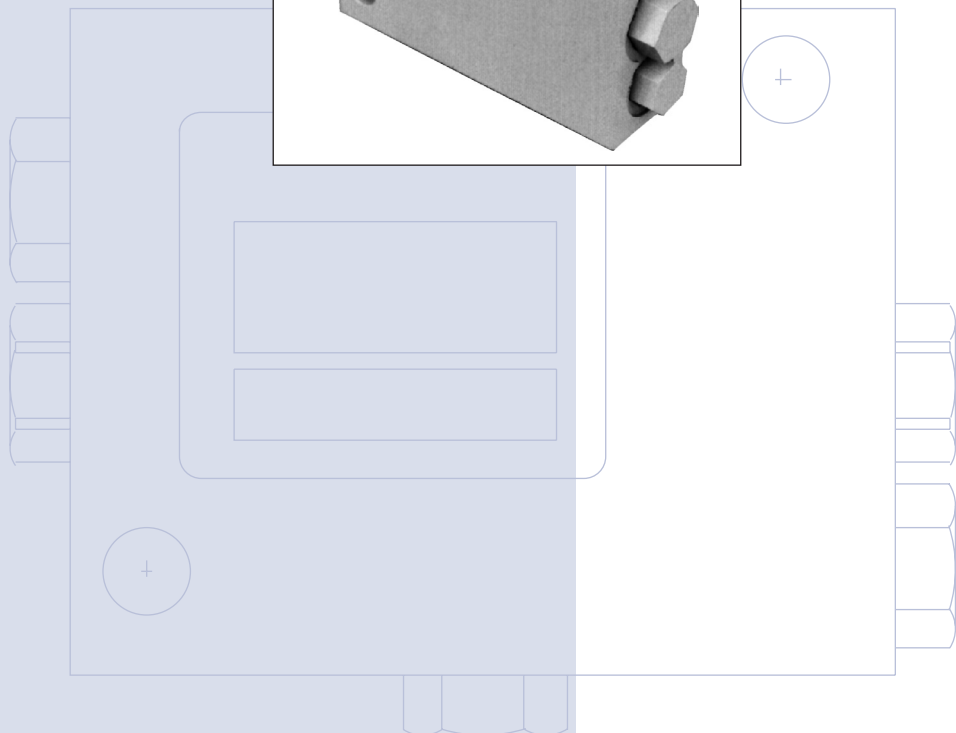
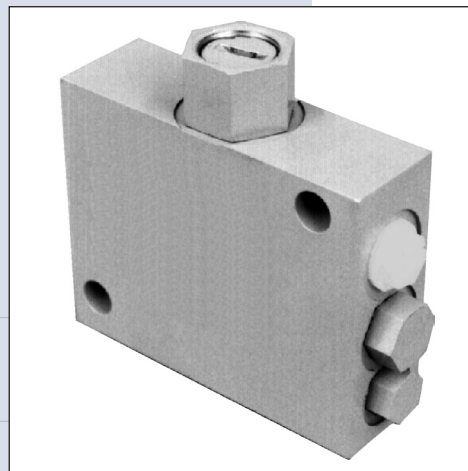




# Loop Flushing Valve

## Technical Information



## APPLICATION

The loop flushing valve, applied in a hydrostatic transmission circuit, maintains high quality of the working fluid in the transmission power loop. While many transmissions can operate satisfactorily without a loop flushing valve, the addition of loop flushing improves fluid quality and generally extends transmission life.

Consider the loop flushing valve when any of these exist:

- Sustained operation at low pressure and high speed
- Operation where continuous pressure exceeds 1000 hours per year
- Cylinders in the hydrostatic circuit
- Flow restricting valves in the power loop
- Frequent operation of high pressure relief valves
- Long power loop lines
- Extraordinary life requirements

Sauer-Danfoss recommends monitoring fluid quality under field operating conditions for extended periods of time to determine loop flushing requirements. For a complete discussion of loop flushing and fluid quality, refer to Sauer-Danfoss bulletins BLN-9886 *Transmission Circuit Recommendations* and 520L0463 *Hydraulic Fluids and Lubricants, Technical Information*.

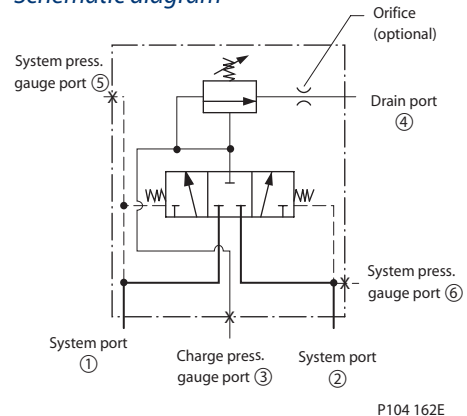
## DESCRIPTION

The high pressure ports (1 and 2) of the valve are externally connected to the work or system auxiliary ports of the main hydrostatic transmission circuit. The valve drain port (4) must be externally connected to the case drain return line of the transmission — preferably at the motor so that fluid flushes through the motor case and returns to the reservoir.

The shuttle valve exposes the low pressure side of the circuit to the charge relief valve. When properly set (see *Adjustment Procedure*, page 5) the charge relief valve flushes a desired quantity of working fluid from the transmission power loop. The charge pump replaces this fluid.

You may specify a drain orifice to limit maximum flushing flow in circuits where the low side pressure is high or varies over a large range.

Schematic diagram



**SPECIFICATIONS**

*System pressure*

<b>Maximum high side</b>	480 bar [6961 psi]
<b>Maximum low side</b>	70 bar [1015 psi]

*Charge relief setting*

<b>Minimum</b>	15 bar [218 psi]
<b>Maximum</b>	28 bar [406 psi]

Nominal charge relief settings are  $\pm 1.4$  bar [ $\pm 20$  psi] and are set at a flow of  $3.8 \pm 0.9$  l/min [ $1 \pm 0.25$  US gal/min] at  $49^\circ\text{C}$  [ $120^\circ\text{F}$ ]

**MODEL CODE**

8800485-□□-□□

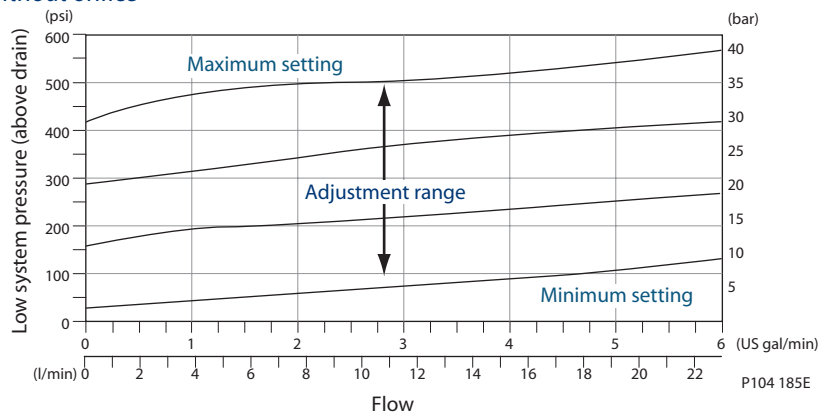
Charge pressure \_\_\_\_\_  
 15 to 28 bar, 1 bar increments

Example:  
 20 = 20 bar [290 psi]

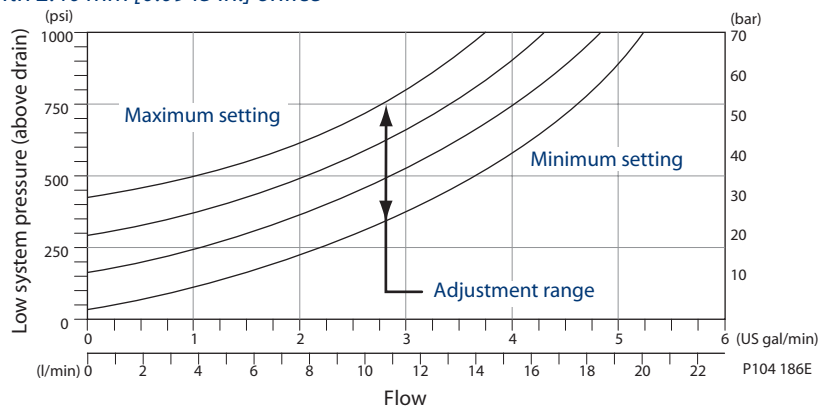
Orifice \_\_\_\_\_  
 00 = None  
 09 =  $\varnothing 2.40$  mm [0.0945 in.]  
 12 =  $\varnothing 3.19$  mm [0.1255 in.]

**PERFORMANCE**

*Valve without orifice*

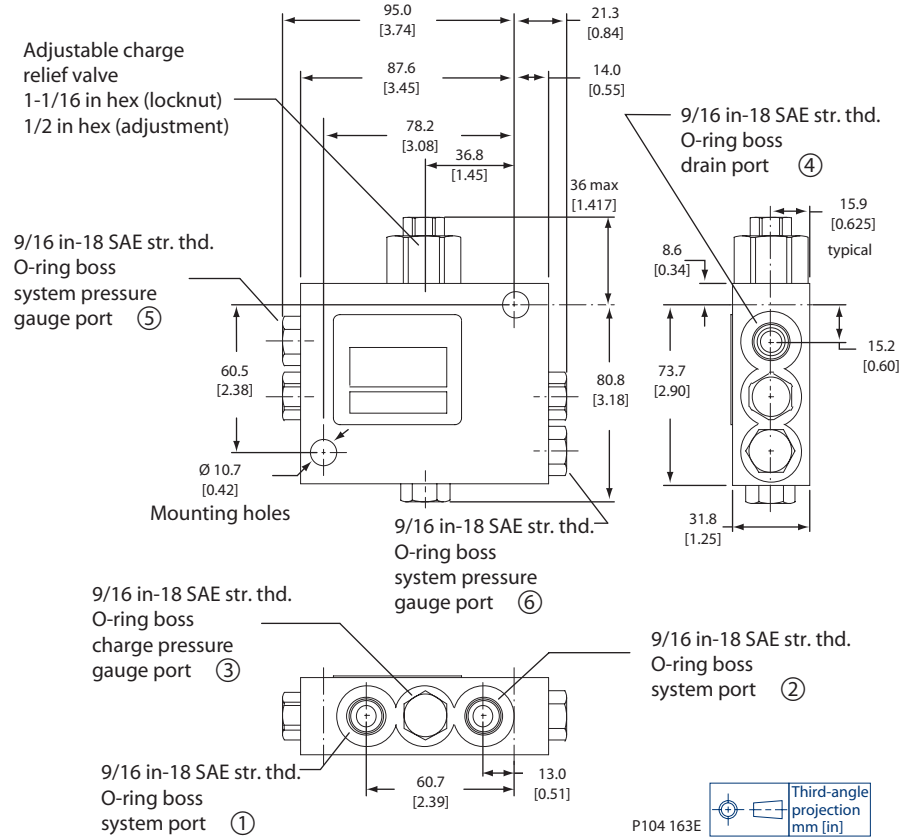


*Valve with 2.40 mm [0.0945 in.] orifice*



**MOUNTING**

*Installation drawing*



Mount the loop flushing valve on any convenient flat surface that provides adequate support around the two mounting holes. Ensure the surfaces under the mounting bolts form a flat plane.

Failure to provide a flat mounting surface could create valve housing distortion when the mounting bolts are torqued. Housing distortion may bind internal components and reduce the drive and/or braking capacity of the system.

**▲ Warning**

The loss of hydrostatic drive line power in any mode of operation may cause a loss of hydrostatic braking capacity. A braking system, redundant to the hydrostatic transmission, must be provided which is adequate to stop and hold the system should such a condition develop.

**ADJUSTMENT  
 PROCEDURE**

For initial setting of the valve package:

1. Plumb an in-line flow meter into the drain line.

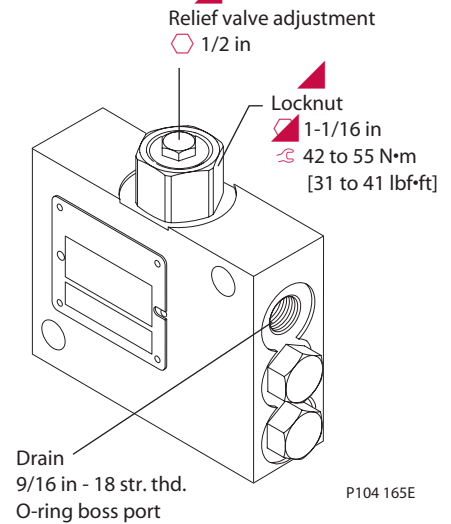
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If a flow meter is not available, use a clean container with a known volume and a stop watch to measure flow rate.

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2. Set the brakes or otherwise restrict machine motion.
3. Stroke the transmission pump to build at least 34 bar [500 psi] differential system pressure.
4. Adjust the relief valve in the flushing valve package to obtain the desired drain flow. Typically 7.5 to 11.4 l/min [2 to 3 US gal/min] is sufficient. Rotating the adjusting screw counter-clockwise increases flow.
5. Torque the locknut 42 to 55 N•m [31 to 41 lbf•ft].
6. Verify that pump charge pressure is above recommended minimum.
7. Remove the flow meter from the circuit.

*Adjustment diagram*



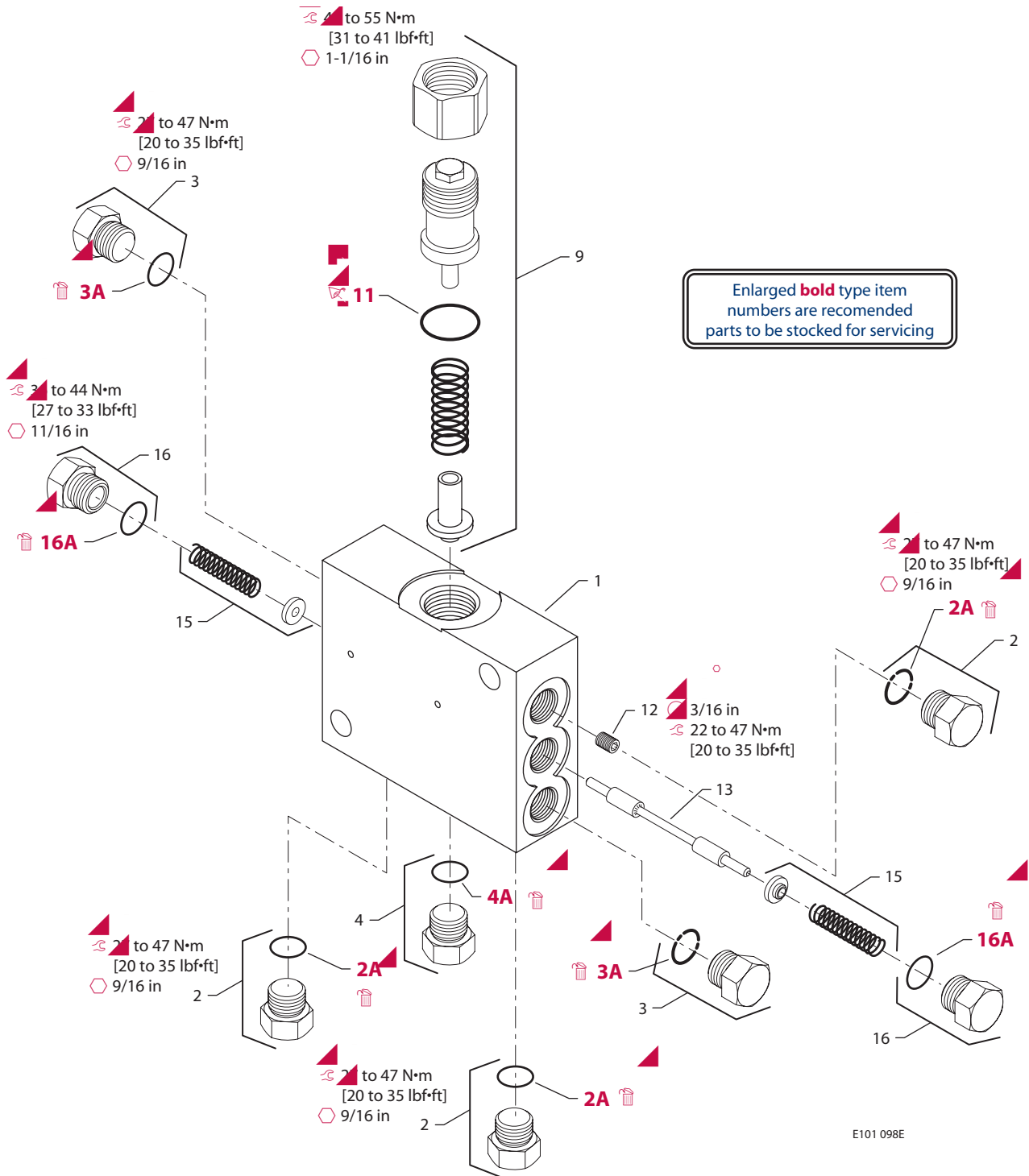
**SERVICE INFORMATION**

*Component installation torque*

Description	Wrench size	Torque
Gauge port plugs	9/16 in hex	27 to 47 N•m [20 to 35 lbf•ft]
Charge relief lock nut	1 1/16 in hex	42 to 55 N•m [31 to 41 lbf•ft]
Orifice plug	3/16 in internal hex	22 to 27 N•m [16 to 20 lbf•ft]
Shuttle spool plugs	11/16 in	36 to 44 N•m [27 to 33 lbf•ft]
Hose/tube fittings	—	27 to 47 N•m [20 to 35 lbf•ft]

**SERVICE INFORMATION**  
 (continued)

*Exploded view*



E101 098E

**SERVICE INFORMATION**  
 (continued)

*Replacement parts*

Item	Part Number	Description	Quantity
1	8800538	Housing assembly	1
2	9005100-5600	Plug	3
2A	9004201-3700	O-ring	3
3	9005100-5600	Plug	2
3A	9004201-3700	O-ring	2
4	9005100-5600	Plug	1
4A	9004201-3700	O-ring	1
9	8510012	Charge relief valve kit	1
11	9004201-6200	O-ring	1
12	8800242-0009	Orifice plug – Ø 2.40 mm [0.0945 in]	1 (opt.)
12	8800242-0011	Orifice plug – Ø 3.19 mm [0.1255 in]	1 (opt.)
13	8800550	Shuttle spool	1
15	513596	Spring guide assembly	2
16	518016	Special plug	2
16A	9004201-3700	O-ring	2



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