GSD8 Series DC Drives

GSD8 Introduction

GSD8-240-5C

GSD8-240-10N4X-xx

GSD8-240-10C-D

GSD8-240-5C-D

GSD8 Series DC Drives	
Motor Rating Range @ 120 VAC$_{IN}$	1/2 – 1 hp
Motor Rating Range @ 240 VAC$_{IN}$	1 – 2 hp

Overview

The GSD8 series DC drives are compact, microprocessor-based motor controllers capable of factory or field configurations for a variety of industrial applications. GSD8 DC drives make use of either a pulse accumulation algorithm (GDS8-240-5C) or a velocity PID algorithm (all other GSD8 drives) that can be easily configured for operation as a speed controller, time-based process controller, or follower drive in a master-slave application. Using modular design techniques, the GSD8 drives are perfect for applications that require specialized I/O.

Features

- Microprocessor-based design
- Digital closed-loop algorithm
- Non-volatile memory storage
- Factory or field programmable
- Adjustable parameters
- Programmable alarm output
- Universal power supply accepts 85-265 VAC at 50-60 Hz without switches or jumpers
- Self-contained 5V power supply for external sensor
- Large 4-digit 1/2 inch LED display
- European terminal block
- Standard 1/8 or 1/4 DIN panel mounting
- Meets NEMA 4X standards when used with NEMA 4X enclosures

Accessories

- Hall-effect pickup, single-channel
- Input/Output option card
- Serial communications option card

Detailed descriptions and specifications for GSD accessories are available in the "GSD Series DC Drives Accessories" section.

Typical Applications

- Water and wastewater treament systems
- Conveyor oven controllers
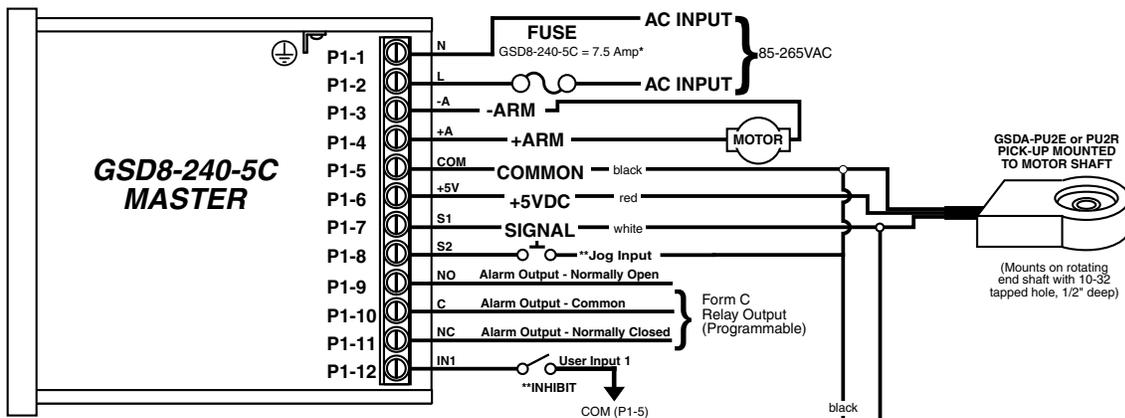- Synchronized conveyer lines

GSD8 Series DC Drives

GSD8 Selection and Specifications

GSD8 Series DC Drives – Selection & Specifications						
Model	GSD8-240-5C	GSD8-240-5C-D	GSD8-240-10C-D	GSD8-240-10N4X	GSD8-240-10N4X-A	GSD8-240-10N4X-U
Price	$438.00	$470.00	$562.00	$632.00	$885.00	$835.00
Package Configuration	NEMA 4X					
Power Quality Form Factor	1.36					
Input Voltage (@50/60Hz)	85–265 VAC					
Input Frequency	48–62 Hz					
Output Voltage @120VAC (@240VAC)	90VDC (180VDC)					
Max Output hp @120VAC (@240VAC)	½ (1)		1 (2)			
Max Continuous Output Current	5A		10A			
Transient Protection	Metal Oxide Varistor (MOV) and X2 Cap.					
Pickup or Encoder Required	Yes					
Speed Adjustment — Default Mode	Front panel display					
Speed Adjustment — Current	n/a	4–20 mA with opptional accessory GSDA-AI-A8 or -CM8			4–20 mA	
Speed Adjustment — Voltage	n/a	0–5 VDC with optional accessory GSDA-CM-8			0–5 VDC	
Speed Adjustment — Potentiometer	n/a	500W to 5kW Pot type, with optional accessory GSDA-CM-8			500W to 5kW	
Speed Adjustment — Remote Comm	n/a	ASCII with optional accessory GSDA-CM-8			ASCII	
Signal Input Voltage Range	0–5 VDC to 0–24 VDC square wave					
Signal Input Frequency Range	0–50,000 pulses/minute***	0–600,000 pulses/minute @5V square wave				
Speed Regulation	0.1% (sensor PPR/application dependent)					
Maximum Speed	0–100% (max and min speeds are NOT individually adjustable)					
Minimum Speed						
Acceleration	1–9999 (change per second in engineering units, dependent on mode)					
Deceleration	1–9999 (change per second in engineering units, dependent on mode)					
Display Range	0.001–9,999					
Units of Operation	User programmable, any unit					
Sensor/Pickup Power Supply	5V @ 50mA					
Isolated Alarm Relay Output Ratings	250VAC @ 5A					
Average Armature Output Voltage	5A		10A			
Design Overload Capacity	200% for 1 minute					
Display Type	LED, red, 4 digit, 1/2" height					
Connector Style	12-position 5mm European style					
Terminal Block Torque Setting	4.4 in·lb maximum (0.5 N·m)					
Operating Temperature Range	-10°C to 45°C (15°F to 115°F)					
Operating Humidity Range	95%, non-condensing					
Faceplate Material	Polycarbonate with Lexan overlay					
Housing Material	Aluminum					
Weight	13.48 oz (382.14 g)	14.94 oz (423.43 g)	25.78 oz (730.85 g)	27.85 oz (789.53 g)		
Agency Approvals	UL Listed #E333109, RoHS					
Recommended Accessories						
Incremental Encoder*	GSDA-PU2E or GSDA-PU2R					
Analog Module	n/a	GSDA-AI-A8			Included	GSDA-AI-A8
ASCII Communications Module	n/a	GSDA-CM-8				Included
Manual Reverse Switch	GSDA-MREV****					

* 500 pulses/minute minimum required for proper operation. Higher frequency possible with internal frequency divisor/prescaler.
**250 pulses/minute minimum required for proper operation.
***Hall-Effect pickup, single channel encoder. 1/10/20 PPR
***To meet NEMA4 requirements, GSDA-MREV requires a user provided external exclosure.
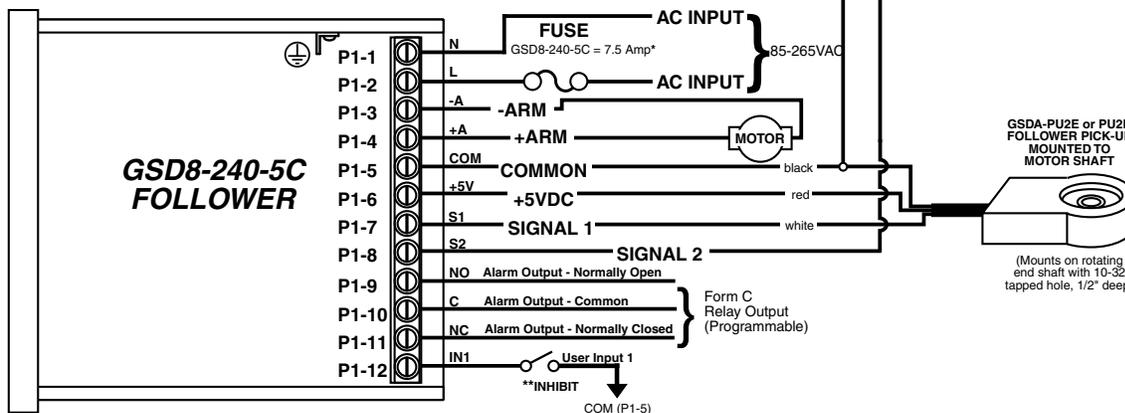
GSD8 Series DC Drives

GSD8 Wiring Diagrams

GSD8-240-5C Wiring Diagram

GSD8-240-5C MASTER

Terminal	Signal	Description
P1-1	N	FUSE AC INPUT (GSD8-240-5C = 7.5 Amp*)
P1-2	L	AC INPUT (85-265VAC)
P1-3	-A	-ARM
P1-4	+A	+ARM
P1-5	COM	COMMON — black
P1-6	+5V	+5VDC — red
P1-7	S1	SIGNAL — white
P1-8	S2	**Jog Input
P1-9	NO	Alarm Output - Normally Open
P1-10	C	Alarm Output - Common
P1-11	NC	Alarm Output - Normally Closed
P1-12	IN1	User Input 1 **INHIBIT COM (P1-5)

Form C Relay Output (Programmable)

MOTOR

GSDA-PU2E or PU2R PICK-UP MOUNTED TO MOTOR SHAFT

(Mounts on rotating end shaft with 10-32 tapped hole, 1/2" deep)

* For AC inputs utilizing two hot lines, both inputs should be protected with appropriately sized fuses or circuit breakers.

** P1-8 & P1-12 user input may be programmed for a number of functions, including jog, inhibit, etc.

GSD8-240-5C FOLLOWER

Terminal	Signal	Description
P1-1	N	FUSE AC INPUT (GSD8-240-5C = 7.5 Amp*)
P1-2	L	AC INPUT (85-265VAC)
P1-3	-A	-ARM
P1-4	+A	+ARM
P1-5	COM	COMMON — black
P1-6	+5V	+5VDC — red
P1-7	S1	SIGNAL 1 — white
P1-8	S2	SIGNAL 2
P1-9	NO	Alarm Output - Normally Open
P1-10	C	Alarm Output - Common
P1-11	NC	Alarm Output - Normally Closed
P1-12	IN1	User Input 1 **INHIBIT COM (P1-5)

Form C Relay Output (Programmable)

MOTOR

GSDA-PU2E or PU2R FOLLOWER PICK-UP MOUNTED TO MOTOR SHAFT

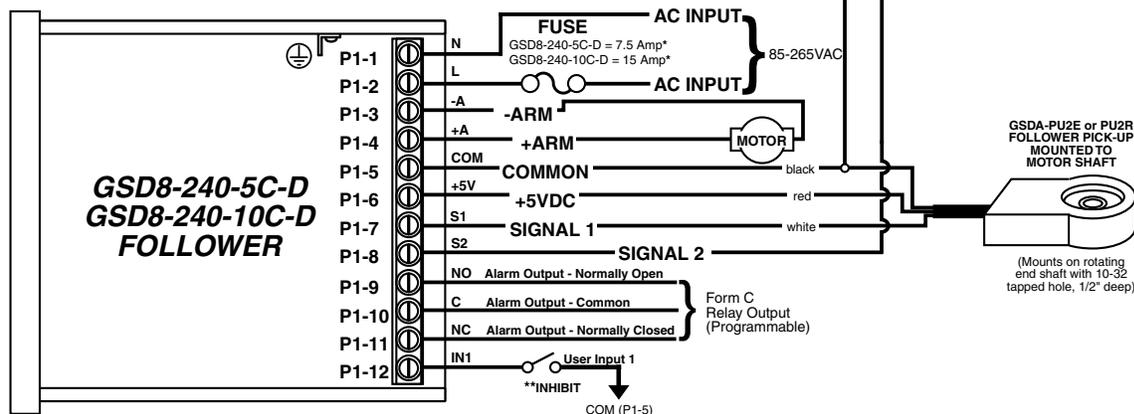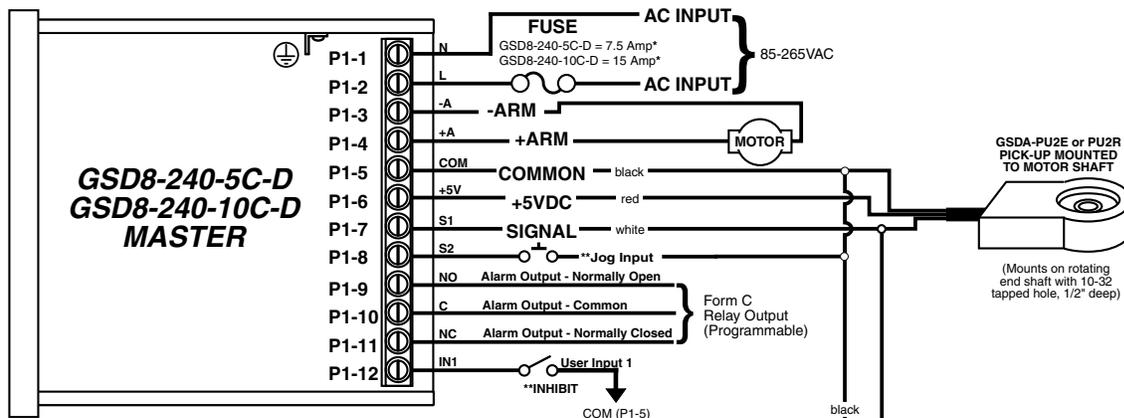(Mounts on rotating end shaft with 10-32 tapped hole, 1/2" deep)

* For AC inputs utilizing two hot lines, both inputs should be protected with appropriately sized fuses or circuit breakers.

** P1-8 & P1-12 user input may be programmed for a number of functions, including jog, inhibit, etc.
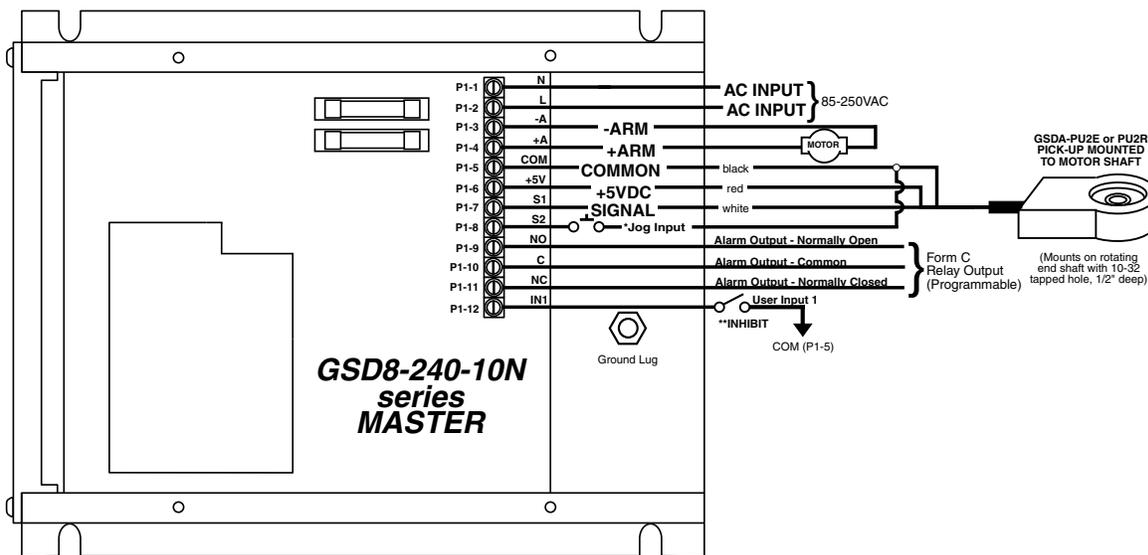
GSD8 Series DC Drives

GSD8 Wiring Diagrams

GSD8-240-5C-D, GSD8-240-10C-D Wiring Diagram

GSD8-240-5C-D GSD8-240-10C-D MASTER

Terminal		
P1-1	N	AC INPUT
		FUSE
		GSD8-240-5C-D = 7.5 Amp*
		GSD8-240-10C-D = 15 Amp*
		85-265VAC
P1-2	L	AC INPUT
P1-3	-A	-ARM
P1-4	+A	+ARM
		MOTOR
P1-5	COM	COMMON — black
P1-6	+5V	+5VDC — red
P1-7	S1	SIGNAL — white
P1-8	S2	**Jog Input
P1-9	NO	Alarm Output - Normally Open
P1-10	C	Alarm Output - Common
P1-11	NC	Alarm Output - Normally Closed
P1-12	IN1	User Input 1

Form C Relay Output (Programmable)

**INHIBIT
COM (P1-5)

GSDA-PU2E or PU2R PICK-UP MOUNTED TO MOTOR SHAFT

(Mounts on rotating end shaft with 10-32 tapped hole, 1/2" deep)

black
white

GSD8-240-5C-D GSD8-240-10C-D FOLLOWER

Terminal		
P1-1	N	AC INPUT
		FUSE
		GSD8-240-5C-D = 7.5 Amp*
		GSD8-240-10C-D = 15 Amp*
		85-265VAC
P1-2	L	AC INPUT
P1-3	-A	-ARM
P1-4	+A	+ARM
		MOTOR
P1-5	COM	COMMON — black
P1-6	+5V	+5VDC — red
P1-7	S1	SIGNAL 1 — white
P1-8	S2	SIGNAL 2
P1-9	NO	Alarm Output - Normally Open
P1-10	C	Alarm Output - Common
P1-11	NC	Alarm Output - Normally Closed
P1-12	IN1	User Input 1

Form C Relay Output (Programmable)

**INHIBIT
COM (P1-5)

GSDA-PU2E or PU2R FOLLOWER PICK-UP MOUNTED TO MOTOR SHAFT

(Mounts on rotating end shaft with 10-32 tapped hole, 1/2" deep)

GSD8-240-10N4X, 10N4X-A, 10N4X-U Wiring Diagram

GSD8-240-10N series MASTER

Terminal		
P1-1	N	AC INPUT
P1-2	L	AC INPUT
		85-250VAC
P1-3	-A	-ARM
P1-4	+A	+ARM
		MOTOR
P1-5	COM	COMMON — black
P1-6	+5V	+5VDC — red
P1-7	S1	SIGNAL — white
P1-8	S2	*Jog Input
P1-9	NO	Alarm Output - Normally Open
P1-10	C	Alarm Output - Common
P1-11	NC	Alarm Output - Normally Closed
P1-12	IN1	User Input 1

Form C Relay Output (Programmable)

Ground Lug

**INHIBIT
COM (P1-5)

GSDA-PU2E or PU2R PICK-UP MOUNTED TO MOTOR SHAFT

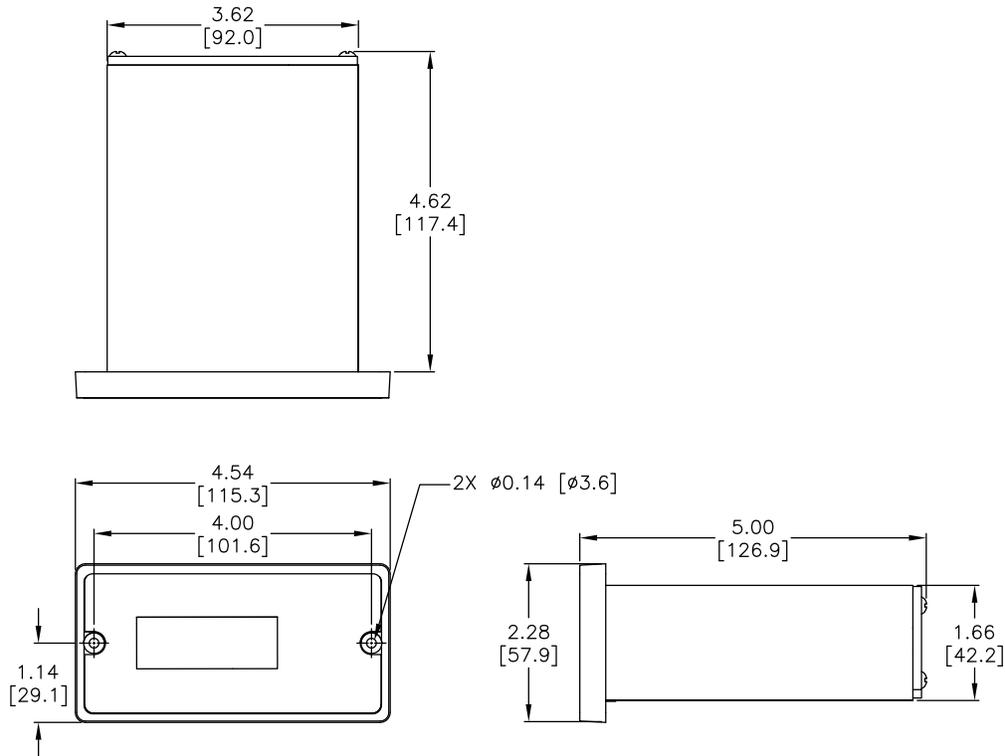(Mounts on rotating end shaft with 10-32 tapped hole, 1/2" deep)

* For AC inputs utilizing two hot lines, both inputs should be protected with appropriately sized fuses or circuit breakers.

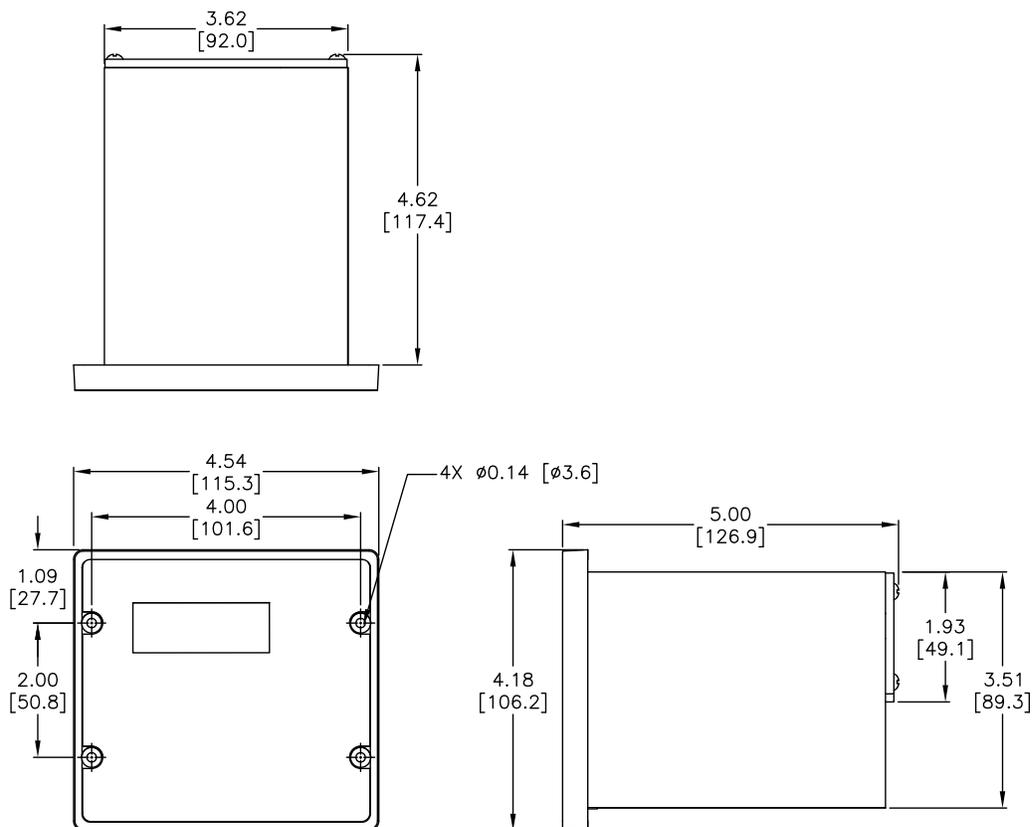** P1-8(Master) & P1-12 user input may be programmed for a number of functions, including jog, inhibit, etc.

GSD8 Series DC Drives

GSD8 Dimensions – *dimensions = in [mm]*

GSD8-240-5C(-D) Dimensions

3.62
[92.0]

4.62
[117.4]

4.54
[115.3]

4.00
[101.6]

2X ⌀0.14 [⌀3.6]

1.14
[29.1]

5.00
[126.9]

2.28
[57.9]

1.66
[42.2]

GSD8-240-10C-D Dimensions

3.62
[92.0]

4.62
[117.4]

4.54
[115.3]

4.00
[101.6]

4X ⌀0.14 [⌀3.6]

1.09
[27.7]

2.00
[50.8]

5.00
[126.9]

4.18
[106.2]

1.93
[49.1]

3.51
[89.3]

GSD8 Series DC Drives

GSD8 Dimensions – *dimensions = in [mm]*

GSD8-240-10N4X-x Dimensions

5.53 [140.5]

5.04 [128.1]

0.32 [8.2]

4X ∅0.19 [∅4.8] X 0.34 [8.7] SLOT

7.35 [186.6]

5.50 [139.7]

5.53 [140.5]

0.93 [23.6]

2.90 [73.5]

2.10 [53.4]

2X ∅0.72 [∅18.3]

3.75 [95.3]

1.85 [47.1]

1.31 [33.3]

2.25 [57.2]