

# Hydraulic power brake valve

Model MB08-HMS

**RA 66138**

Edition: 08.2014

Replaces: 05.1994



- ▶ Component series 20
- ▶ Service brake pressure 35, 40, 60, 70, 80, 100, 120, and 150 bar braking

## Features

- ▶ Compact design
- ▶ Integrated maximum pressure limitation of the brake circuits
- ▶ Brake pressure proportional to actuation force
- ▶ Low hysteresis
- ▶ Brake line pressure synchronization
- ▶ Line mounted
- ▶ Rugged construction
- ▶ Optional treadle-style foot pedal

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## Ordering code

01	02	03	04	05	06	07	08	09
<b>MB</b>	<b>08</b>	<b>-</b>	<b>HM</b>	<b>S</b>	<b>-</b>	<b>20</b>	<b>/</b>	<b>19</b>
							<b>M</b>	<b>/</b>

01 to 04	This information is used only for internal purposes and is always identical.	<b>MB08-HMS</b>
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### Component series

05	20	<b>20</b>
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### Service brake pressures

06	35 bar	506/667 PSI	35/46 bar	Linear	<b>35</b>
	40 bar	580/769 PSI	40/53 bar	Linear	<b>40</b>
	60 bar	870/1131 PSI	60/78 bar	Linear	<b>60</b>
	70 bar	1015/1305 PSI	70/90 bar	Linear	<b>70</b>
	80 bar	1160/1463 PSI	80/101 bar	Linear	<b>80</b>
	100 bar	1450/1840 PSI	100/127 bar	Linear	<b>100</b>
	120 bar	1740/2200 PSI	120/152 bar	Linear	<b>120</b>
	150 bar	2164/2715 PSI	149/187 bar	Linear	<b>150</b>

### Line connections

07	SAE straight thread O-ring ports			<b>19</b>
	Supply pressure port	P	SAE-06	
	Tank port	T	SAE-06	
	Brake service ports	B, BLS	SAE-06	
	Auxiliary pressure port	ACS, PLT	SAE-04	

### Seal material

08	NBR seals, suitable for mineral oil (HL, HLP) according to DIN 51524	<b>M</b>
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### Options

09	<i>Option codes – further details in clear text</i>	
	With optional treadle-style foot pedal (R978728913) – mounted	<b>FP</b>
	Dual-slope metering characteristics (with nested stage inner spring)	<b>DSM</b>

### Service seal kit

Material description	Ordering No.
<b>Kit-Seal, Brake Valve</b>	<b>R978726673</b>

Note: Seal kit contains shaft seal, dust cover, and O-ring.

**Technical data**

<b>General</b>				
Weight	Without pedal		lb (kg)	2.4 (1.1)
	With standard pedal		lb (kg)	3.7 (1.7)
Installation positions			Variable mount possible	
Type of connection			SAE straight thread ports per J1926-1 or ISO 11926-1	
Ambient temperature range		$\theta$	°F (°C)	-13 to +176 (-25 to +80)
<b>Hydraulic</b>				
Maximum service brake pressure at port	B, BLS, PLT	$p$	PSI (bar)	3000 (207)
Maximum inlet pressure at port	P, ACS	$p$	PSI (bar)	4000 (276)
Maximum tank pressure at port	T	$p$	PSI (bar)	10 (0.7) Maximum continuous back pressure. No oscillation permitted.
Hydraulic fluid		Mineral oil (HL, HLP) according to DIN 51524, other hydraulic fluids, such as HEES (synthetic esters) according to VDMA 24568 as well as hydraulic fluids as specified in the data sheet 90221, on inquiry.		
Hydraulic fluid temperature range		$\theta$	°F (°C)	-4 to +80 (-20 to +26.7)
Viscosity range		$\nu$	SSU (mm <sup>2</sup> /s)	40 to 1800 (2.8 to 380)
Maximum permitted degree of contamination of the hydraulic fluid, cleanliness class according to ISO 4406 (c)			Class 17/14 or better	

**Note:**

For applications outside these parameters, please consult us!

## Function

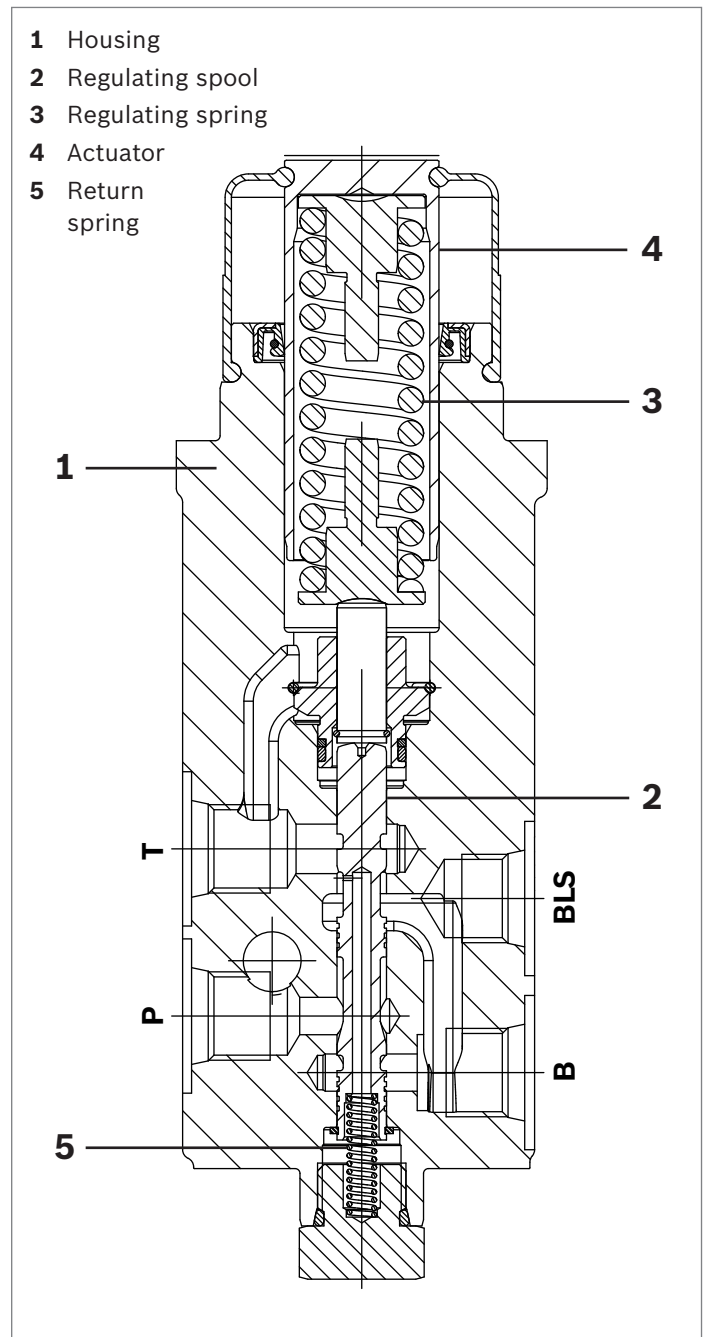
The single circuit hydraulic power brake valve is a directly operated 3-way pressure reducing valve with smooth mechanical operation. The valve regulates pressure in brake line circuit proportional to force applied to actuator.

Single circuit power brake valve components include: housing (1) regulating spool (2), regulating spring (3), actuator (4), and the return spring (5).

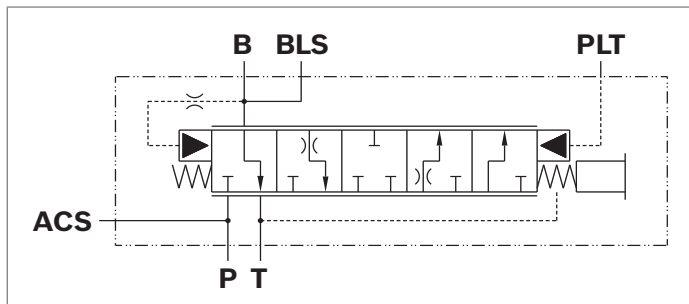
The operator depresses the actuator (4). The regulating spring (3) strokes the regulating spool (2), closing off the T port and opening the brake circuit port B to accumulator pressure through supply pressure port P. Pressure from brake circuit port B is communicated to return spring chamber (5), where feedback force is developed, opposing the operator's input force. When the sum of feedback force and return spring (5) pre-load is equal to the operator input force transmitted through regulating spring (3), the regulating spool moves to a blocked center condition where the P, T, and B ports are closed simultaneously. When operator (4) input force is removed, the regulating elements move to the standby position, blocking the pressure port P and venting the service port B to tank.

If pressure falls in brake system line B or operator pushes harder on actuator (4), the supply pressure P is re-connected to brake system port B until force is balanced again. If brake system port B is too high, fluid is bled to tank through the T port until balance is again established. When force to actuator is removed, the regulating spool (2) moves to standby position, blocking the supply pressure port P and venting the brake system work port B to tank T.

### ▼ Cross-section



### ▼ Symbol



Ports	
ACS	Accumulator charge switch port
P	Supply pressure port
T	Tank port
BLS	Brake light switch port
B	Brake system work port
PLT	Hydraulic pilot port

## General notes

### Installation notes

- ▶ Rubber parts must not be painted.
- ▶ Operating elements must not be directly exposed to high-pressure jet cleaning.
- ▶ The tank must be mounted above the brake valve MB08-HMS to avoid drainage of the brake valve.
- ▶ When assembling below the base plate it must be taken care that the movement of the pedal cannot be affected by dirt.

### Intended use

The MB08-HMS is exclusively intended to be assembled together with other components to form partly completed or complete machinery. The component may only be commissioned if it has been integrated in the machine for which it is designed.

### Notes for the repair

- ▶ Damaged valves must be repaired, even if their function is not impaired.

### Installation position

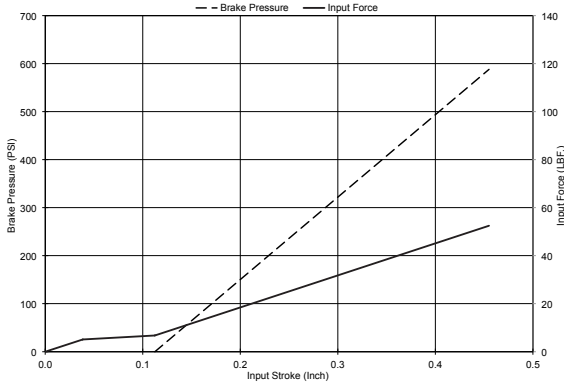
- ▶ Variable mount possible.

You may use the product as follows:

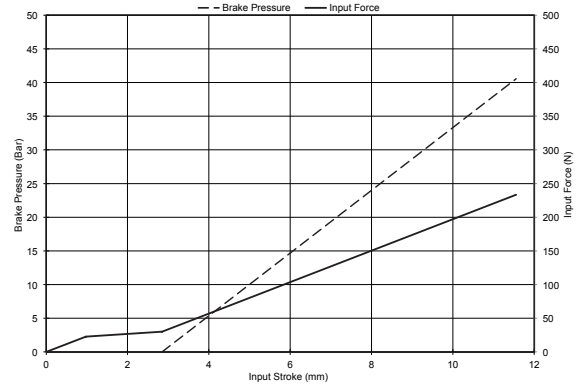
- ▶ The brake valves MB08-HMS have been developed for the application in mobile working machinery.
- ▶ Comply with the technical data.
- ▶ The product is only intended for professional use and not for private use.

## Characteristic curves

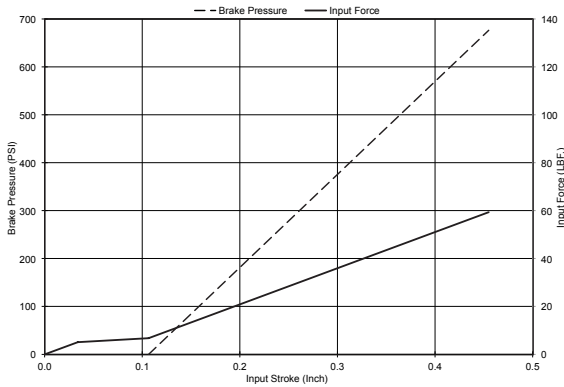
### ▼ Nominal metering performance, 35, English



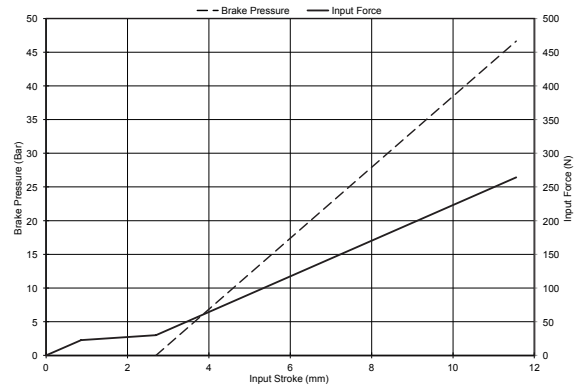
### ▼ Nominal metering performance, 35, Metric



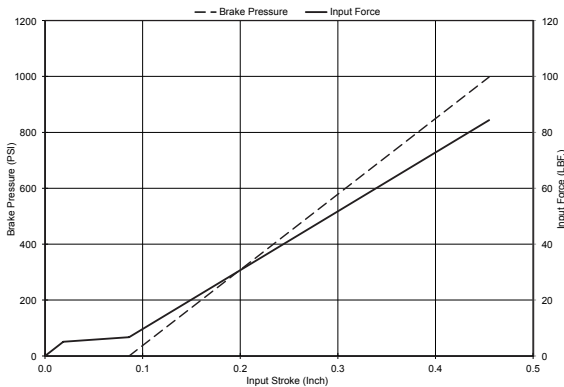
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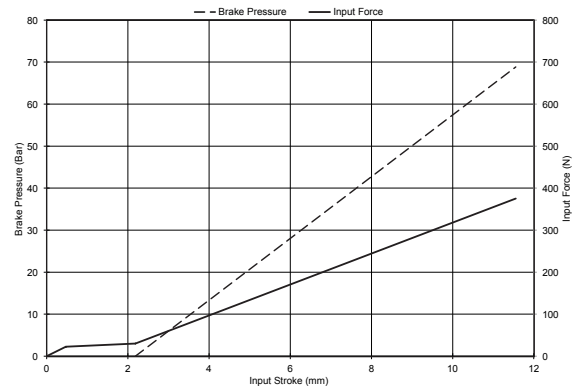
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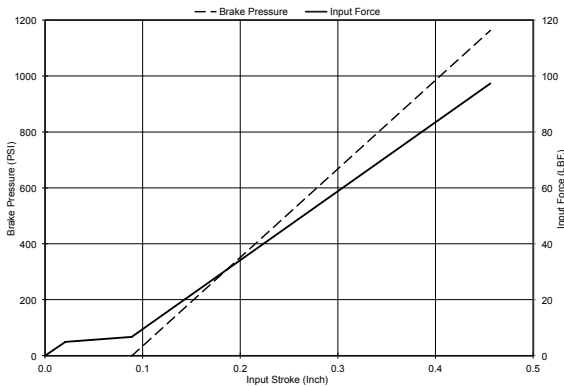
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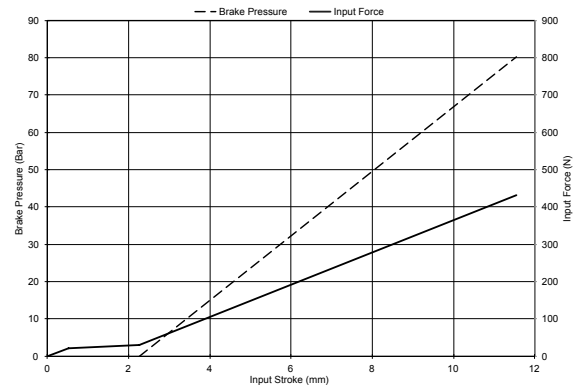
### ▼ Nominal metering performance, 60, Metric



### ▼ Nominal metering performance, 70, English

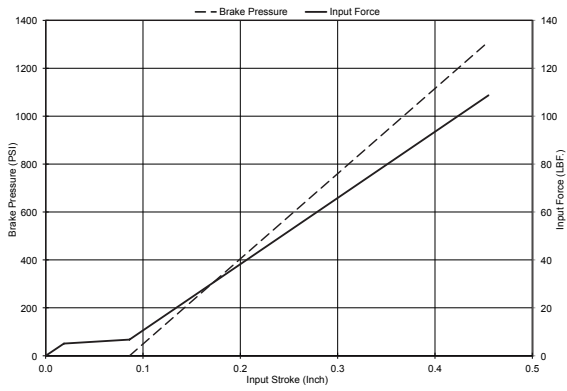


### ▼ Nominal metering performance, 70, Metric

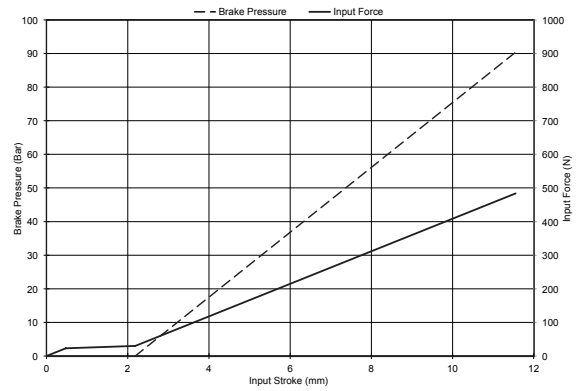


### Characteristic curves

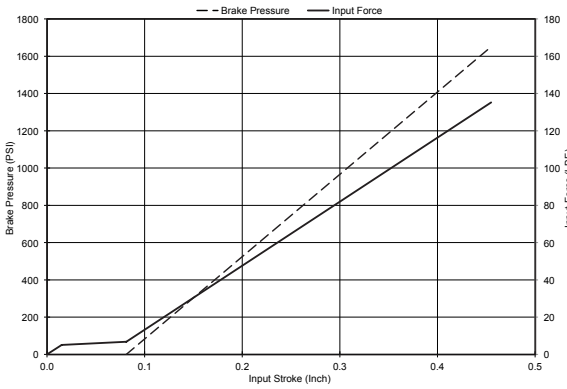
#### ▼ Nominal metering performance, 80, English



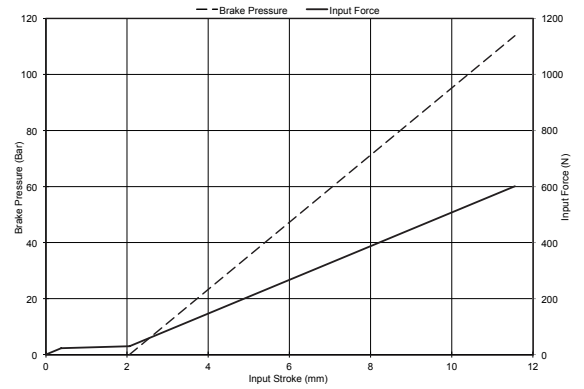
#### ▼ Nominal metering performance, 80, Metric



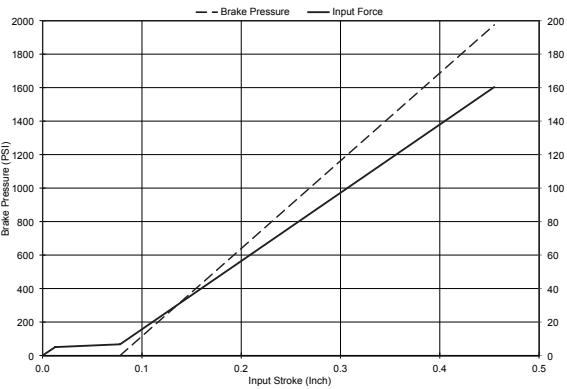
#### ▼ Nominal metering performance, 100, English



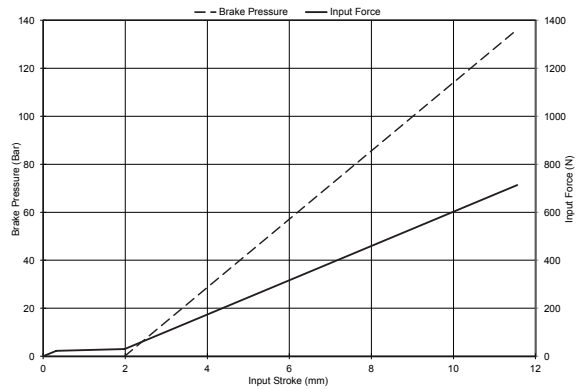
#### ▼ Nominal metering performance, 100, Metric



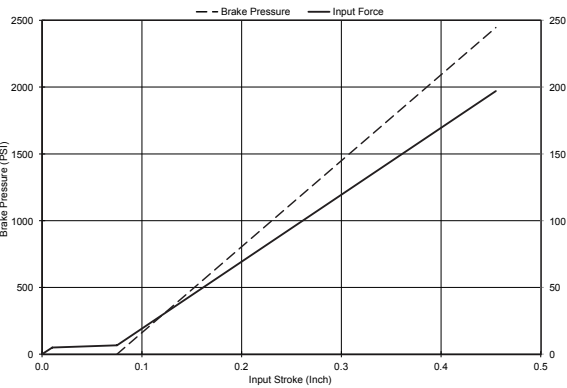
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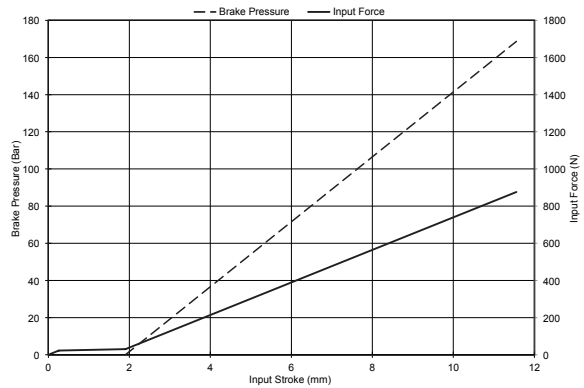
#### ▼ Nominal metering performance, 120, Metric



#### ▼ Nominal metering performance, 150, English

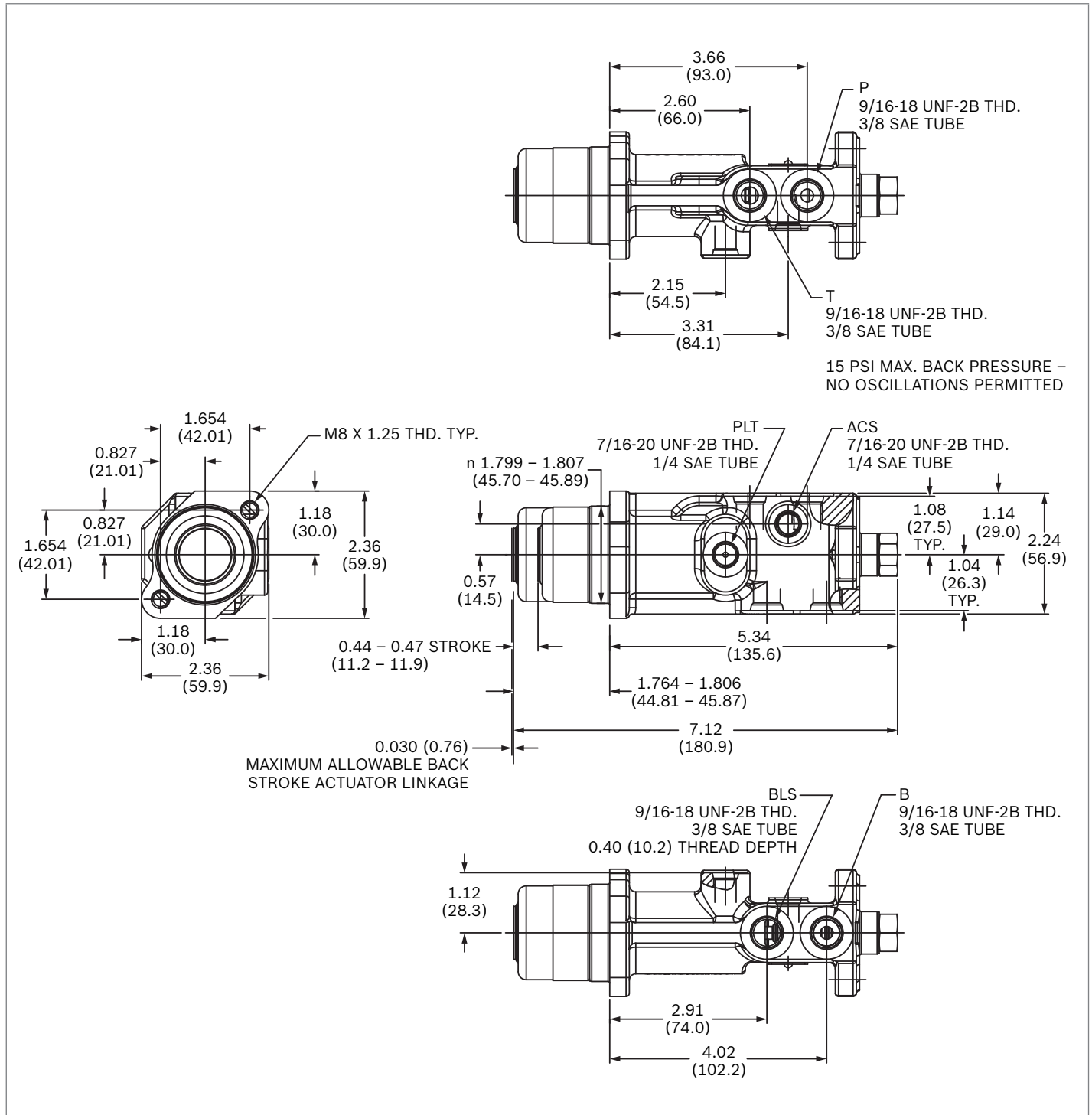


#### ▼ Nominal metering performance, 150, Metric



## Dimensions

▼ Without pedal

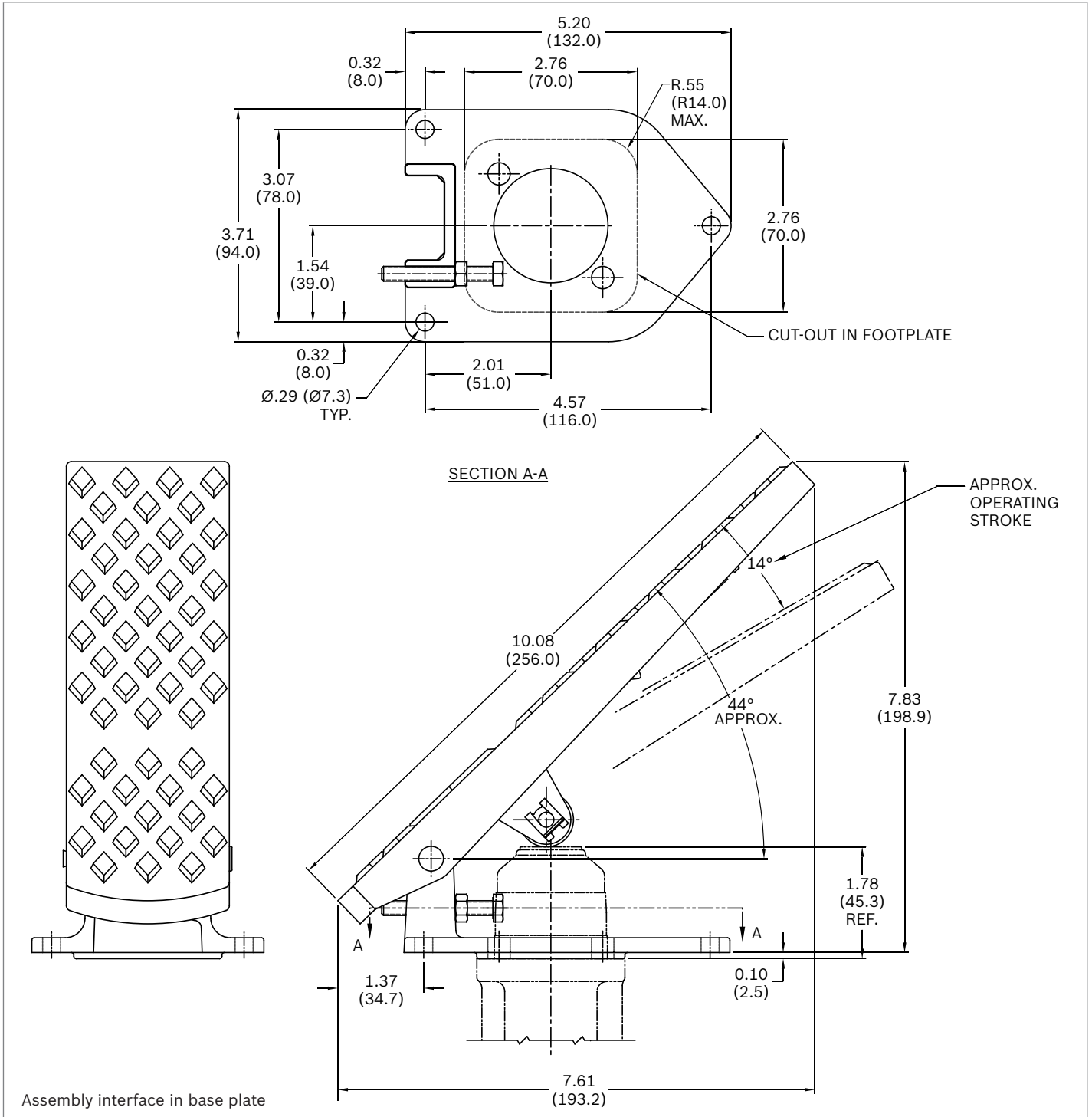


### Ports according to ISO 11926-1

Port	Dimensions	
ACS, PLT	7/16 - 20 UNF	SAE-04
B, P, BLS, T	9/16 - 18 UNF	SAE-06



▼ With treadle-style foot pedal for option code "FP"



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