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INTRODUCTION

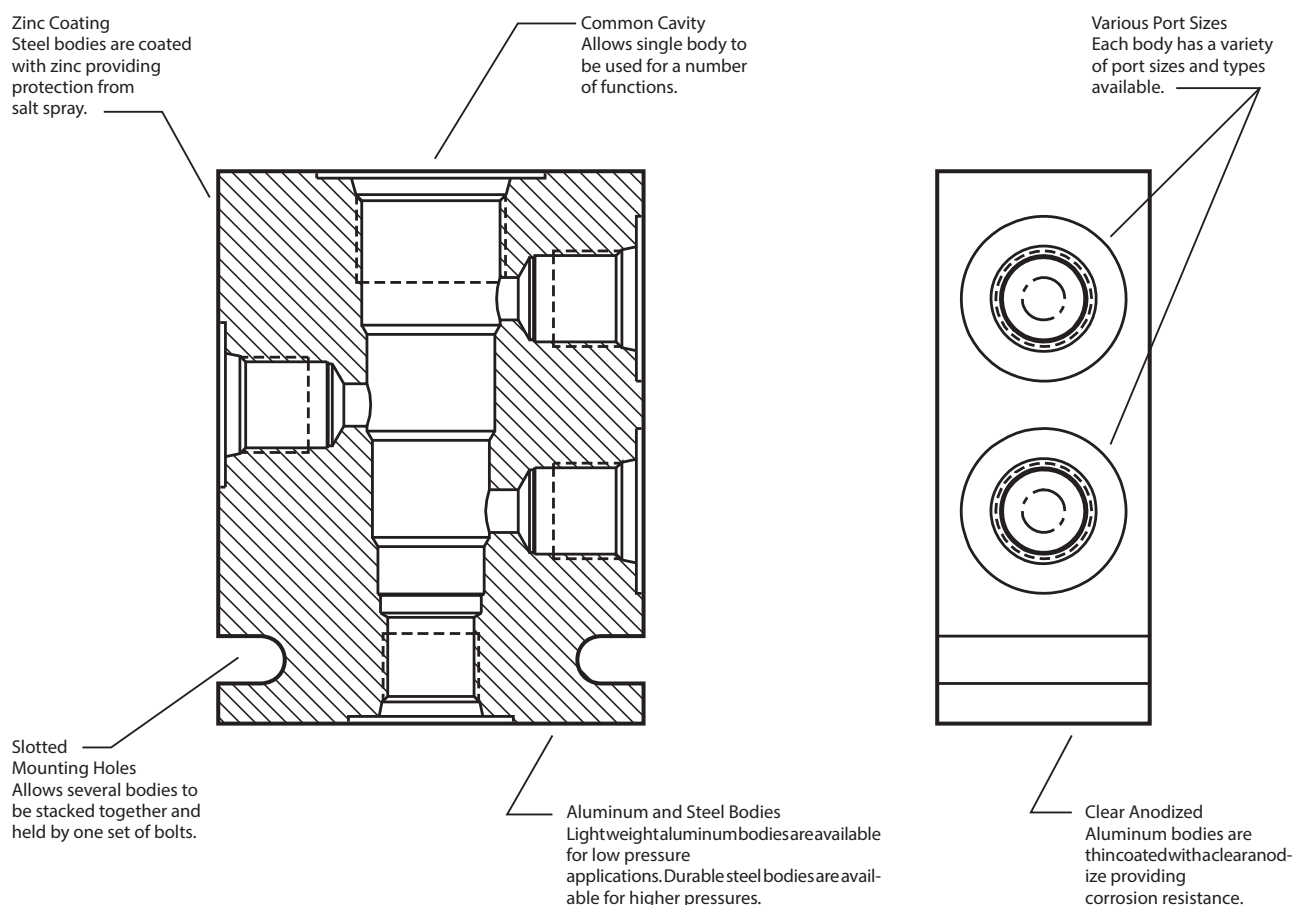
This Technical Tips section is split into two parts; Standard Line Bodies and Cavities. In the standard line bodies section, we highlight the features and options of our standard offering of line bodies. In the cavity section we discuss "common" cavities.

The Technical Tips are provided to help you become more familiar with Parker Hannifin's line of product and assist you in applying our product.

STANDARD LINE BODIES

Parker offers standard line bodies for each valve and cavity size.

Below are some of the features of Parker's standard line bodies.



COMMON OPTIONS & FEATURES

Aluminum vs. Steel: Parker offers standard line bodies in both aluminum and steel. Aluminum bodies are most often used for general applications. Parker's aluminum bodies are coated with a clear anodize to provide a corrosion resistant protection. Aluminum bodies should never be used in applications above 210 bar (3000 psi.) Steel bodies are more durable and

heavier than aluminum bodies. They are ideal for applications with elevated pressures or where rugged construction is desired. Steel bodies are suitable for applications up to 350 bar (5000 psi.) Parker's steel bodies are coated with zinc providing corrosion resistance. Zinc even provides the steel body many hours of protection from salt spray.

COMMON OPTIONS & FEATURES (Cont.)

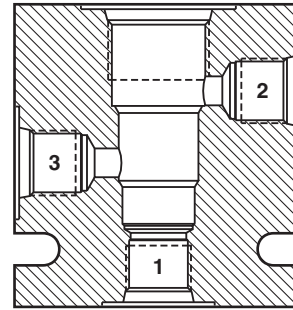
Pressure Drop: The pressure drop through a line body is fairly minimal. Each catalog page shows a pressure drop curve. This should be added to the pressure drop through the cartridge when trying to estimate total pressure drop for a function.

Porting: Parker offers a variety of port sizes and types for each line body. While NPT or pipe ports were once very popular and are still offered, we recommend SAE ports for new applications. SAE ports and fittings provide a more secure connection than pipe ports.

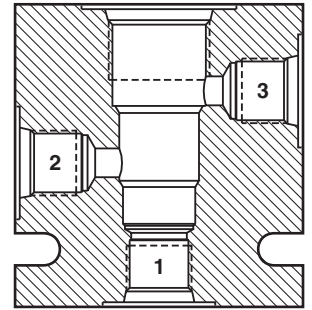
"If using an HY15-3502 or an older catalog, note we have re-numbered the ports on our 3-way line bodies" In the past, three way bodies were numbered with the nose being port 1, the middle port labeled (3), and the

top port labeled (2). Over the years, this has caused some confusion, so we have relabeled the ports sequentially from the bottom.

For identification, the current design will be marked with a Parker symbol like the one shown.



Previous Design



Current Design

CAVITIES

The hole that the cartridge valve is screwed into is called a cavity. Many cartridge producers manufacture valves that fit a "common" cavity. With a "common" cavity, a valve theoretically could be removed from a cavity and replaced by another manufacturer's product. One should be careful though to check cross drill ports and thread depths when pursuing this activity. While it is true that many manufacturer's products fit inside another's cavity, the cross drills sometimes expose an o-ring to pressure, causing the o-ring to be extruded.

Valve / Cavity Compatibility Chart: Through acquisition, Parker Hannifin has accumulated a number of manufacturers with "common" cavities.

To accommodate all of our product lines, you will find a chart like the one shown on this page on each catalog page. The purpose of this chart is to help identify if a valve from one acquisition can be replaced by a Parker valve, or another acquisition valve. The valves are designated by the columns of the chart and the cavities by the rows. If you have an existing cavity, you find it on the chart and follow across to see which valves you may put in the cavity. For instance, using the chart below, let's say you have an existing manifold in which you had manufactured a FPS cavity (maybe you were using a SV2A-10). By finding the row labeled FPS and following across, you find that you could use the FPS product, or a CEC product of the same size in this cavity. A Parker or Waterman valve will not fit in this cavity without modifying the cavity.

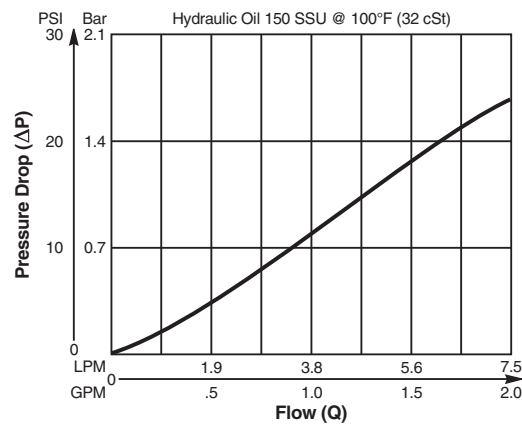
		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS				
	CEC				

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS				
	CEC				

Performance Curve

Pressure Drop vs. Flow



Ordering Information

B04

04 Size

3

3-Way
Cavity

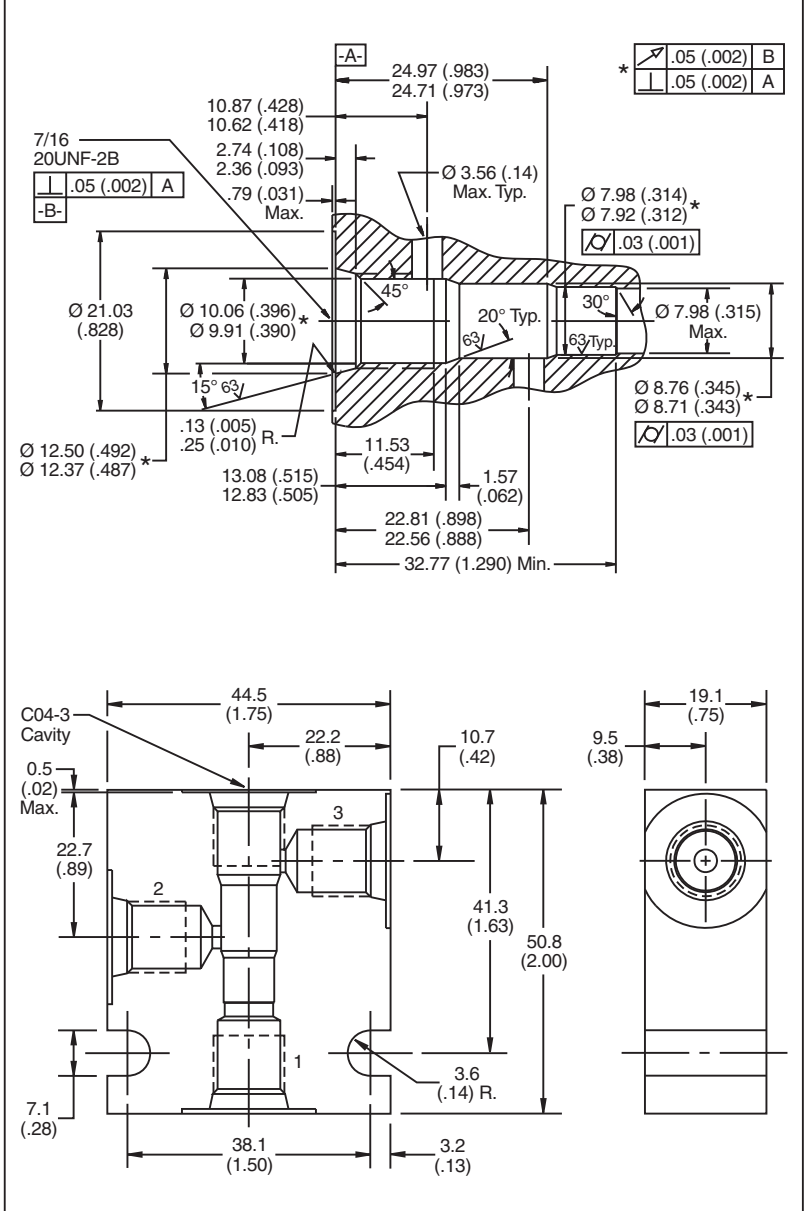
4T

Port
Size

Code	Port Size / Material
4T	SAE-4 (Steel)

Weight: .10 kg (.23 lbs.)

Dimensions Millimeters (Inches)

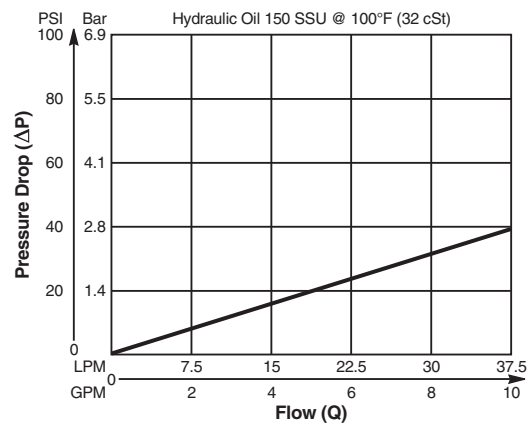


For additional information see Technical Tips on pages BC2-BC3.

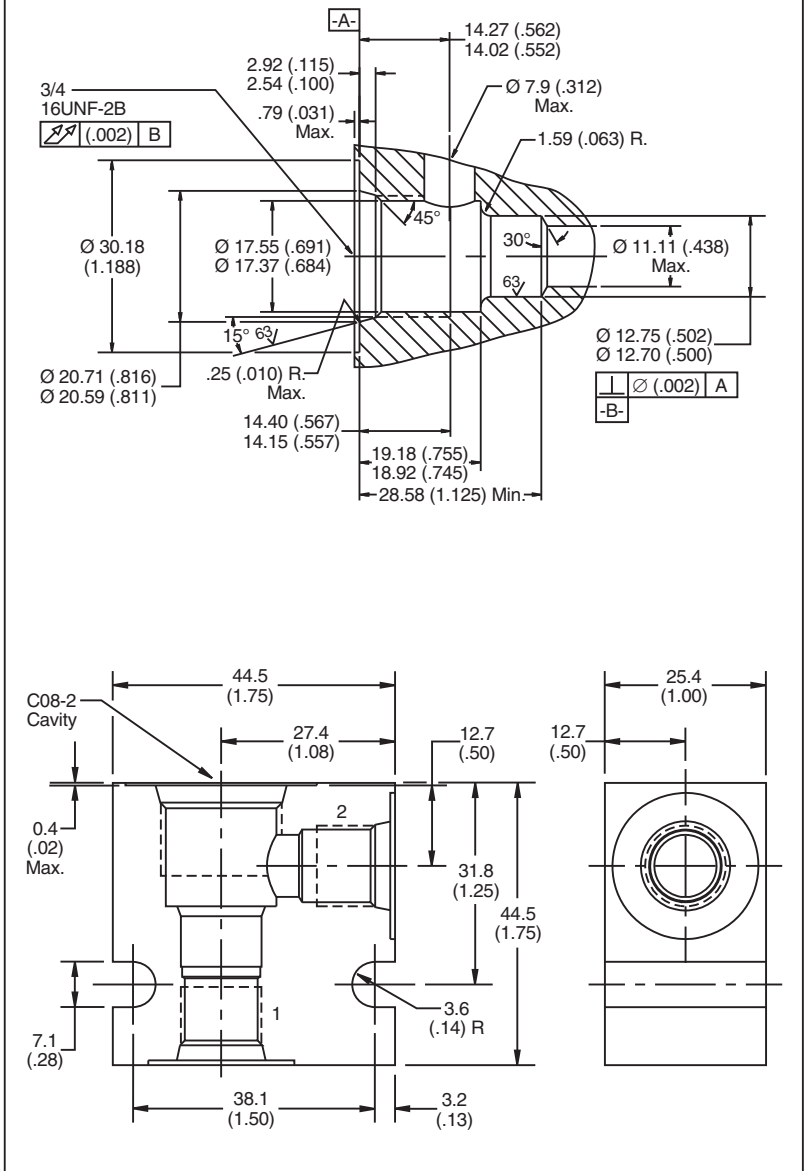
		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X	X	X
	Waterman	X	X	X	X
	FPS	X	X	X	X
	CEC	X	X	X	X

Performance Curve

Pressure Drop vs. Flow



Dimensions Millimeters (Inches)



Ordering Information

Diagram illustrating the naming convention for the B08-2-6T connector:

- B08**: 08 Size
- 2**: 2-Way Cavity
- 6T**: Port Size

Code	Port Size
6T	SAE - 6 (Steel)

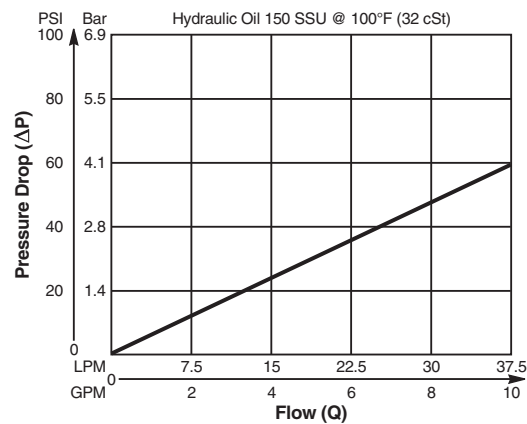
Weight: .11 kg (.25 lbs.)

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS			X	X
	CEC			X	X

Performance Curve

Pressure Drop vs. Flow



Ordering Information

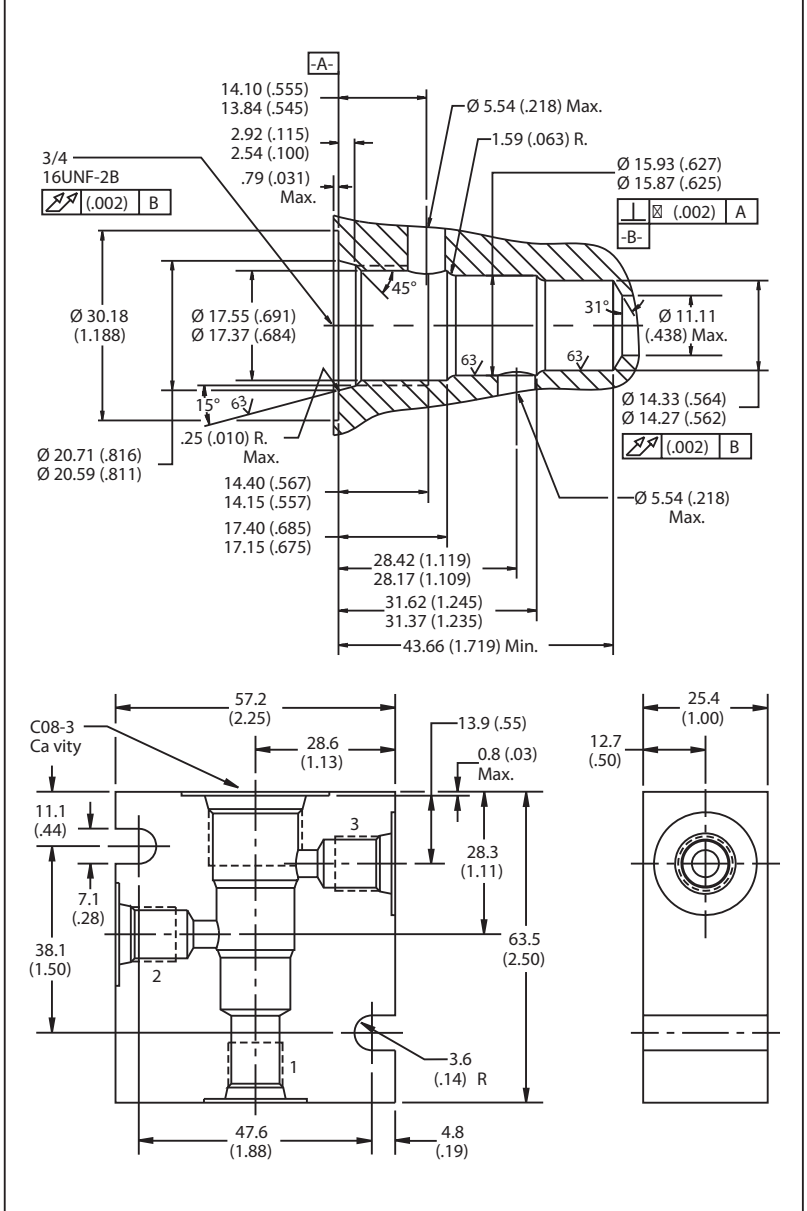
Diagram illustrating the components of the B08-3-6T part number:

- B08**: 08 Size
- 3**: 3-Way Cavity
- 6T**: Port Size

Code	Port Size
6T	SAE - 6 (Steel)

Weight: .27 kg (.60 lbs.)

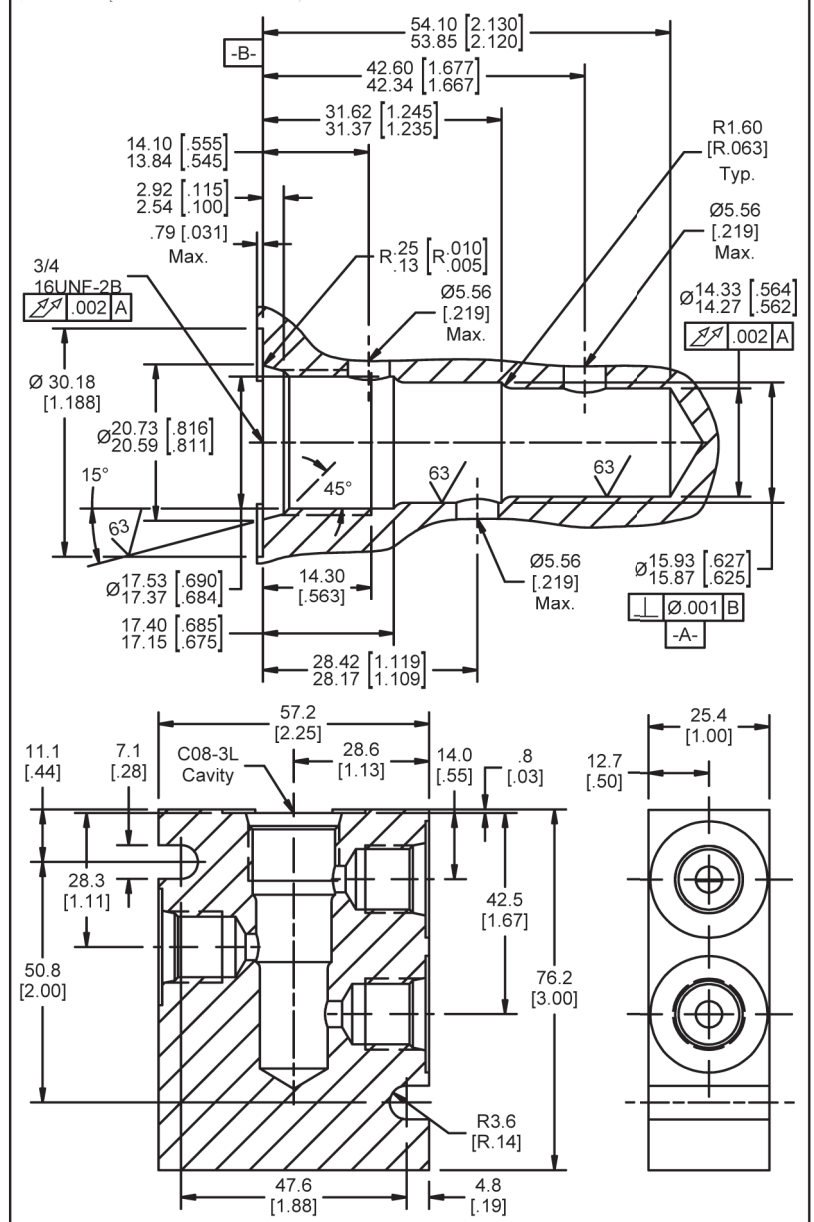
Dimensions Millimeters (Inches)



For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X			
	Waterman				
	FPS				
	CEC				

Millimeters (Inches)



B08 — **3L** — **6T**
08 Size 3-Way Long Cavity Port Size

Code	Port Size
6T	SAE - 6 (Steel)



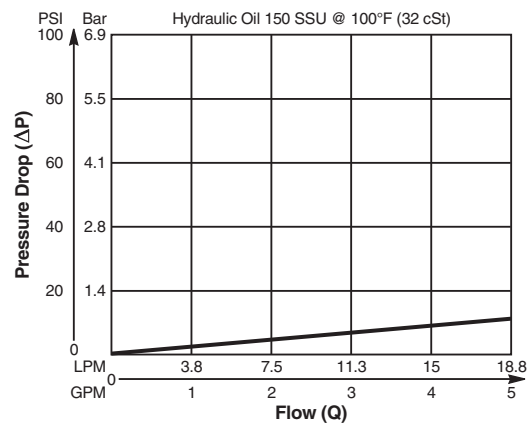
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS			X	
	CEC				

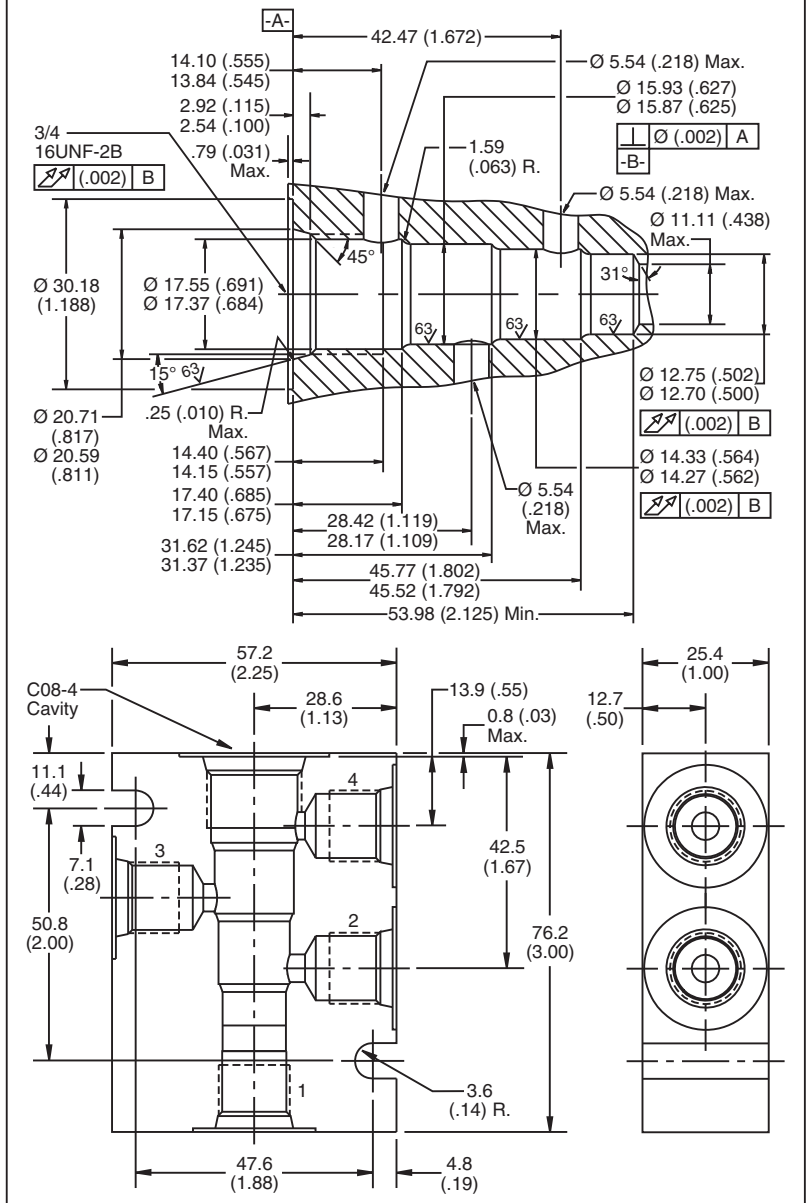
Performance Curve

Pressure Drop vs. Flow



Dimensions

Millimeters (Inches)



Ordering Information

B08	—	4	—	6T
08 Size		4-Way Cavity		Port Size

Code	Port Size
6T	SAE - 6 (Steel)

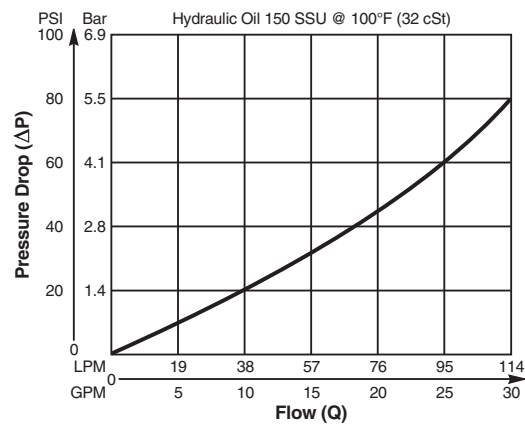
Weight: .45 kg (1.0 lbs.)

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS			X	X
	CEC			X	X

Performance Curve

Pressure Drop vs. Flow



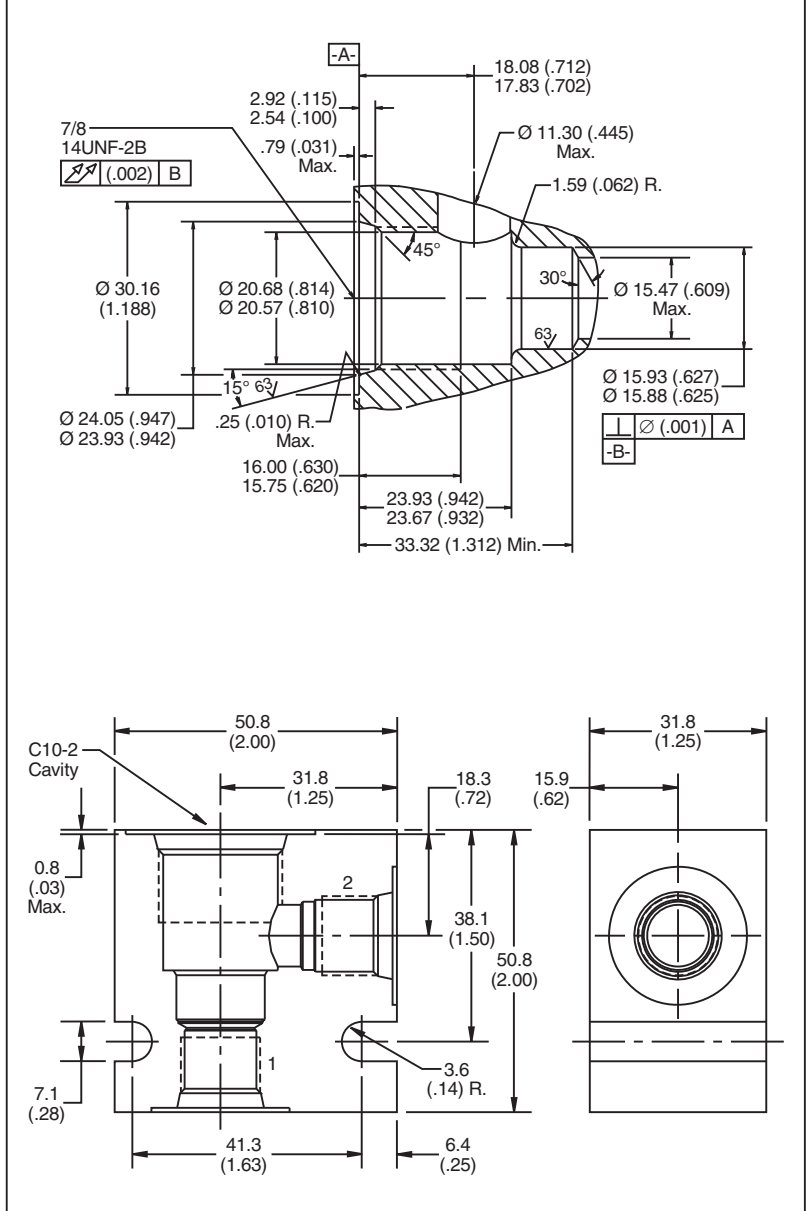
Ordering Information

B10 — **2** — **8T**
10 Size 2-Way Cavity Port Size

Code	Port Size
8T	SAE - 8 (Steel)

Weight: .45 kg (1.0 lbs.)

Dimensions Millimeters (Inches)



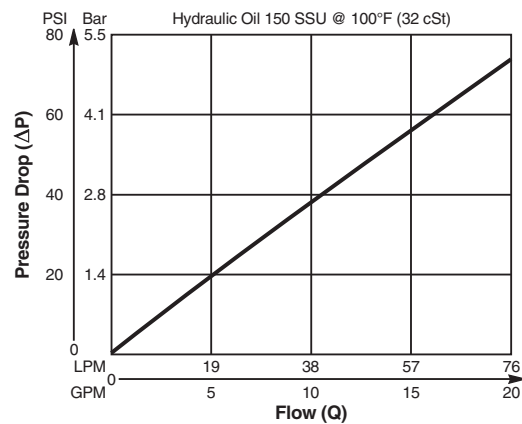
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X	X	X
	Waterman	X	X	X	X
	FPS	X	X	X	X
	CEC	X	X	X	X

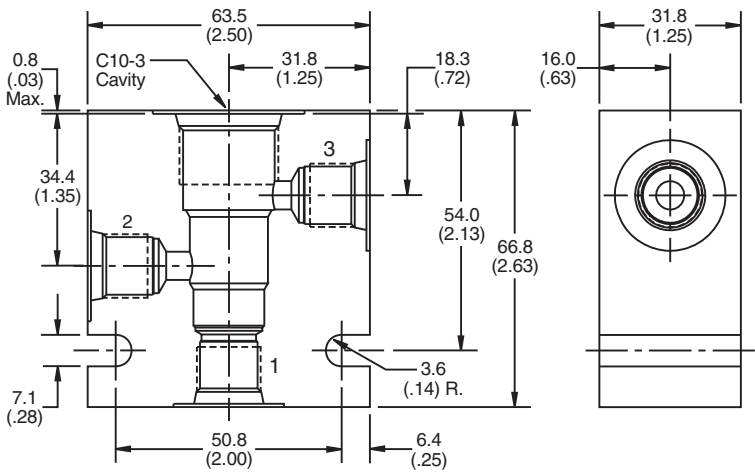
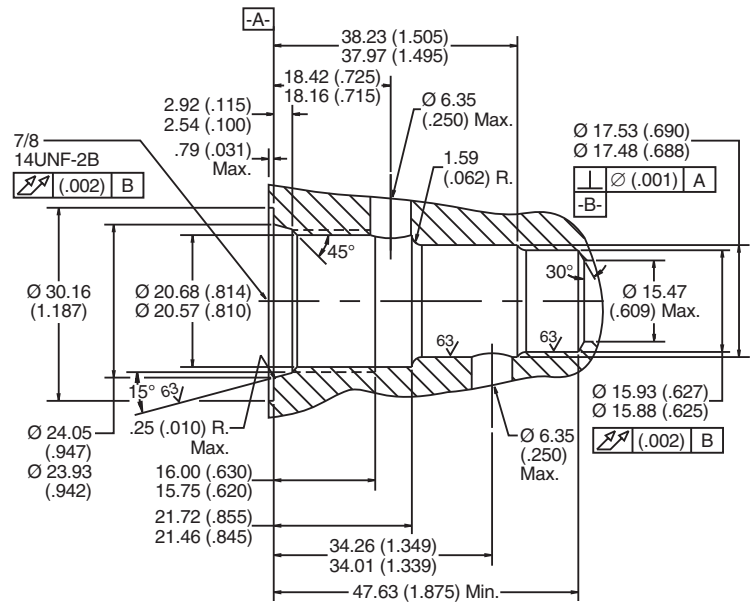
Performance Curve

Pressure Drop vs. Flow



Dimensions

Millimeters (Inches)



Ordering Information

B10	—	3	—	8T
10 Size		3-Way Cavity		Port Size

Code	Port Size
8T	SAE - 8 (Steel)

Weight: .77 kg (1.7 lbs.)

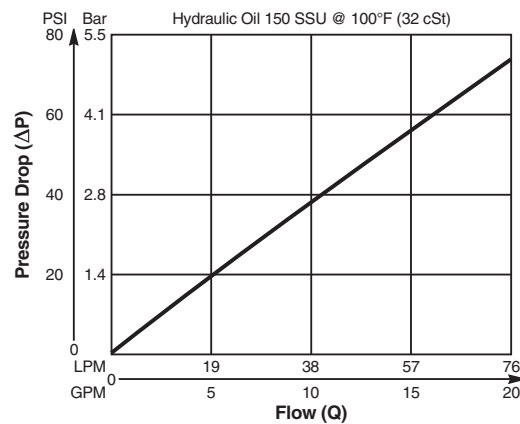
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

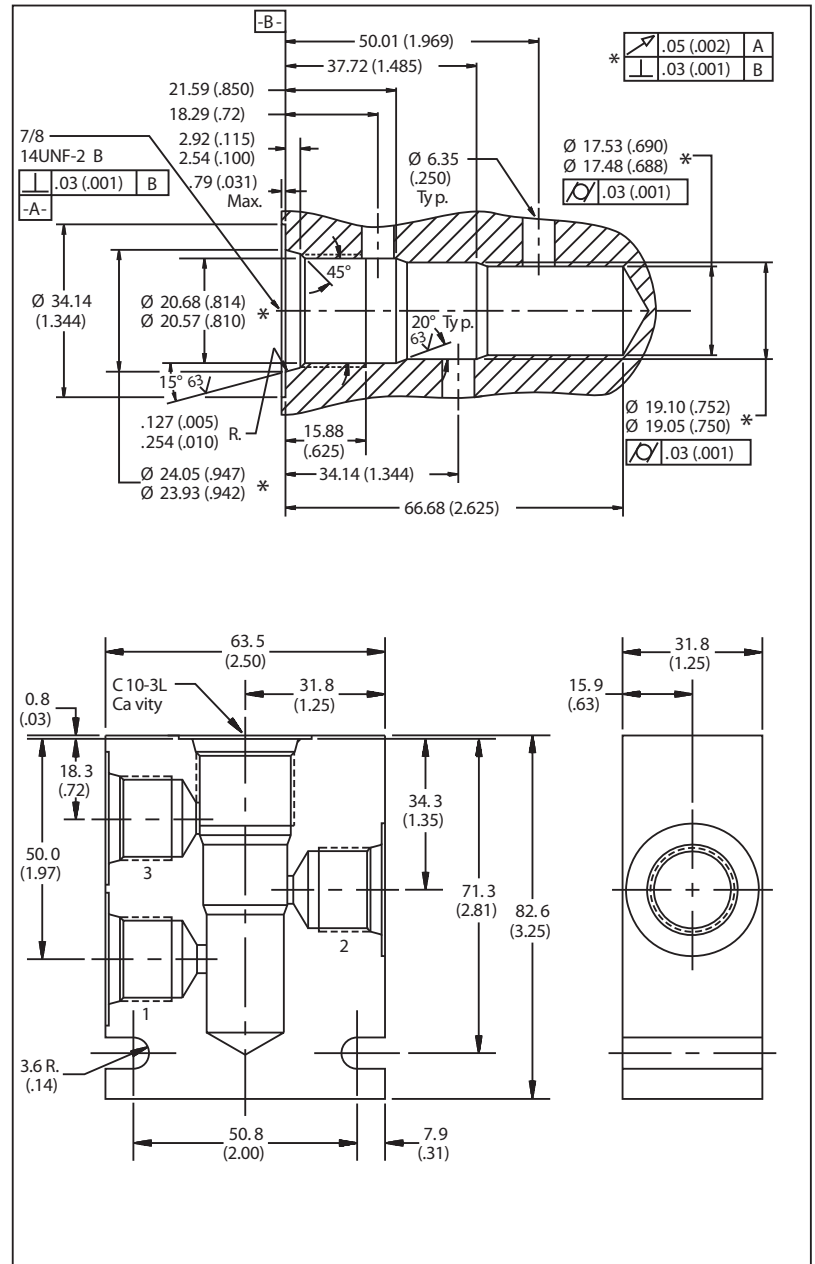
		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X	X	
	Waterman	X	X	X	
	FPS	X	X	X	
	CEC				

Performance Curve

Pressure Drop vs. Flow



Dimensions



Ordering Information

B10	—	3L	—	8T
10 Size		3-Way Long Cavity		Port Size

Code	Port Size
8T	SAE - 8 (Steel)

Weight: .77 kg (1.7 lbs.)

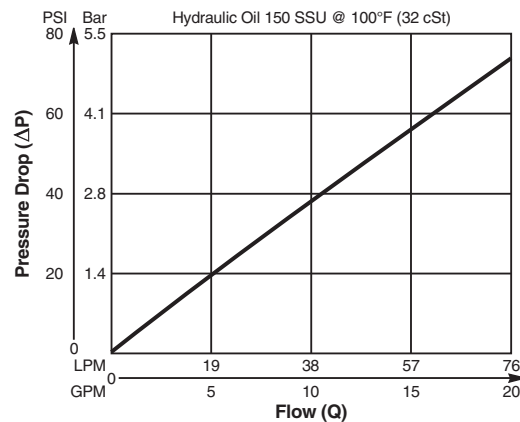
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker				
	Waterman				
	FPS			X	X
	CEC			X	X

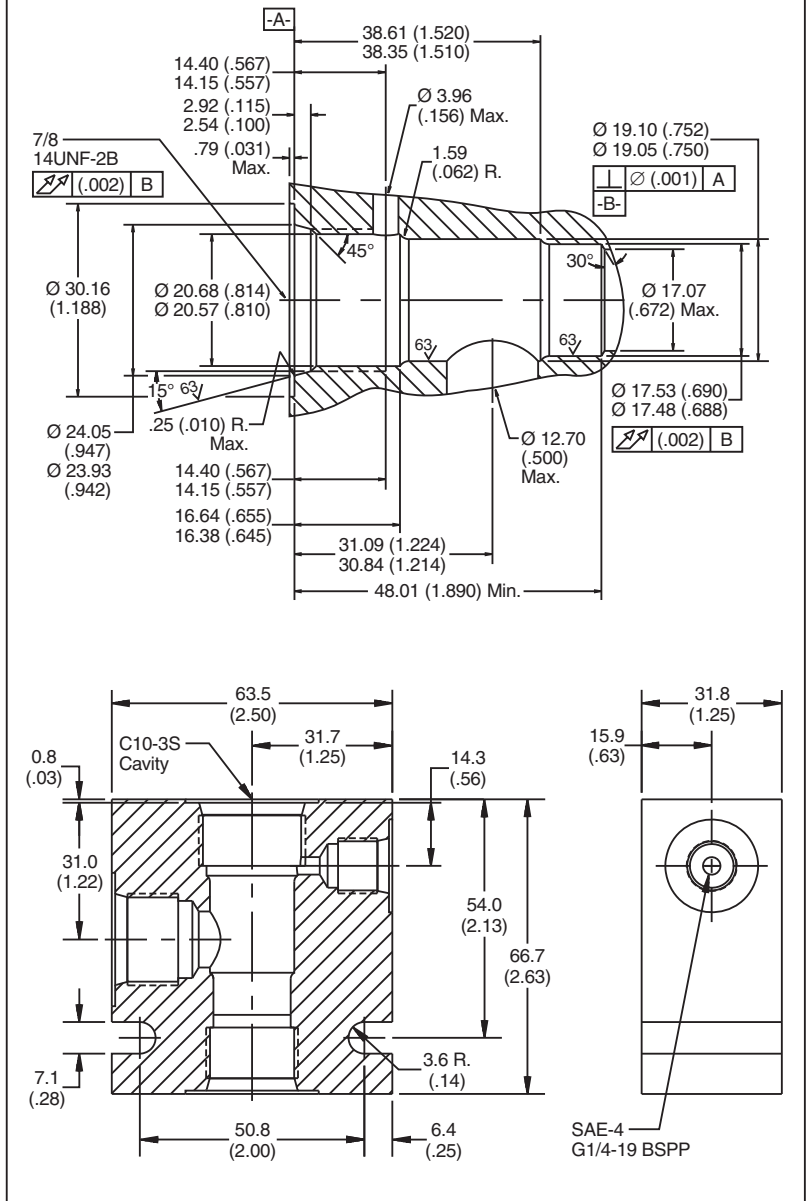
Performance Curve

Pressure Drop vs. Flow



Dimensions

Millimeters (Inches)



Ordering Information

B10	—	3S	—	8T
10 Size		3-Way Short Cavity		Port Size

Code	Port Size
8T	SAE - 8 (Steel)

Weight: .77 kg (1.7 lbs.)

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

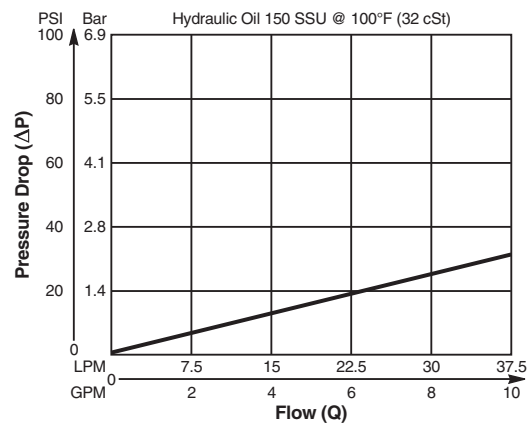
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X	X	X
	Waterman	X	X	X	X
	FPS	X	X	X	X
	CEC	X	X	X	X

Performance Curve

Pressure Drop vs. Flow

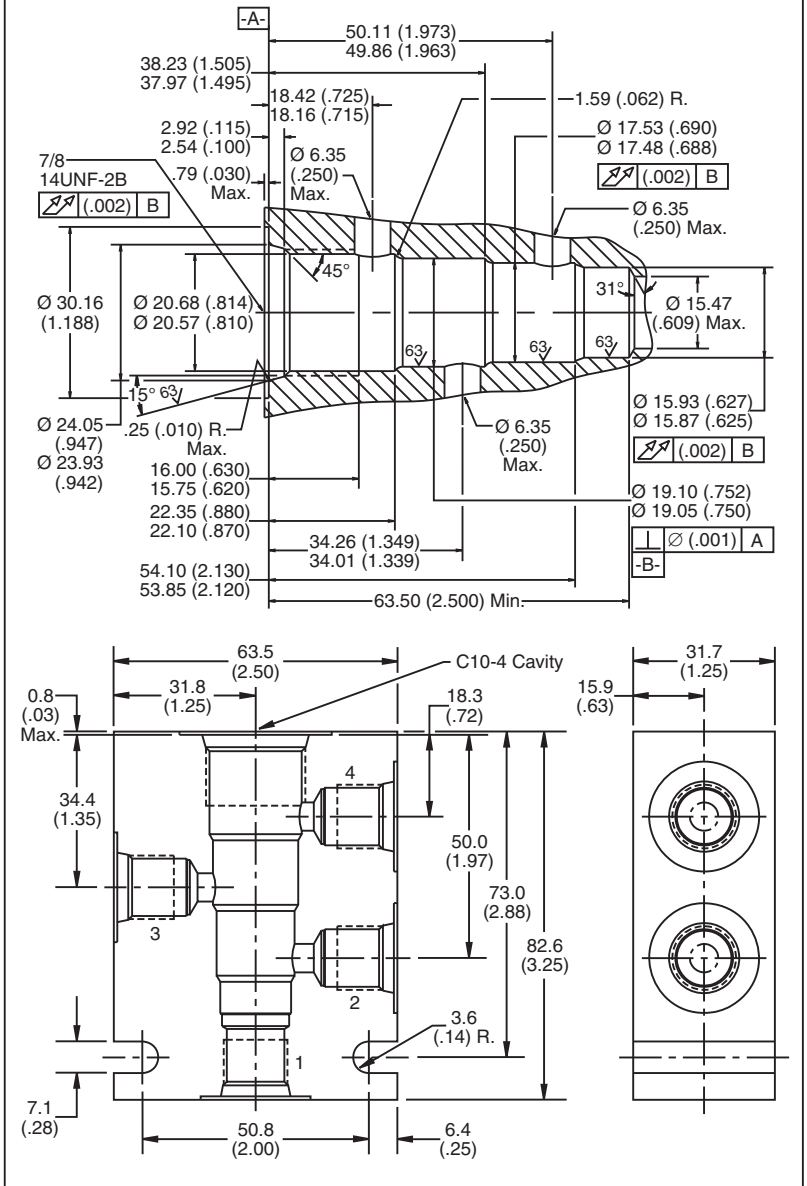


NOTE:

When machining for use with DF102P, Ports 1 and 4 must be connected in the manifold/block.

Dimensions

Millimeters (Inches)



Ordering Information

B10	—	4	—	8T
10 Size		4-Way Cavity		Port Size

Code	Port Size
8T	SAE - 8 (Steel)

Weight: .90 kg (2.0 lbs.)

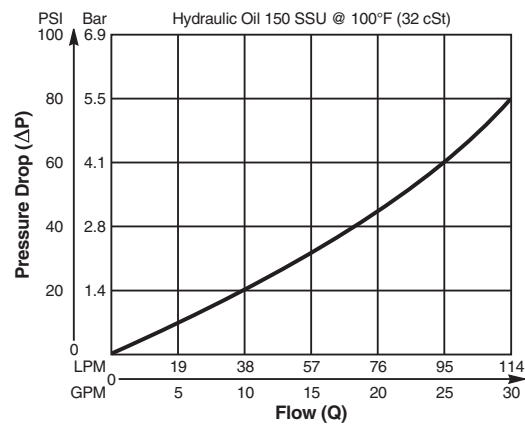
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

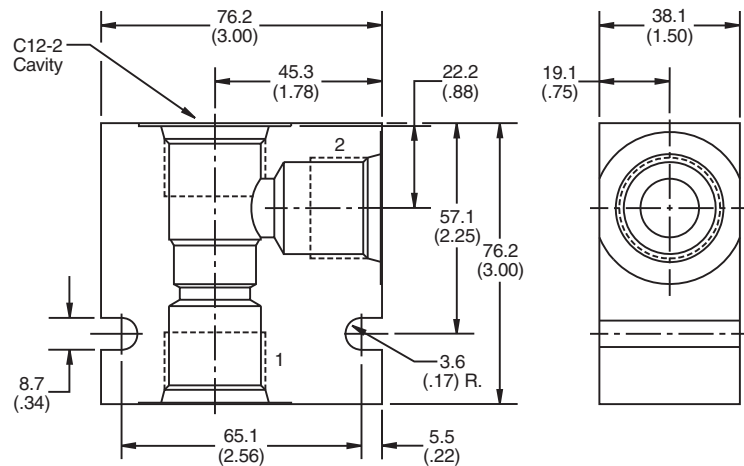
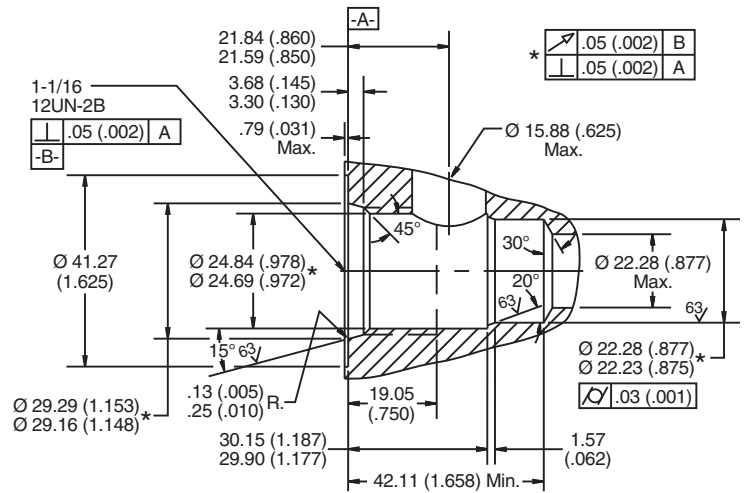
		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS				
	CEC				X

Performance Curve

Pressure Drop vs. Flow



Dimensions Millimeters (Inches)



Ordering Information

B12 — **2** — **12T**
12 Size 2-Way Cavity Port Size

Code	Port Size
12T	SAE - 12 (Steel)

Weight: .45 kg (1.0 lbs.)

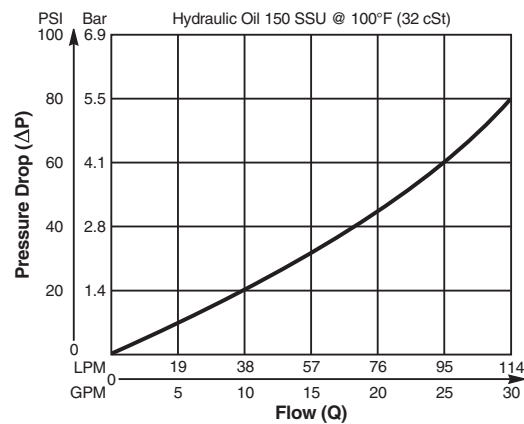
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS				
	CEC				X

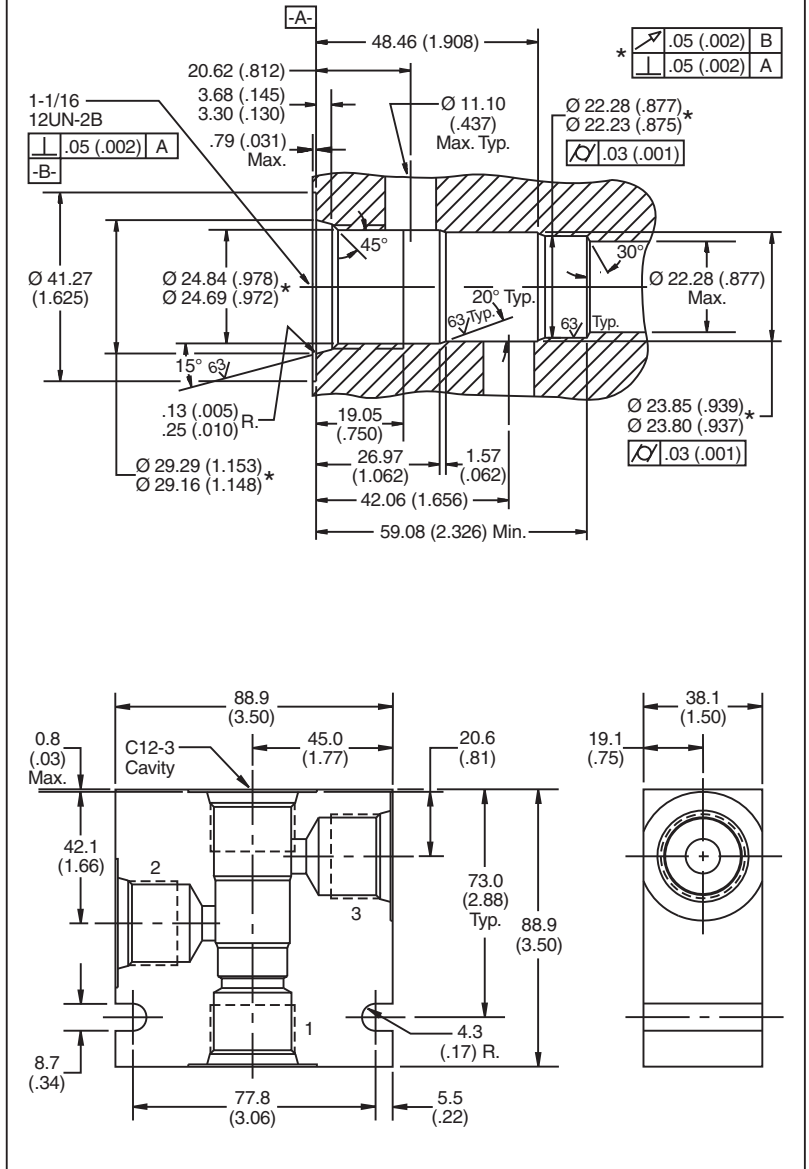
Performance Curve

Pressure Drop vs. Flow



Dimensions

Millimeters (Inches)



Ordering Information

B12	—	3	—	12T
12 Size		3-Way Cavity		Port Size

Code	Port Size
12T	SAE - 12 (Steel)

Weight: 2.0 kg (4.5 lbs.)

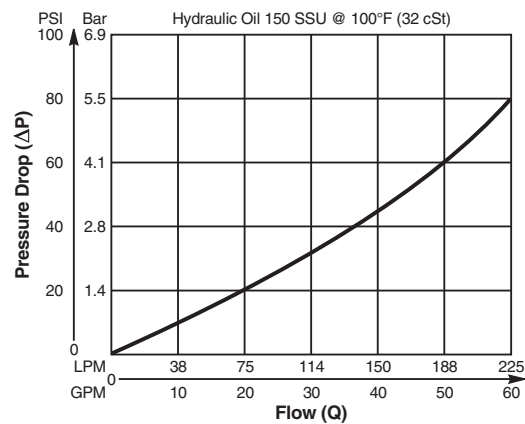
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS			X	X
	CEC			X	X

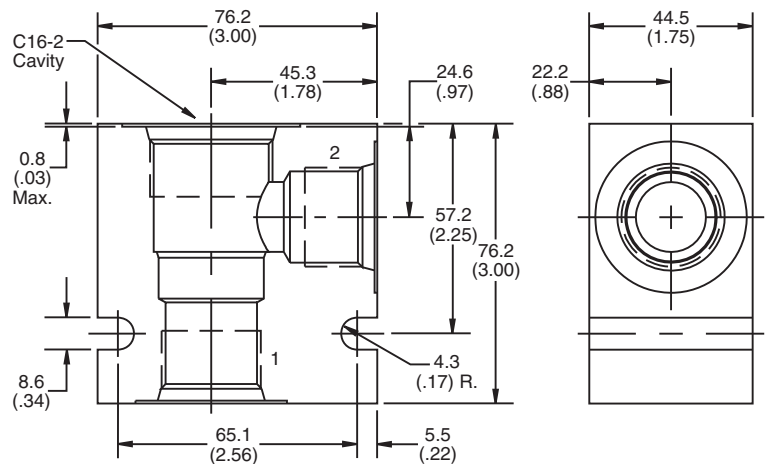
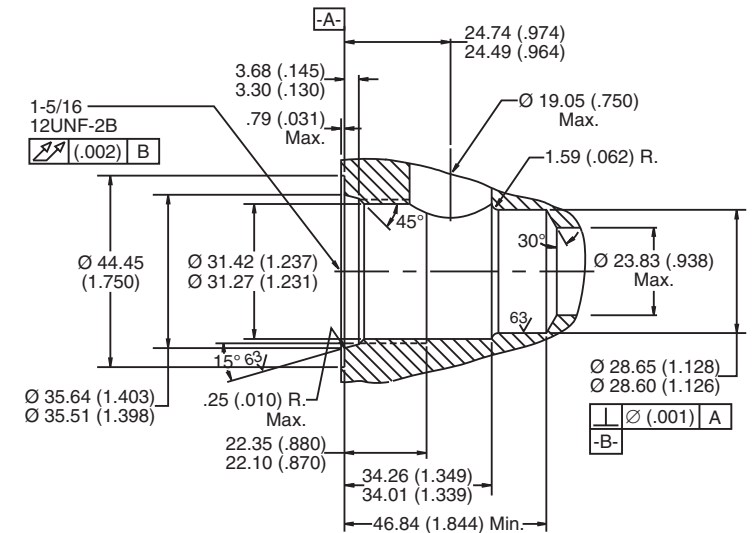
Performance Curve

Pressure Drop vs. Flow



Dimensions

Millimeters (Inches)



Ordering Information

B16	—	2	—	16T
16 Size		2-Way Cavity		Port Size

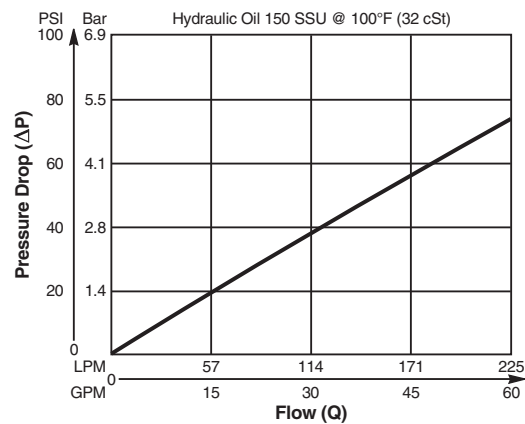
Code	Port Size
16T	SAE - 16 (Steel)

Weight: 1.5 kg (3.4 lbs.)

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS			X	X
	CEC			X	X

Pressure Drop vs. Flow



A diagram showing three boxes connected by horizontal lines. The first box contains 'B16' with '16 Size' below it. The second box contains '3' with '3-Way Cavity' below it. The third box contains '16T' with 'Port Size' below it.

Code	Port Size
16T	SAE - 16 (Steel)

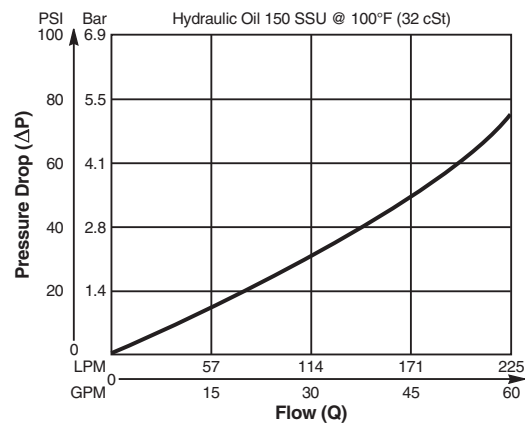
Weight: 3.0 kg (6.5 lbs.)

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X	X	X
	Waterman	X	X	X	X
	FPS	X	X	X	X
	CEC	X	X	X	X

Performance Curve

Pressure Drop vs. Flow



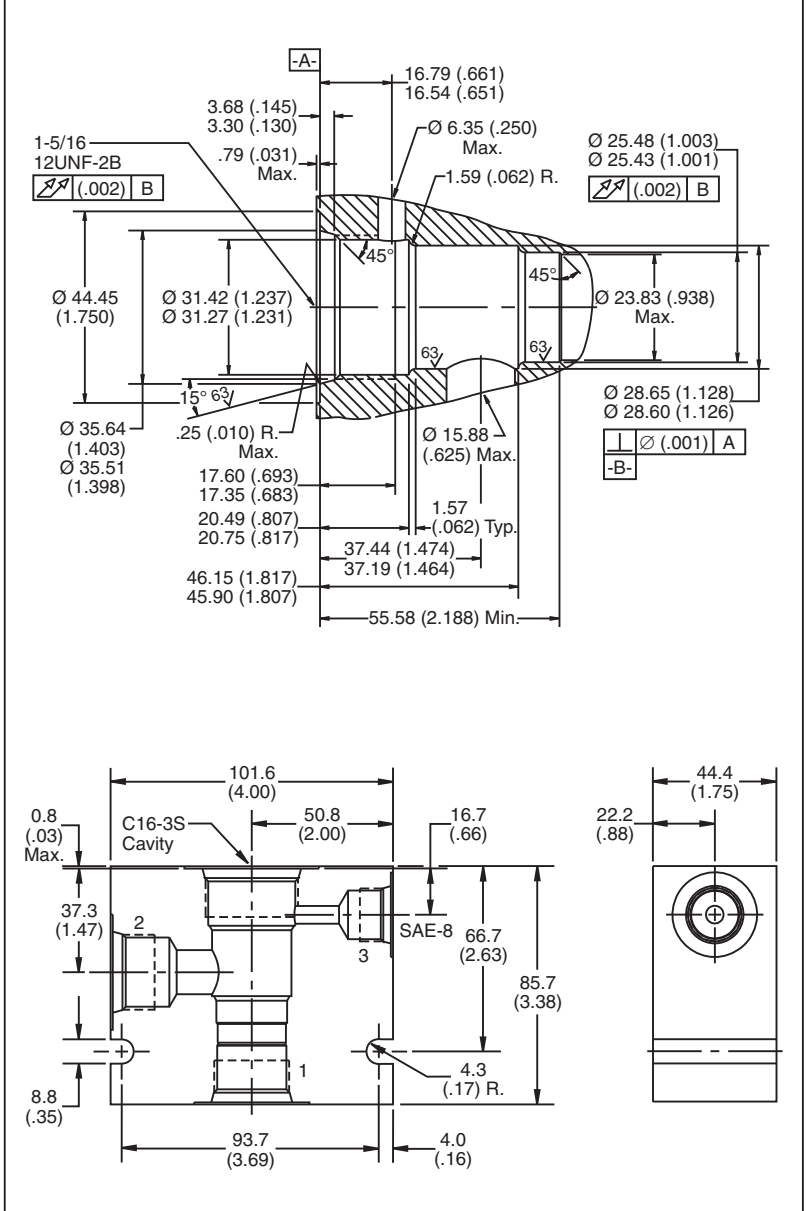
Ordering Information

B16 — **3S** — **16T**
16 Size 3-Way Short Cavity Port Size

Code	Port Size
16T	SAE - 16 (Steel)

Weight: 2.4 kg (5.4 lbs.)

Dimensions Millimeters (Inches)



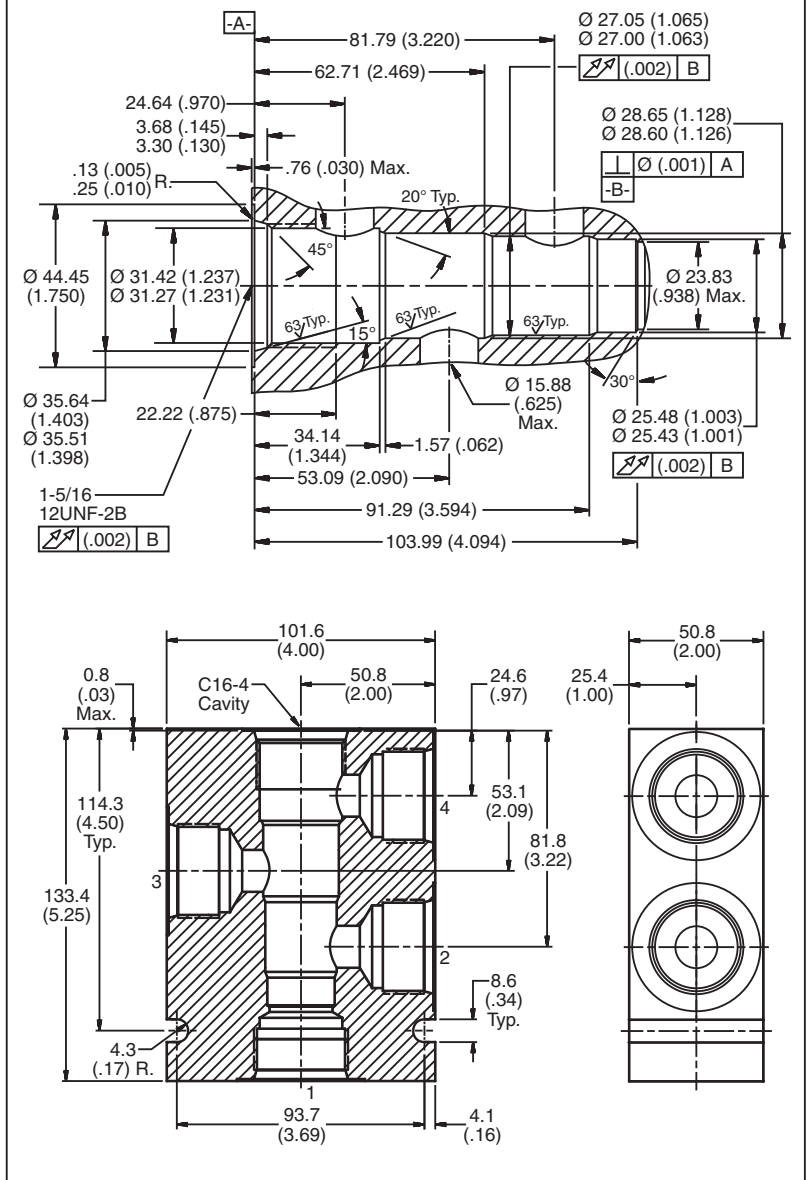
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X		
	Waterman	X	X		
	FPS			X	X
	CEC			X	X

Dimensions

Millimeters (Inches)



Ordering Information

B16	—	4	—	16T
16 Size		4-Way Cavity		Port Size

Code	Port Size
16T	SAE - 16 (Steel)

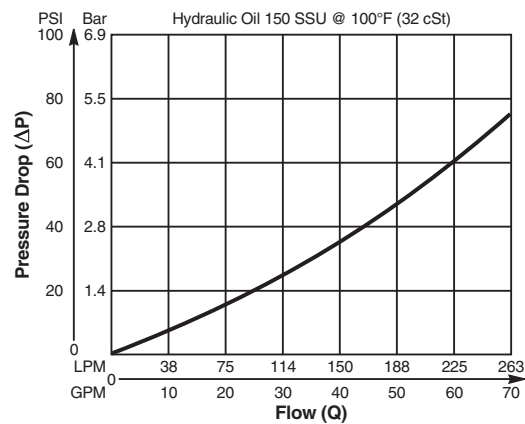
Weight: 3.75 kg (8.125 lbs.)

For additional information see Technical Tips on pages BC2-BC3.

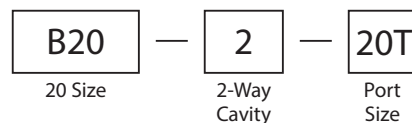
		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker	X	X	X	X
	Waterman	X	X	X	X
	FPS	X	X	X	X
	CEC	X	X	X	X

Performance Curve

Pressure Drop vs. Flow



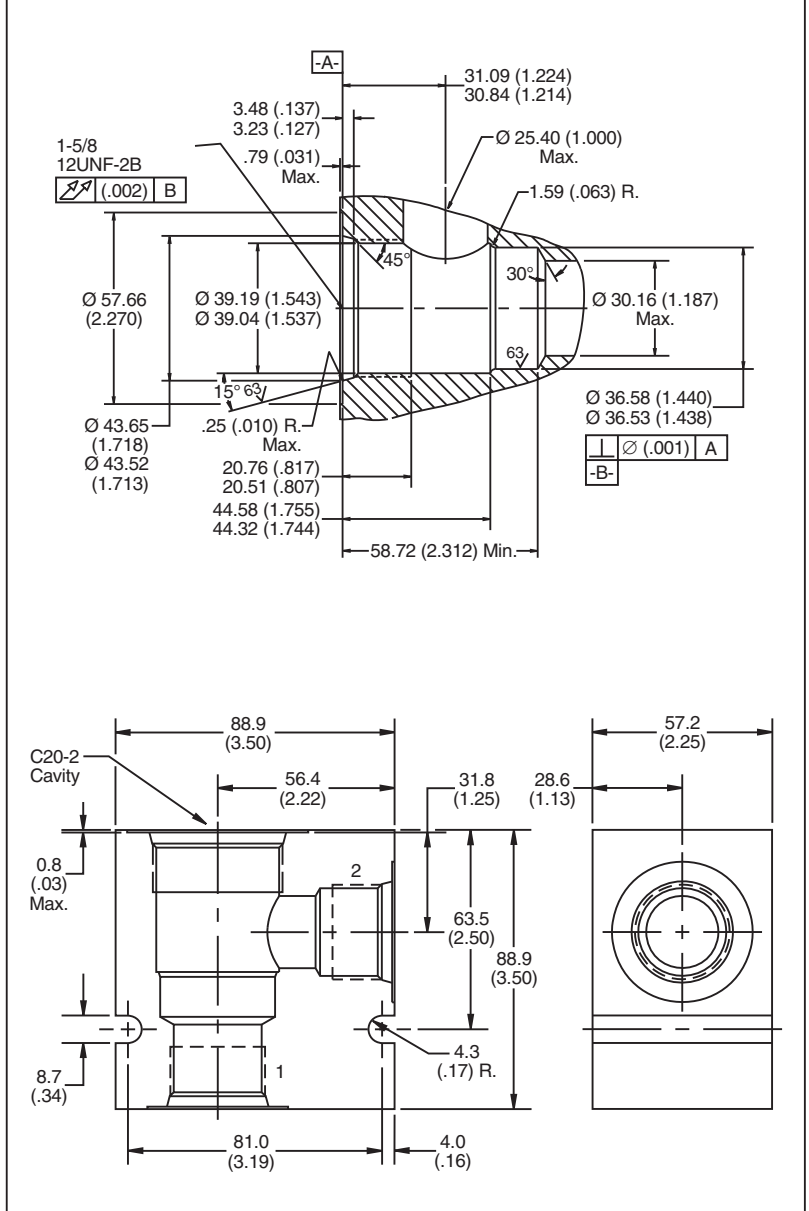
Ordering Information



Code	Port Size
20T	SAE - 20 (Steel)

Weight: 6.3 kg (14 lbs.)

Dimensions Millimeters (Inches)



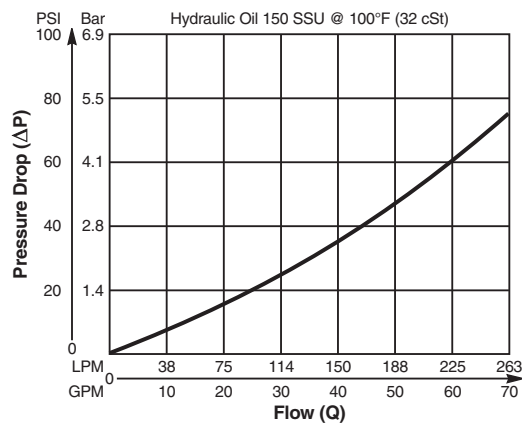
Valve/Cavity Compatibility

For additional information see Technical Tips on pages BC2-BC3.

		VALVE			
		Parker	Waterman	FPS	CEC
CAVITY	Parker				
	Waterman				
	FPS				
	CEC				X

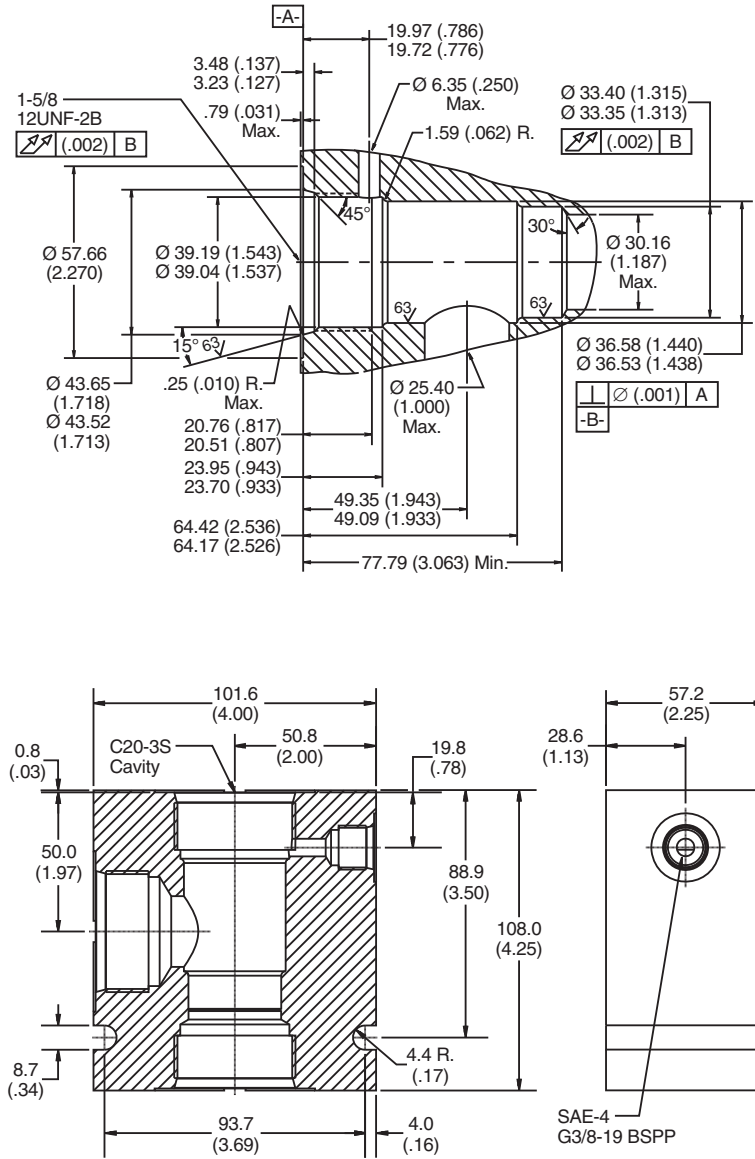
Performance Curve

Pressure Drop vs. Flow



Dimensions

Millimeters (Inches)



Ordering Information

B20	—	3S	—	20T
20 Size		3-Way Short Cavity		Port Size

Code	Port Size
20T	SAE - 20 (Steel)

Weight: 10.8 kg (22.2 lbs.)

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

Valve/Cavity Compatibility

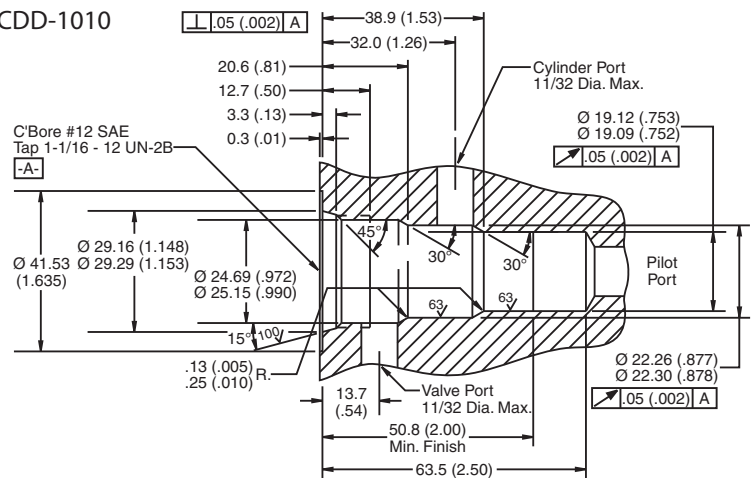
For additional information see Technical Tips on pages BC2-BC3.

		VALVE	
		MHC-010	2-N-4*-10
Cavity	MHC-010	X	X
	2-N-4*-10	X	X

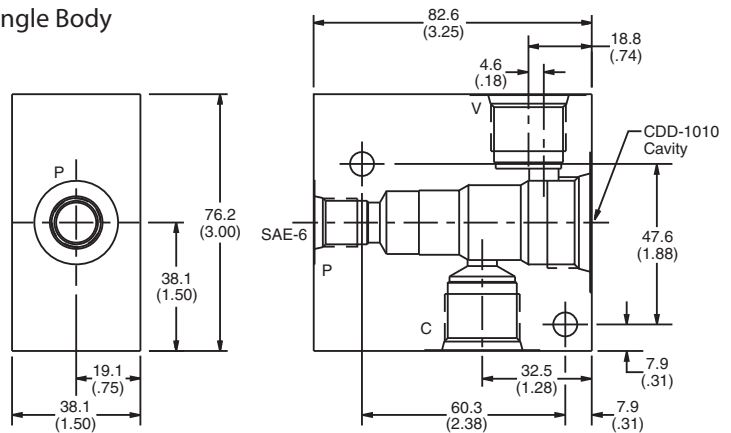
Dimensions

Millimeters (Inches)

CDD-1010



Single Body



Ordering Information

MHC	010	A	53
Counterbalance Cartridge Valve	Nominal Flow Rating	Body Type	Port Size

Code	Body Type	Code	Port Size
A	Single	53	SAE-10 through port

Weight: Single 1.1 kg (2.25 lbs.)

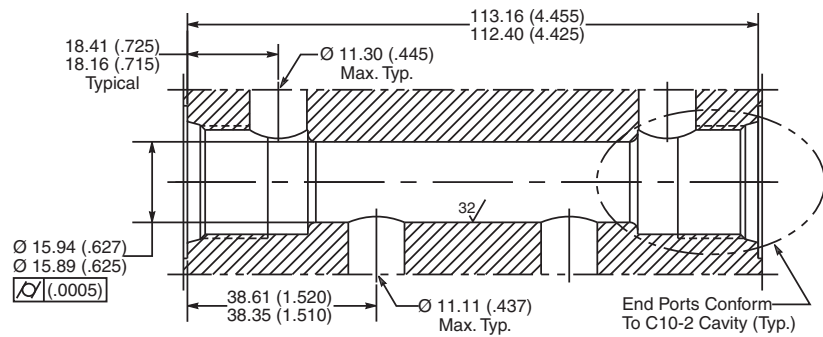
*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

Dimensions Millimeters (Inches)

10 Size Cavity for Dual
Check and Pilot Piston

For Check Valves Use 2
CVH103P**

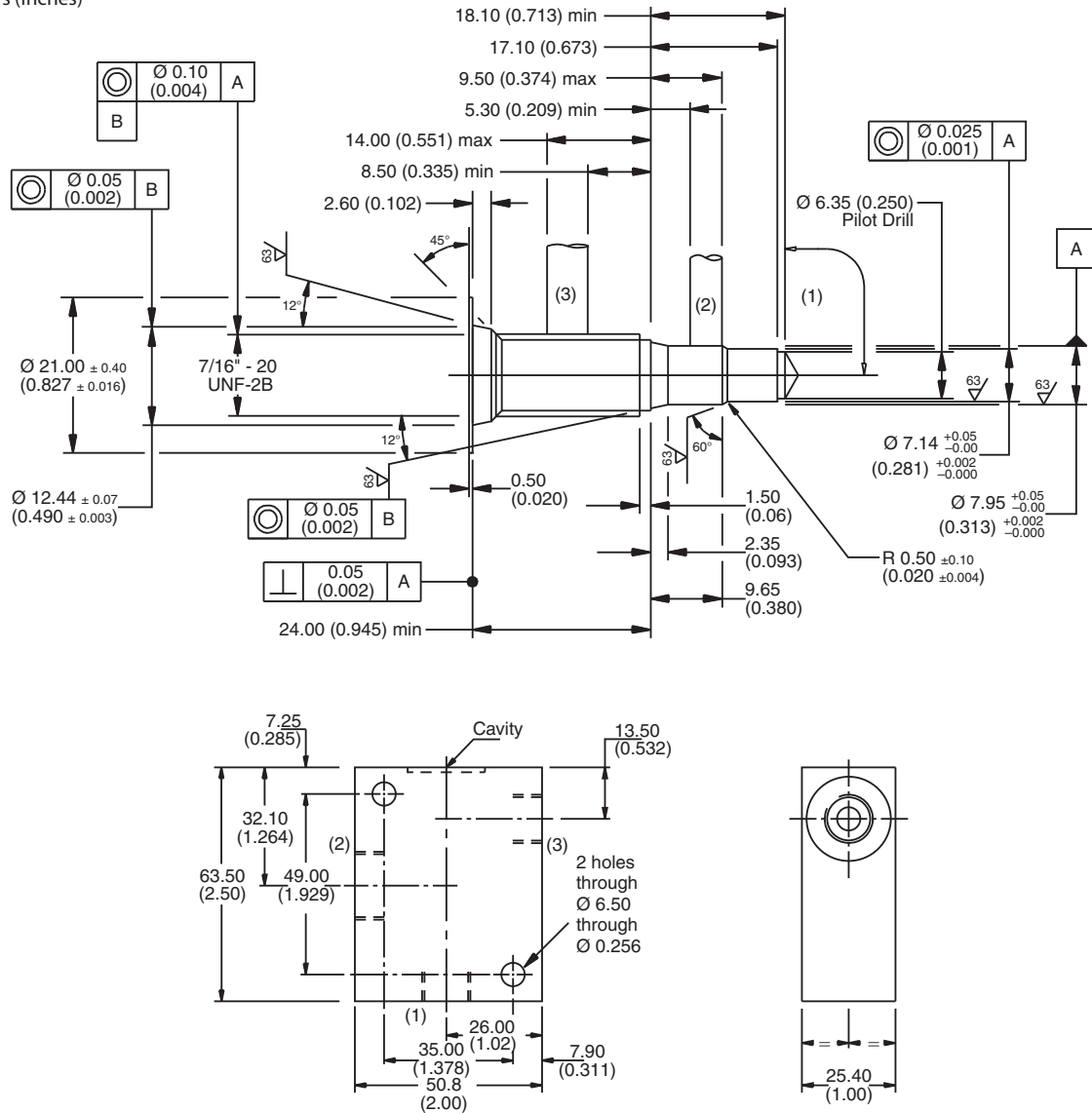
For Pilot Piston Use
717917 No Seal



For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10 **815** **S**

Line Body Port Size Body Material

Code	Port Size
815	SAE - 4

Code	Body Material
S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

Dimensions

Millimeters (Inches)



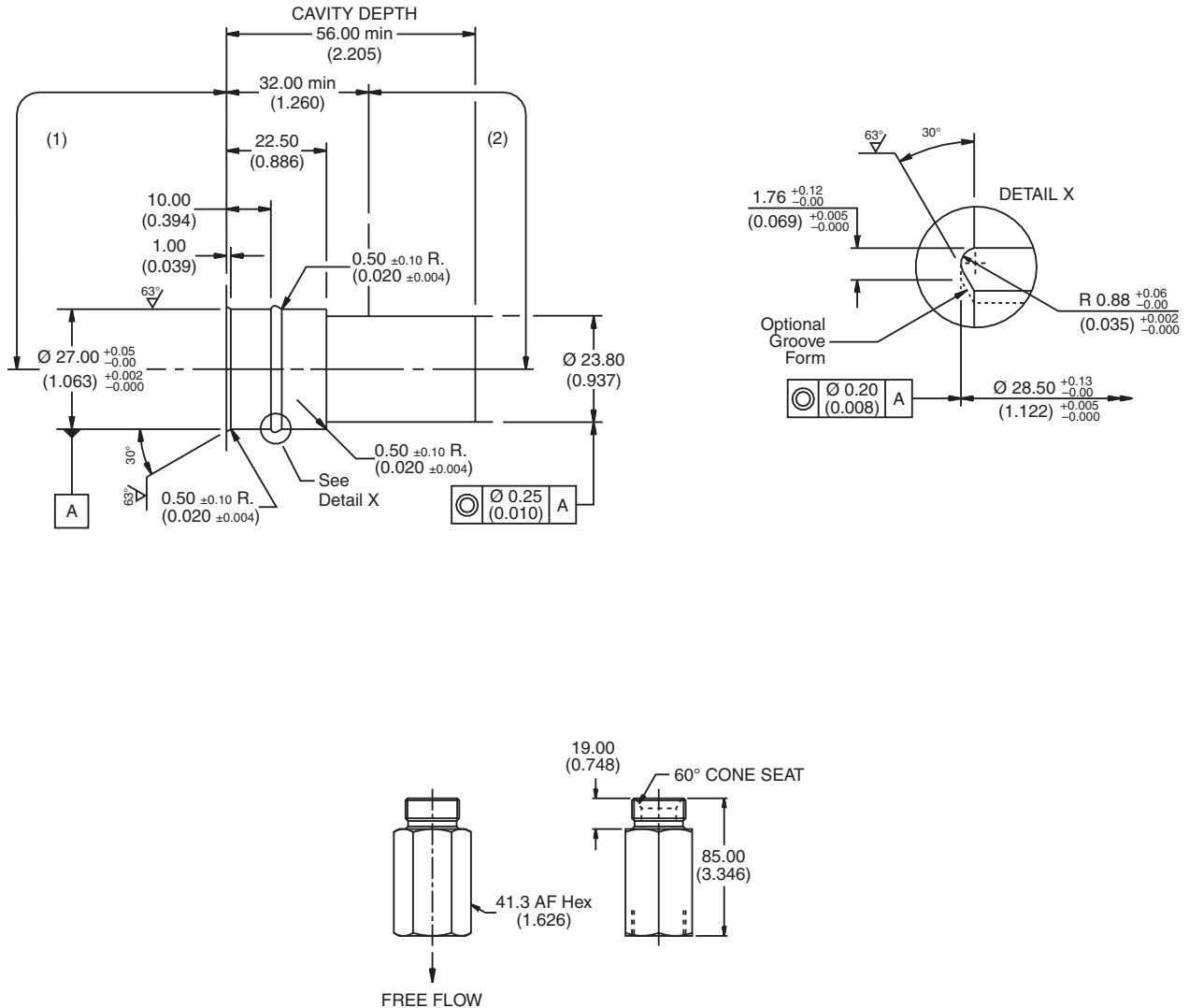
Code	Body Material
S	Steel



For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10	212	S
Line Body	Port Size	Body Material
Code	Port Size	Code
212	SAE - 8 (Main) SAE - 4 (Aux)	S

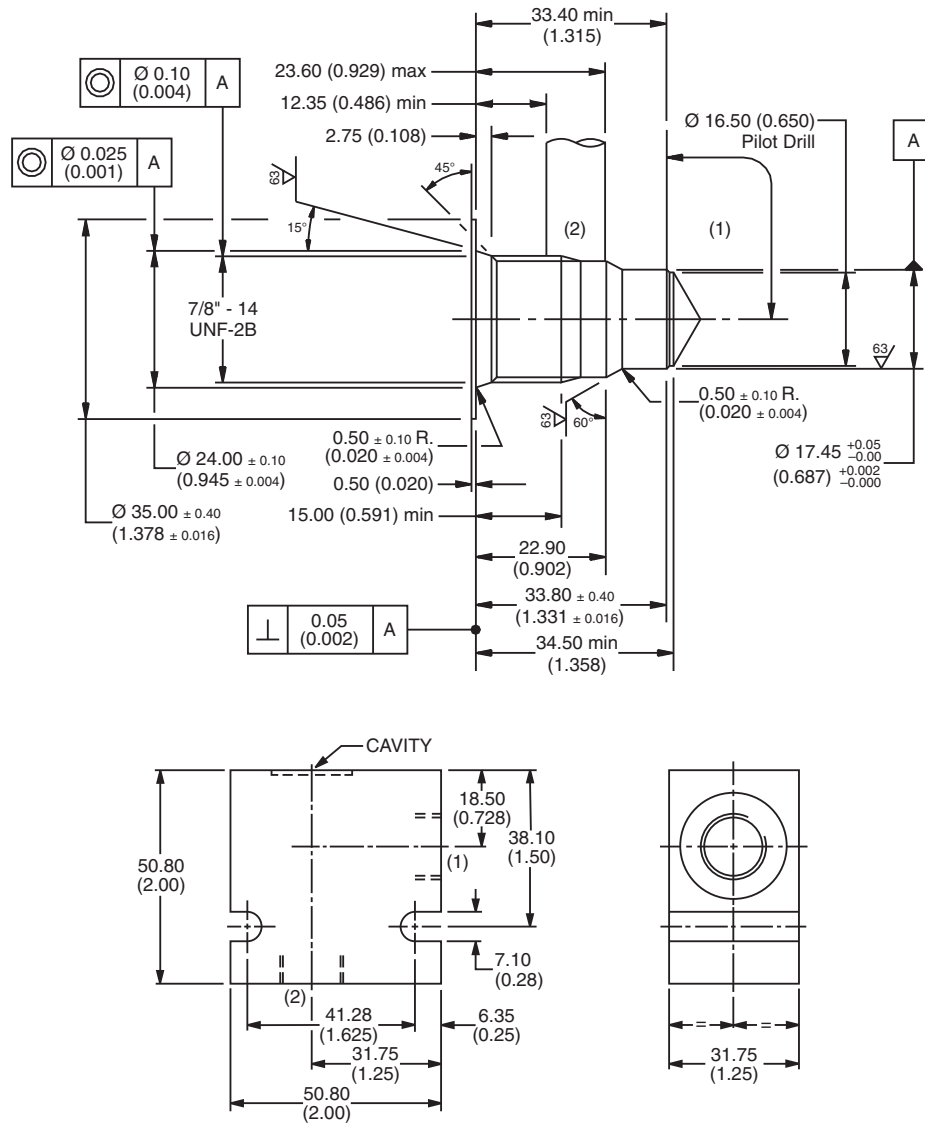
Code	Body Material
S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

BW14	—	2	—	8T
2R		2-Way Cavity		Port Size/ Body Material

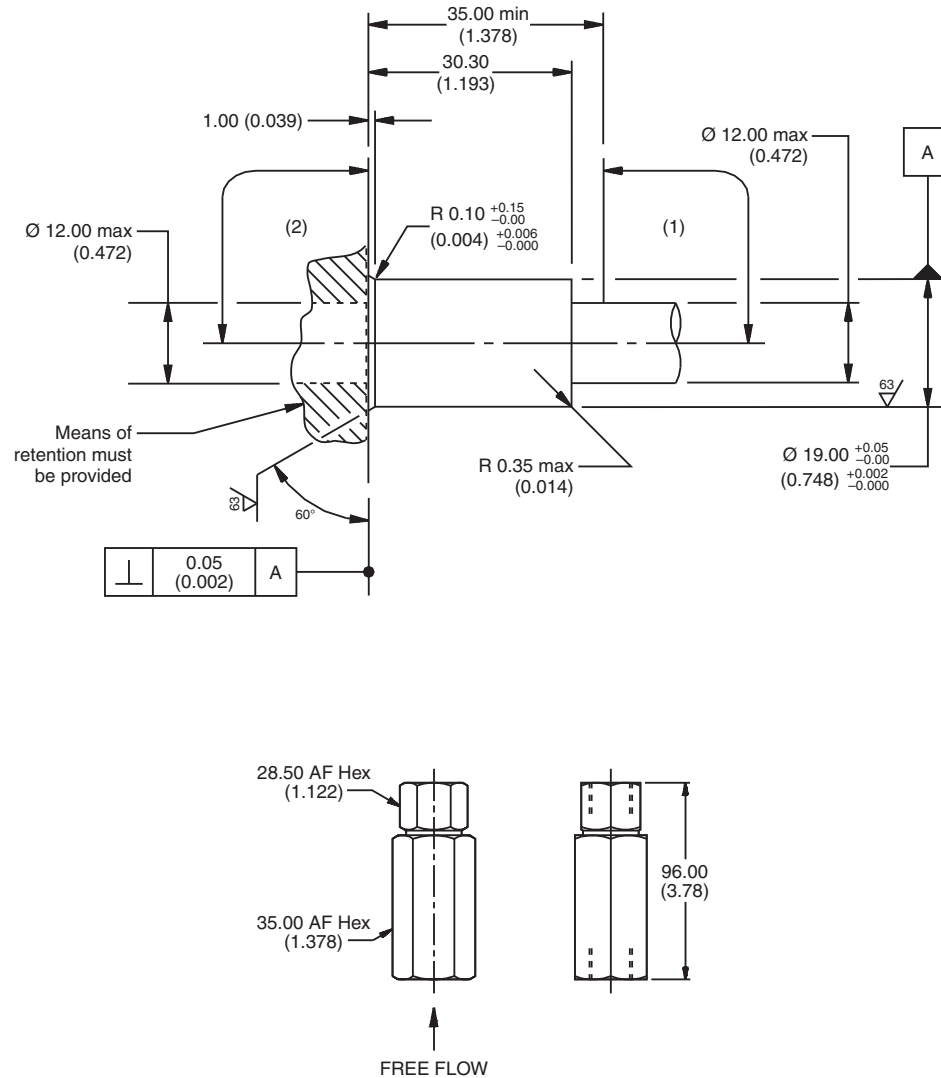
Code	Body Material
8T	SAE - 8 (Steel)

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10	220	S
Line Body	Port Size	Body Material

Code	Port Size
220	SAE - 16

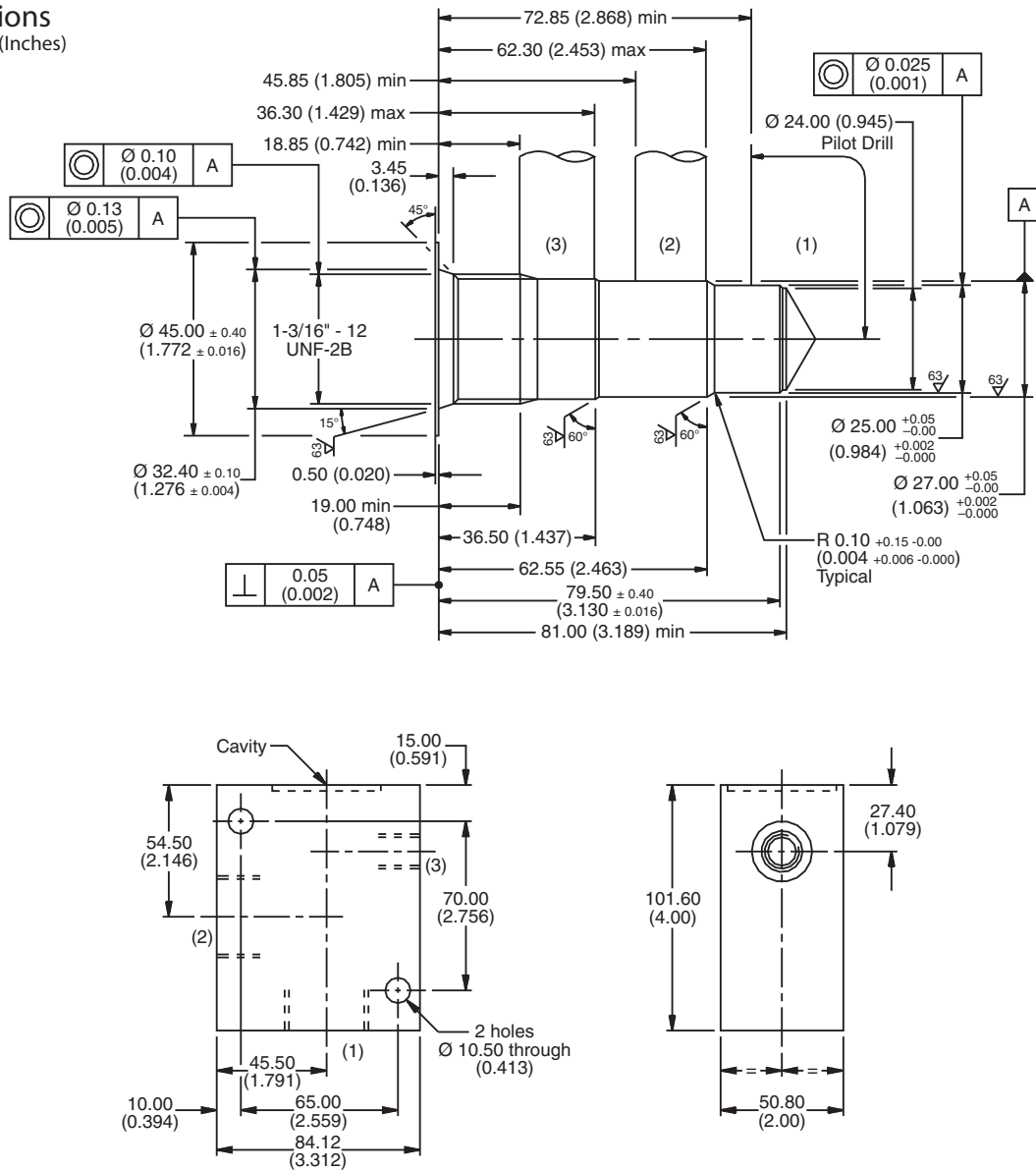
Code	Body Material
S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

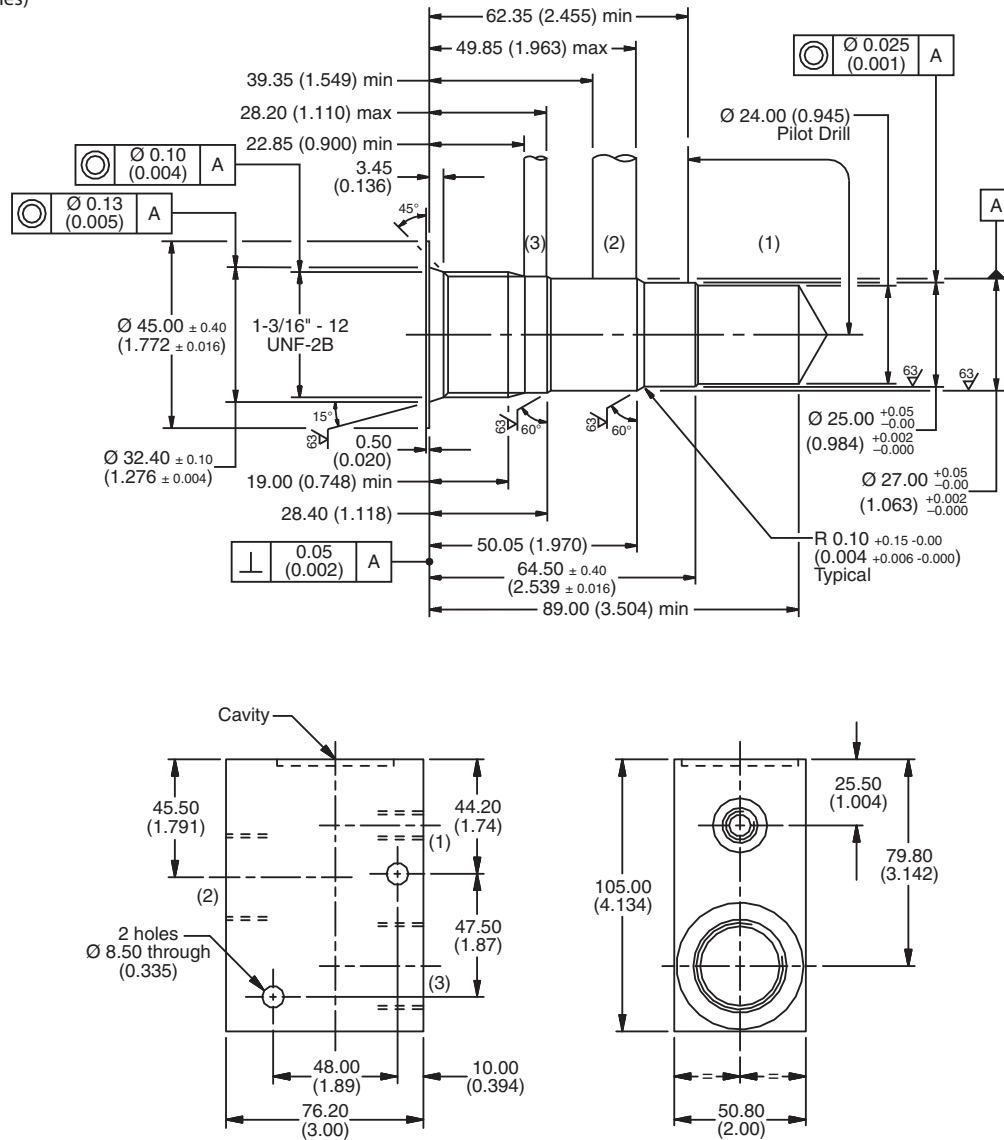
LB10	066	S
Line Body	Port Size	Body Material
Code	Port Size	Code
066	SAE - 16	S

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10	069	S
Line Body	Port Size	Body Material

Code	Port Size
069	SAE - 16 (Main) SAE - 4 (Aux)

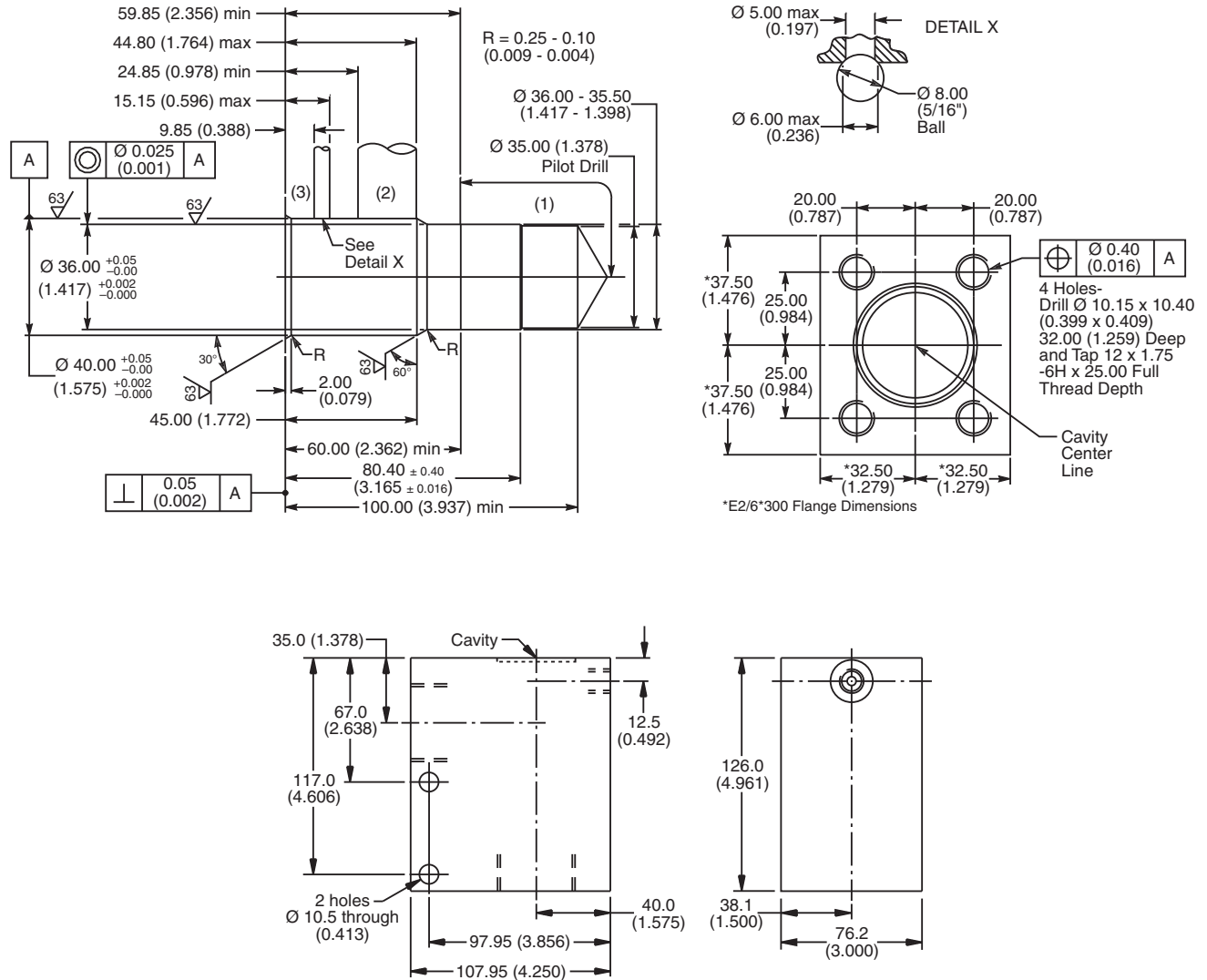
Code	Body Material
S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10

Line Body

089

Port Size

S

Body Material

Code	Port Size	Code	Body Material
089	SAE - 16 (Main) SAE - 4 (Aux)	S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

Technical Data	TD	Bodies & Cavities	BC	Coils & Electronics	CE	Proportional Valves	PV	Solenoid Valves	SV	Directional Controls	DC	Logic Elements	LE	Pressure Controls	PC	Flow Controls	FC	Load/Motor Controls	LM	Shuttle Valves	SH	Check Valves	CV
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LB10 078 S

Code	Port Size
078	SAE - 16 (Main) SAE - 4 (Aux)

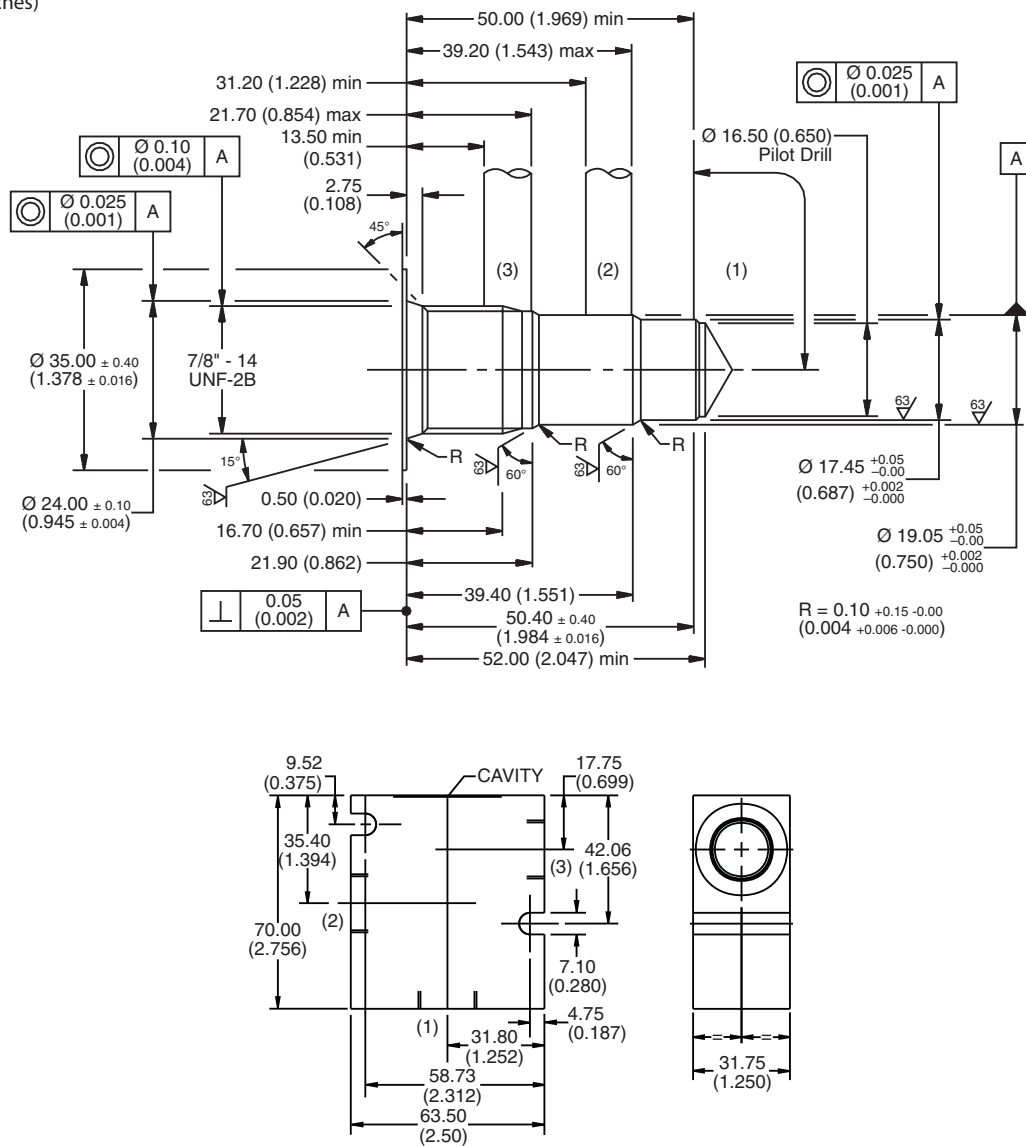
Code	Body Material
S	Steel



For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10	552	S
Line Body	Port Size	Body Material

Code	Port Size
552	SAE - 6

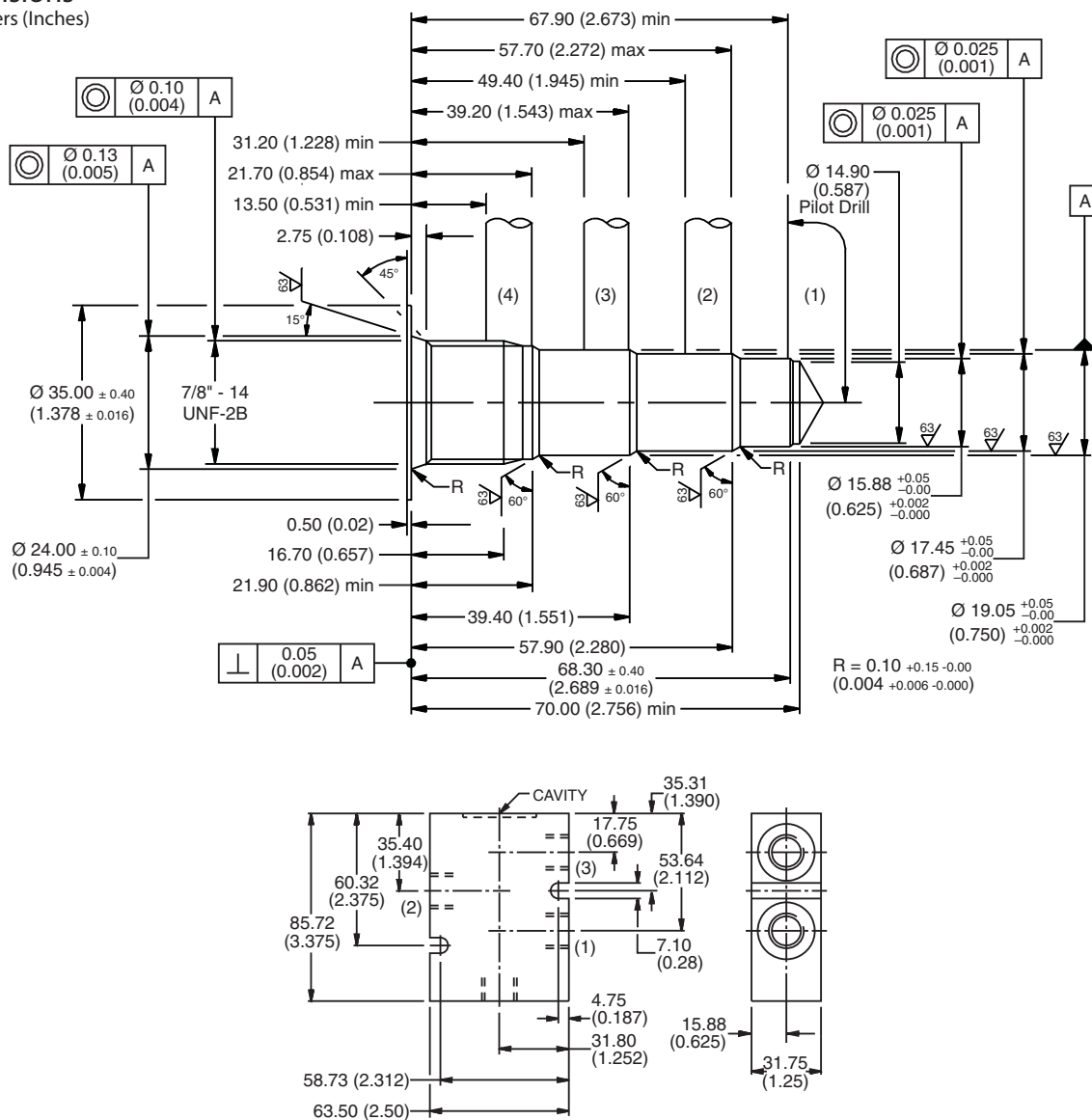
Code	Body Material
S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10	562	S
Line Body	Port Size	Body Material

Code	Port Size
562	SAE - 8

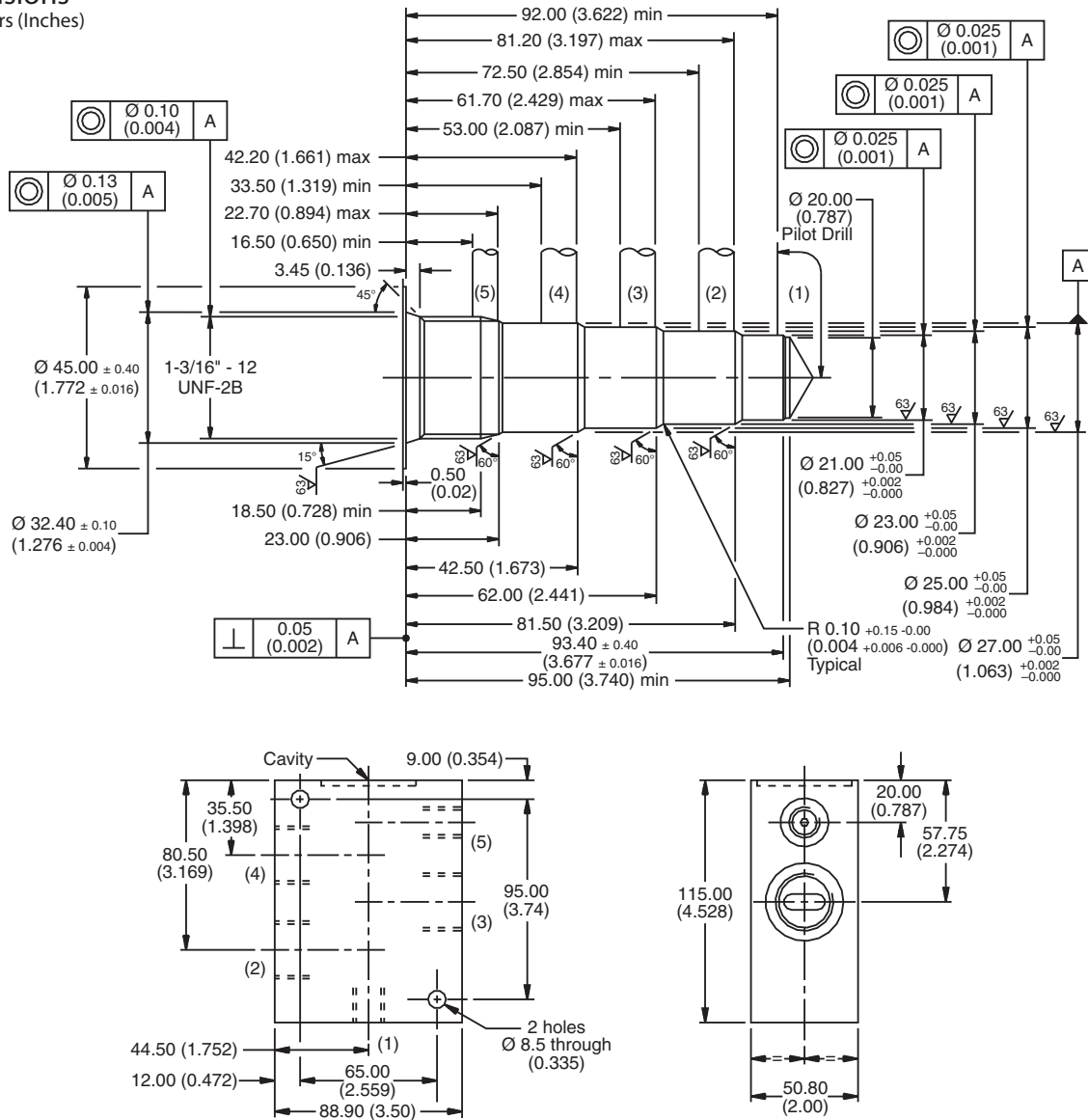
Code	Body Material
S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10

Line Body

321

Port Size

S

Body Material

Code	Port Size	Code	Body Material
321	SAE - 12 (Main) SAE - 4 (Aux)	S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

Technical Data	TD	Bodies & Cavities	BC	Coils & Electronics	CE	Proportional Valves	PV	Solenoid Valves	SV	Directional Controls	DC	Logic Elements	LE	Pressure Controls	PC	Flow Controls	FC	Load/Motor Controls	LM	Shuttle Valves	SH	Check Valves	CV
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[illegible]

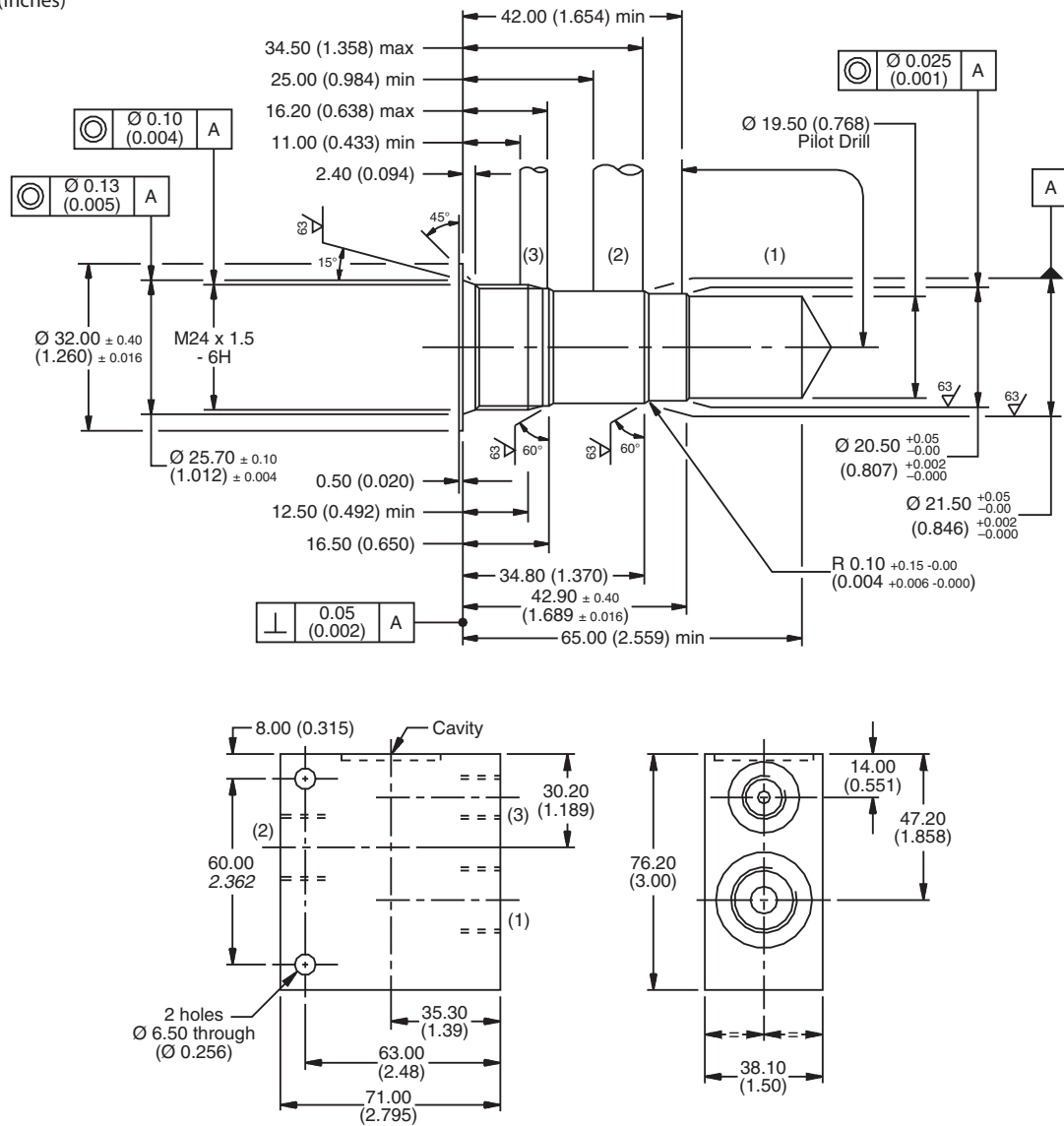
LB10	318	S
Line Body	Port Size	Body Material



For additional information see Technical Tips on pages BC2-BC3.

Dimensions

Millimeters (Inches)



Ordering Information

LB10

Line Body

253

Port Size

S

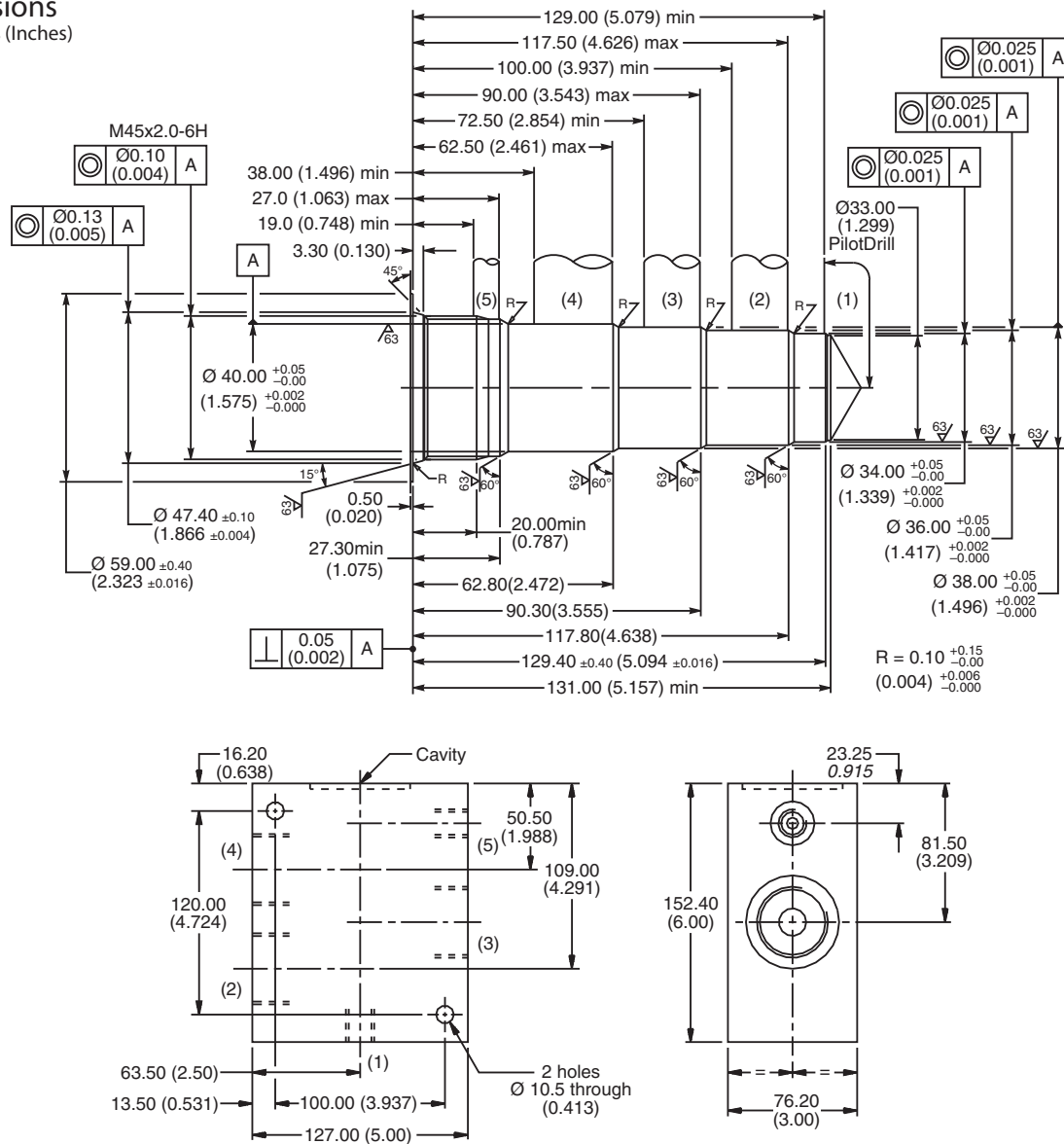
Body Material

Code	Port Size	Code	Body Material
253	SAE - 20 (Main) SAE - 6 (Aux)	S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.

For additional information see Technical Tips on pages BC2-BC3.

Dimensions Millimeters (Inches)



Ordering Information

LB10

Line Body

317

Port Size

S

Body Material

Code	Port Size	Code	Body Material
317	SAE - 20 (Main) SAE - 6 (Aux)	S	Steel

*Please be advised that this is a non-core line body.
Additional lead-time and/or pricing requirements may exist when ordering.