



Data Sheet

# Joystick

## JS1 Heavy Duty Joysticks



### Mobile Machine Management

The JS1 Heavy Duty Joysticks (JS1-H) portfolio is a modular joystick design that allows complete grip and base configuration for efficient control of any machine. The heavy duty design will result in extended life for years of reliable operation.

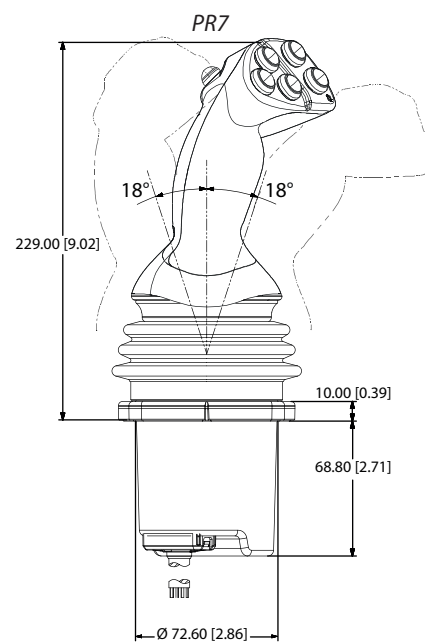
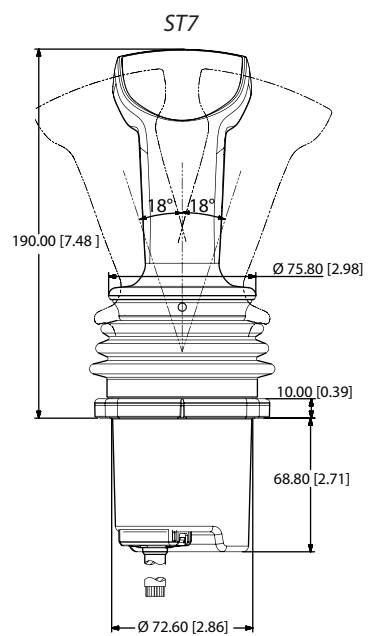
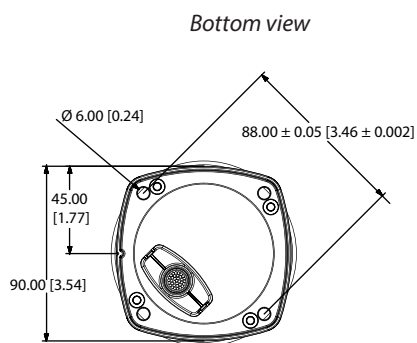
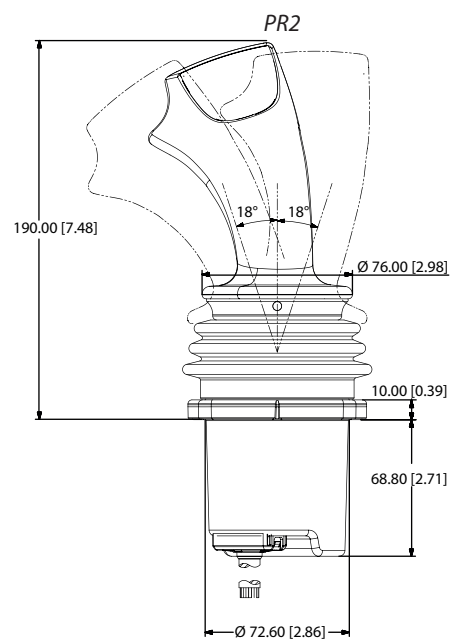
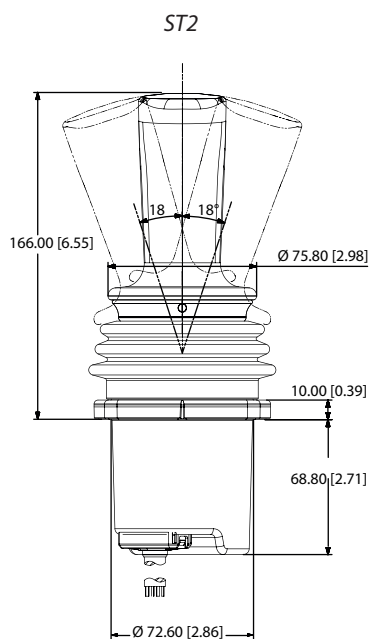
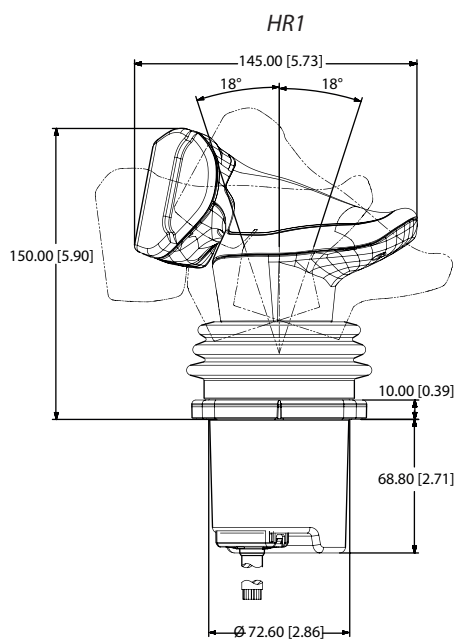
Five different heavy duty grips can be paired with the JS1-H base to offer the operator complete comfort. Each of the grips can be configured with a comprehensive portfolio of finger functions for true customization.

The JS1-H base incorporates proven Danfoss design elements and builds on the PLUS+1 architecture. Several options are available for the electrical and mechanical output so the joystick can be tailored for a positive human-machine interaction. The JS1-H base is designed to be dependable and reliable for the extreme and harsh conditions of the mobile machine environment.

### Features

- Hall effect or long-life potentiometer position sensing
- Redundant sensors
- Spring return single (Y axis) or dual axis
  - Two force levels
- Friction hold single (Y axis), force adjustable
- Gate options:
  - Square
  - Single axis
- Four output options:
  - Analog
  - CAN J1939 protocol
  - CANopen protocol
  - PVE ratiometric
- PVE PLUS+1® GUIDE programmable HWD file enables a user to write their program
- Multiple grip options with maximum switch count
  - ST2 – 3
  - HR1 – 10
  - PR2 – 12
  - ST7 – 11
  - PR7 – 8

Dimensions in millimeter [inches]



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**Mechanical**

*Mechanical characteristics*

<b>Shaft mechanical angle limits</b>	±18°
<b>Base mechanical life</b>	Single axis with friction = 1 million full operating cycles Single axis and dual axis with spring return = 2.0 million full operating cycles
<b>Maximum force on handle</b>	1000 N
<b>Maximum torque</b>	15 Nm
<b>Base only mass</b>	0.75 kg [1.65 lbf]
<b>Weight (base without grip)</b>	725 G (1.8 lb)
<b>Vertical maximum load</b>	6000 N (1350 lbs)

*Spring return*

<b>Breakout load on axis</b>	Standard duty spring: 6 to 8.5 N [3.37 to 5.71 lbf]
	Heavy duty spring: 12 to 19 N [2.698 to 4.271 lbf]

*Friction hold*

<b>Friction-hold torque</b>	<b>Center detent breakout torque</b>
1.25 Nm	2.30 Nm
2.25 Nm	2.65 Nm
1.25 Nm	4.00 Nm

**Electrical and Environmental**

*Electrical characteristics*

<b>Sensor type</b>	Hall effect with redundant sensors	
	Potentiometer	
<b>Resolution (all interfaces)</b>	12 bit	
<b>Supply voltage (Vs)</b>	CAN	9 to 36 Vdc
<b>Output</b>	CAN	2.0B, J1939 and CANopen protocols
<b>Base maximum current consumption</b>	CAN	120 mA at 9 V
<b>Supply voltage (Vs)</b>	Analog	
<b>Output</b>	Analog	
<b>Supply voltage (Vs)</b>	PVE	PVRE
<b>Output</b>	PVE	PVRE

*Environmental characteristics*

<b>Operating temperature for CAN</b>	-30° C to +85° C [-22° F to 185° F]
<b>Storage temperature</b>	-40° C to +85° C [-40° F to 185° F]
<b>EMI/RFI rating</b>	150 V/m
<b>Vibration</b>	25 G, 10 ms, 500 cycles in each of 6 directions IEC 60068-2-29 test Eb
<b>Shock</b>	50 G, 11 ms, 3 shocks in each of 6 directions IEC 60068-2-29 test Ea
<b>Ingress Protection (IP) rating</b>	IP54 and IP 66 (dependent on grip functions)

## Ordering information

## Danfoss part numbers for JS1 Heavy Duty Joysticks

Reference *JS1 Heavy Duty Joystick Family Technical Information Manual*, **BC00000347**

## Mating connector

*Danfoss connector bag assemblies part numbers (must be ordered separately from joystick)*

<b>CAN 2.0B, J1939 and CANopen</b>	One 6 pin	11161487
	Two 6 pin	11161488
<b>PVRE</b>	One 12 pin	10102025 (16 to 20 AWG)
<b>PVE-Standard</b>	Two 12 pin	10102023 (16 to 20 AWG)
<b>PVE-Extended</b>	Two 12 pin and one 6 pin	11176538

Additional connector information, reference  
*JS1 Heavy Duty Joystick Family Technical Information Manual*, **BC00000347**  
<http://powersolutions.danfoss.com/literature/>

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