the world.*

*Leading the way in our industry, HUSCO engineers design cost-effective solutions to maximize the efficiency, productivity, controllability and reliability of our customer's machines. We invest heavily in tools and processes that ensure quality designs and reduced development time.*

*With manufacturing facilities in USA, England, India and China we're positioned to bring you any product you need anywhere in the world.*

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