



Auxiliary Valve

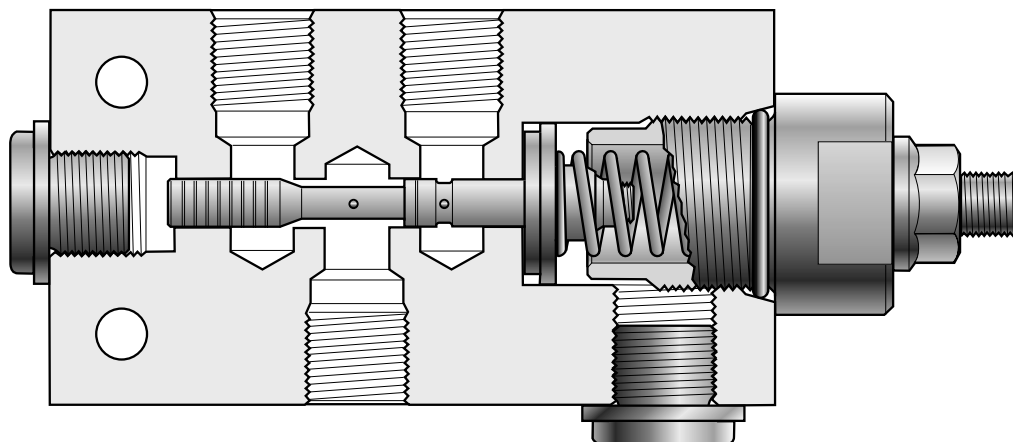
PRS6

Pressure Reducing Valve

Catalogue HY17-8541/UK
September 2005



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Applications

The PRS6 is a three-way pressure reducing valve that has been developed to give reduced pressure in a particular part of a hydraulic system. The valve maintains the secondary pressure setting constantly, regardless of pressure variations on the primary side. A common application is in pilot circuits in hydraulic and electro-hydraulic servo systems, where the pressure is taken from the main system and reduced by the PRS6 to a level that is suitable for the pilot circuit.

Construction and function

The valve housing is manufactured from continuously-cast grey iron and contains a precision-ground spool. To keep oil consumption at a low level, the spool has positive overlapping. This gives a certain difference in secondary pressure at different flow take-off rates. For this reason, the valve setting should be made with the desired flow rate passing through the valve. When a high primary pressure is reduced to a low secondary pressure (pressure differential over 150 bar), pressure reduction should be effected in two stages using two PRS6 valves connected in series.

Advantages

- Compact and easy to install.
- Easy to adjust within respective pressure range.
- Can be factory-set and sealed to prevent unauthorized pressure changing.
- Highly suited for use as a reducing valve in pilot circuits where the pilot pressure is taken from the main circuit.
- Withstands high pressure shocks in the tank connection.

Optional equipment

Numerous other options are available for the PRS6. For further information, please contact your Parker representative.

- Spool for two-way function.
- Hand wheel for easy changing of pressure setting.
- Flanged version of PRS6 for flanging directly to, e.g. a valve block.
- Adjuster device for external control of secondary pressure by means of a pilot pressure.

Technical Data

Auxiliary Valves

PRS6

Possible pressure setting ranges

(applicable range will depend on pressure setting you specify)

Secondary pressure

- 4-10 bar
- 11-20 bar
- 21-30 bar
- 31-45 bar
- 46-150 bar
- 150 bar to any value below 250 bar.

Primary pressure

Max. 250 bar

Tank pressure

Max. 250 bar in pressure shocks.

Recommended reduction

(differential between primary and secondary pressure)

Max. 150 bar

Pressure-setting flow rate

Pressure should be set with desired flow rate (l/min) flowing through the valve.

Recommended flow rate

Max. 30 l/min depending on secondary pressure.

See diagram.

Connections

All connections are available in two versions:

- G1/4 (BSP pipe thread) for flat seal (type Tredo) according to ISO 228/1.
- 9/16-18 UNF-2B for O-ring seal according to SAE J1926/1.

Leakage

Connection P to connection T max. 0.15 l/min at pressure differential of 100 bar and oil viscosity of 30 mm²/s.

Weight

Approx. 1.0 kg

Hydraulic fluids

Best performance is obtained using mineral-base oil of high quality and cleanness in the hydraulic system.

HLP hydraulic fluids (DIN 51524), automatic-gearbox oil type A and API CD engine oils can be used. If in doubt, please contact Parker for further information.

For best function, oil viscosity should be between 15 and 45 mm²/s (cSt).

Filtration

Filtration should be arranged so that Target Contamination Class 18/16/13 according to ISO 4406 is not exceeded.

Temperature

Temperature range, fluid:

-20 °C to + 70 °C

Temperature range, ambient:

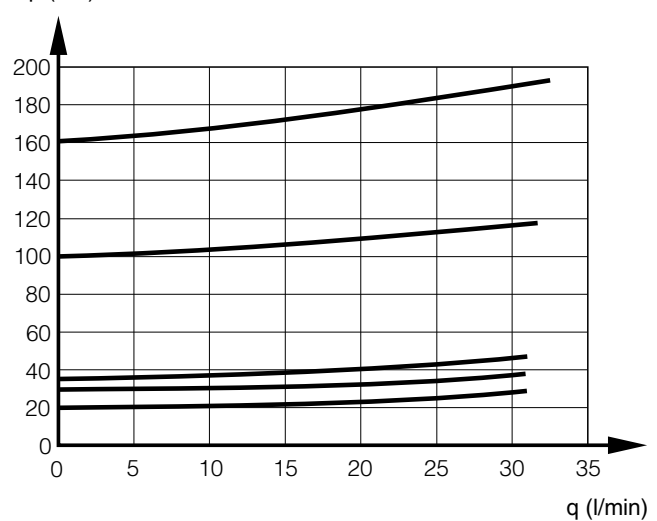
-40 °C to +70 °C

Temperature-shock resistance: max. 100 °C/second

General

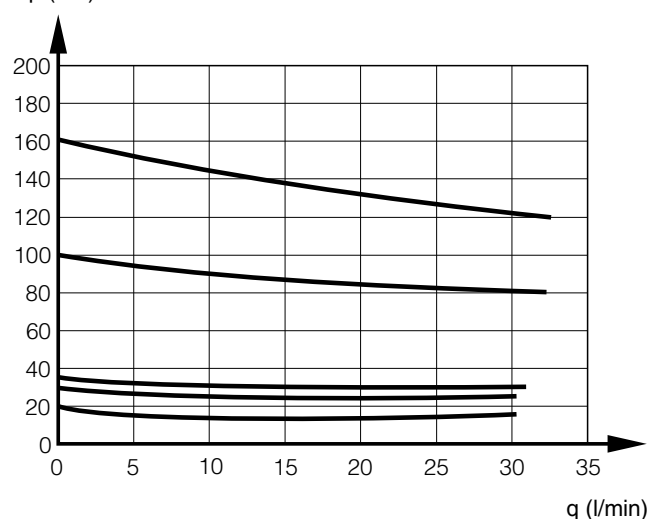
Technical data in this catalogue is applicable using mineral base oil according to DIN 51524 at a viscosity of 30 mm²/s and temperature of 50 °C.

Δp (bar)

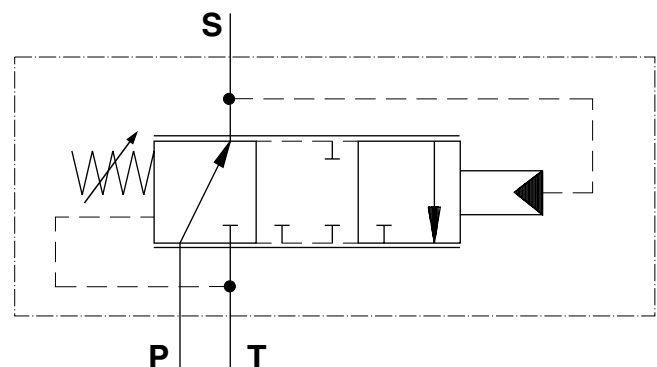


Pressure limiting characteristic for PRS6

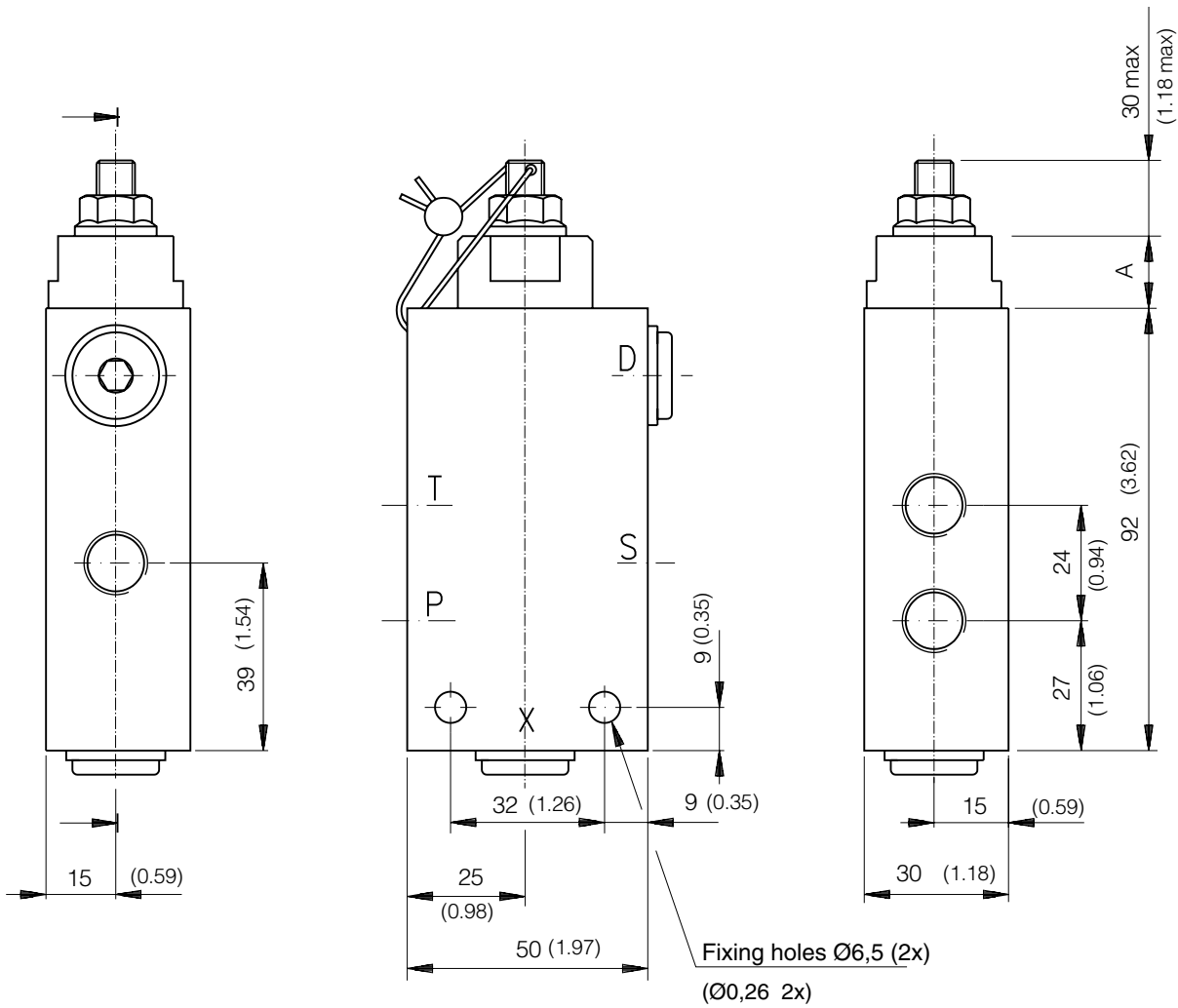
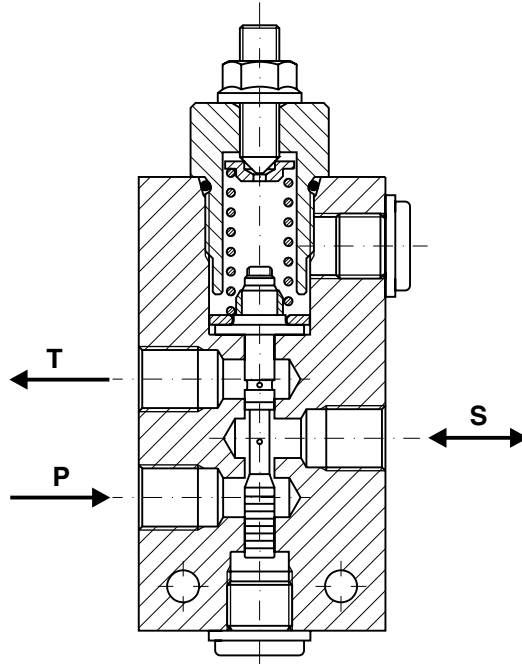
Δp (bar)



Pressure reducing characteristic for PRS6



Functional symbol for PRS6



A = 15 at 4 - 45 bar
A = 44 at 46 - 250 bar

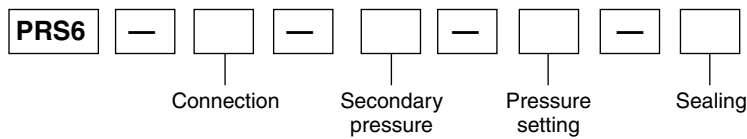
Ordering

Please use ordering-code system in chart below to specify your PRS6 valve.

The ordering numbers in the table below apply to certain standard settings (please cross-reference with ordering-code system chart) and can be used directly when ordering.

Code	Ordering number
PRS6G-10-01-O	8234 8906 35
PRS6G-20-01-O	8234 8906 25
PRS6G-30-01-O	8234 8906 33
PRS6G-40-01-O	8234 8906 34
PRS6G-100-01-O	8234 8907 08

Ordering code



Code	Sealing
O	Not sealed
P	Valve sealed with sealing wire and seal

Code	Pressure-setting flow rate
Secondary pressure is set while desired flow rate (l/min) is passing through valve. Flow range: 0 - 30 l/min	

Code	Secondary pressure
Valve is delivered preset at specified secondary pressure (pressure range 4 bar to marginally below 250 bar)	

Code	Connection
G	G1/4 (BSP pipe) thread
U	9/16-18 UNF-2B thread



WARNING

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Auxiliary Valve

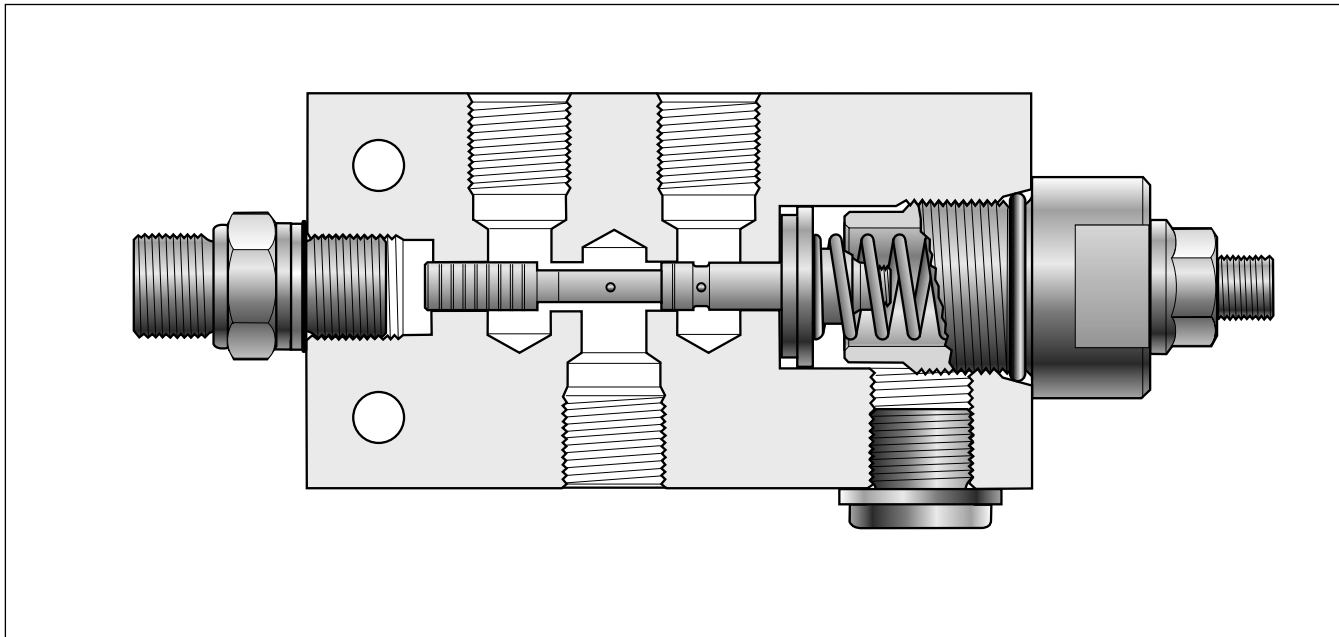
QDS6

Sequence Valve, 3-way

Catalogue HY17-8542/UK
September 2005



Subject to alteration without prior notice. The curves and diagrams in this catalogue are typical examples only. While the contents of the catalogue are updated continuously, the validity of the information given should always be confirmed. For more detailed information, please contact Parker.



Applications

The QDS6 sequence valve is designed to open or close a hydraulic pilot signal (that comes from an external source) when it reaches a predetermined pressure level. Common applications of the valve are in pilot logic circuits and sequence-control sub-circuits. One example of use is as a means of load-moment limitation (overload protection) in the lifting functions of mobile cranes, in conjunction with hydraulic remote control. In such cases, the QDS6 is used to break the pilot signal between the control valve and the directional valve when the signal pressure reaches a predetermined value set on the QDS6.

Construction and function

The QDS6 is a three-way, pilot-operated valve. Its directional function is normally open or normally closed.

The valve housing is manufactured from continuously-cast grey iron and contains a precision-ground spool and pilot section.

When the pilot signal exceeds the preset switching pressure, the spool changes position, thus blocking P and connecting S with T. Alternatively, T is blocked and S connected with P (see figure on page 4). The spool is positively overlapped, i.e. it closes the one connection before opening the other. The pilot section can be drained either internally or externally. Pilot sections with external drainage can be fed with an external pressure in the drainage connection to obtain a higher switching pressure than the one preset.

Advantages

- Compact - easy to install.
- Several pressure ranges available - enables high setting precision.
- Easy to adjust pressure within specified pressure range - facilitates fine tuning.
- Can be factory-set and sealed - prevents unauthorized pressure changing.
- Withstands high pressure shocks in the tank connection - gives long service life in systems with high intermittent tank pressure.
- Simple design - gives great reliability.

Optional equipment

Numerous other options are available for the QDS6. For further information, please contact your Parker representative.

- Hand wheel for easy changing of pressure setting.
- Flanged version of QDS6 for flanging directly to, e.g. a valve block.

Technical Data

Auxiliary Valves

QDS6

Possible pressure setting ranges

(applicable range will depend on pressure setting you specify)

Switching pressure

- 4-10 bar
- 11-20 bar
- 21-30 bar
- 31-45 bar
- 46-150 bar
- 150-250 bar

Working pressure

Max. 250 bar

Tank pressure

Max. 250 bar in pressure shocks.

Recommended flow rate

Max. 20 l/min

Connections

All connections are available in two versions:

- G1/4 (BSP pipe thread) for flat seal (type Tredo) according to ISO 228/1.
- 9/16-18 UNF-2B for O-ring seal according to SAE J1926/1.

Leakage

At pressure differential of 100 bar and viscosity of 30 mm²/s:

- P to S max. 12 cm³/min
- S to T max. 12 cm³/min
- P to X max. 5 cm³/min

Weight

Approx. 1.0 kg

Hydraulic fluids

Best performance is obtained using mineral-base oil of high quality and cleanness in the hydraulic system. HLP hydraulic fluids (DIN 51524), automatic-gearbox oil type A and API CD engine oils can be used. If in doubt, please contact Parker for further information.

For best function, oil viscosity should be between 15 and 45 mm²/s (cSt).

Filtration

Filtration should be arranged so that Target Contamination Class 18/16/13 according to ISO 4406 is not exceeded.

Temperature

Temperature range, fluid:

-20 °C to +70 °C

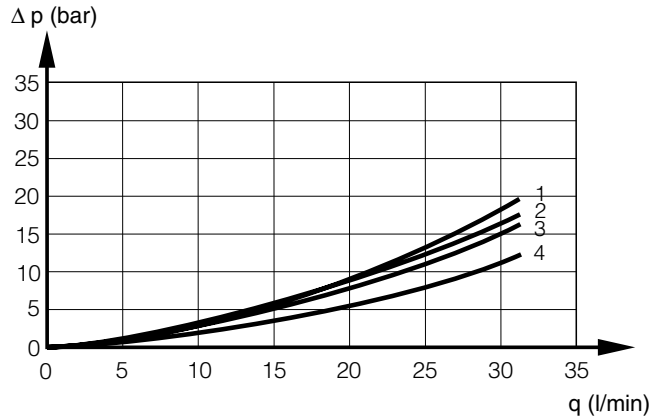
Temperature range, ambient:

-40 °C to +70 °C

Temperature-shock resistance: max. 100 °C/second

General

Technical data in this catalogue is applicable using mineral base oil according to DIN 51524 at a viscosity of 30 mm²/s and temperature of 50 °C.



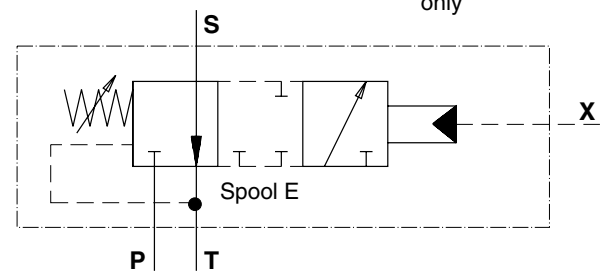
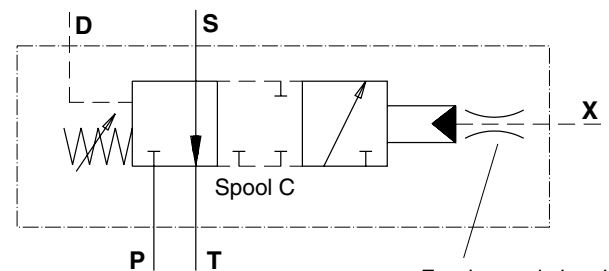
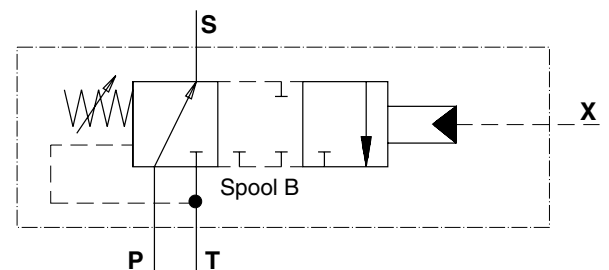
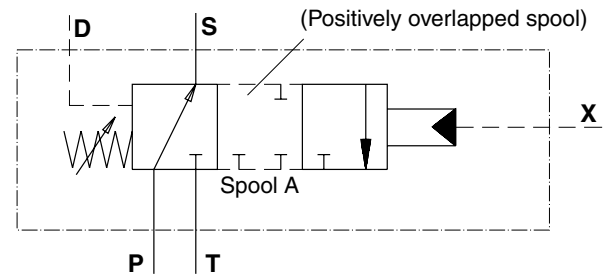
Pressure drop for QDS6

1 = Pressure drop P-S for spool A and B

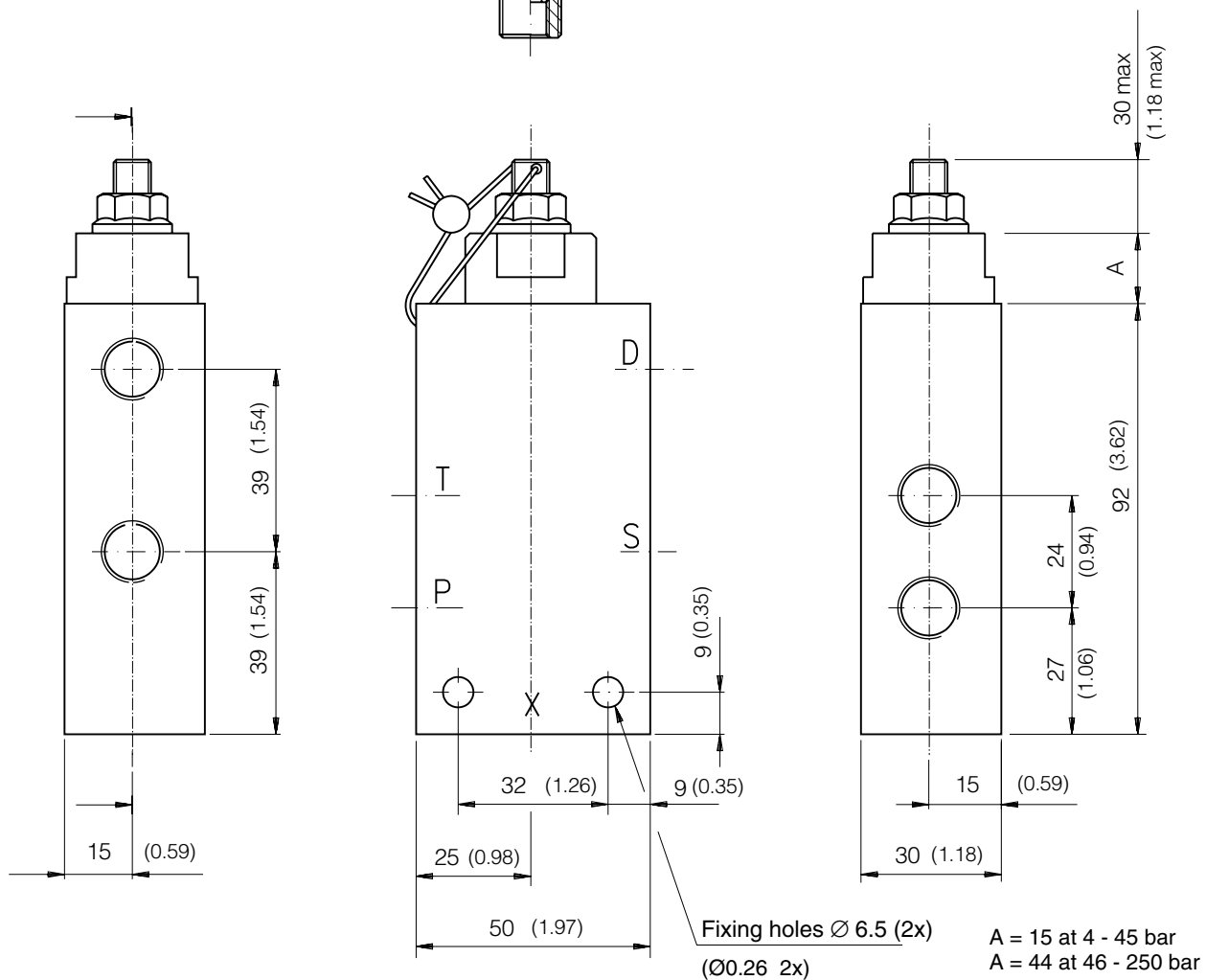
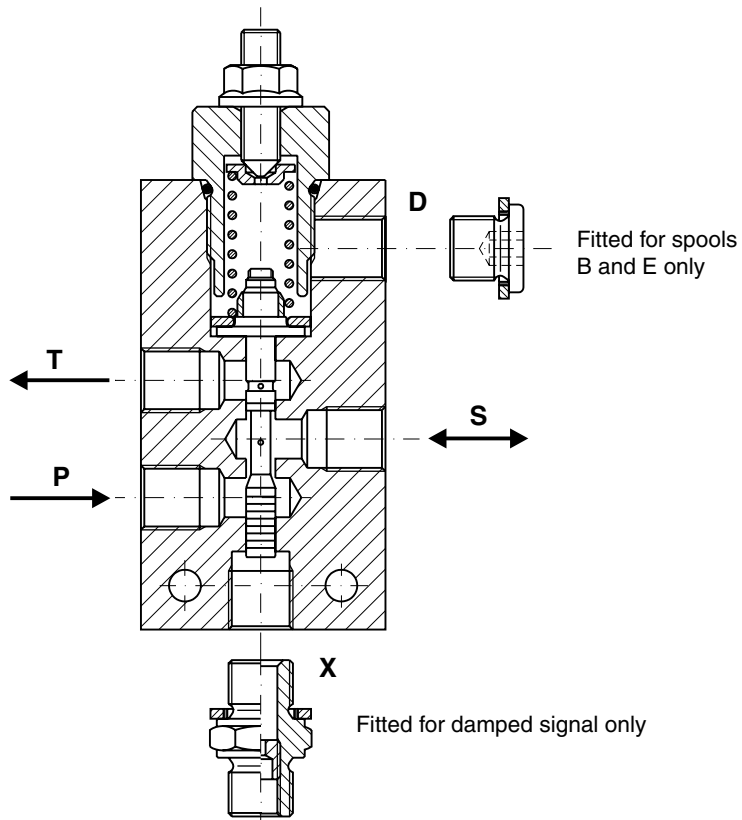
2 = Pressure drop S-T for spool C and E

3 = Pressure drop P-S for spool C and E

4 = Pressure drop S-T for spool A and B



Functional symbols for QDS6

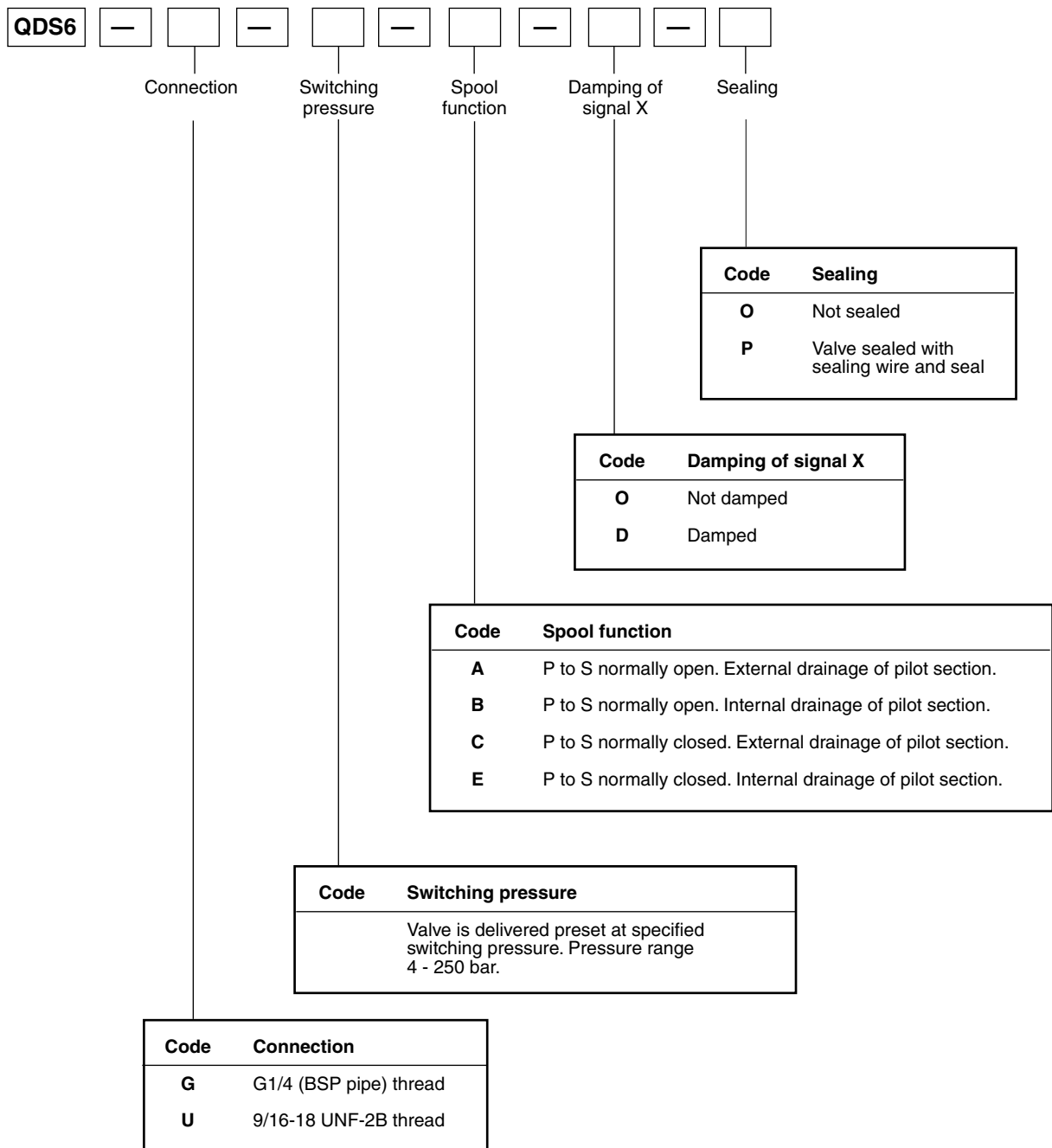


Ordering

When ordering your QDS6 sequence valve, please make use of the ordering-code system as per the example given in the chart below. For certain standard valve settings, however, there are direct ordering numbers, which are given in the table below.

Code	Ordering number
QDS6G-05-B-O-O	8234 8905 75
QDS6G-15-E-O-O	8234-8905 92
QDS6G-25-B-O-O	8234 8905 91
QDS6G-100-B-O-O	8234 8905 83
QDS6G-250-E-O-O	8234 8905 88

Ordering code



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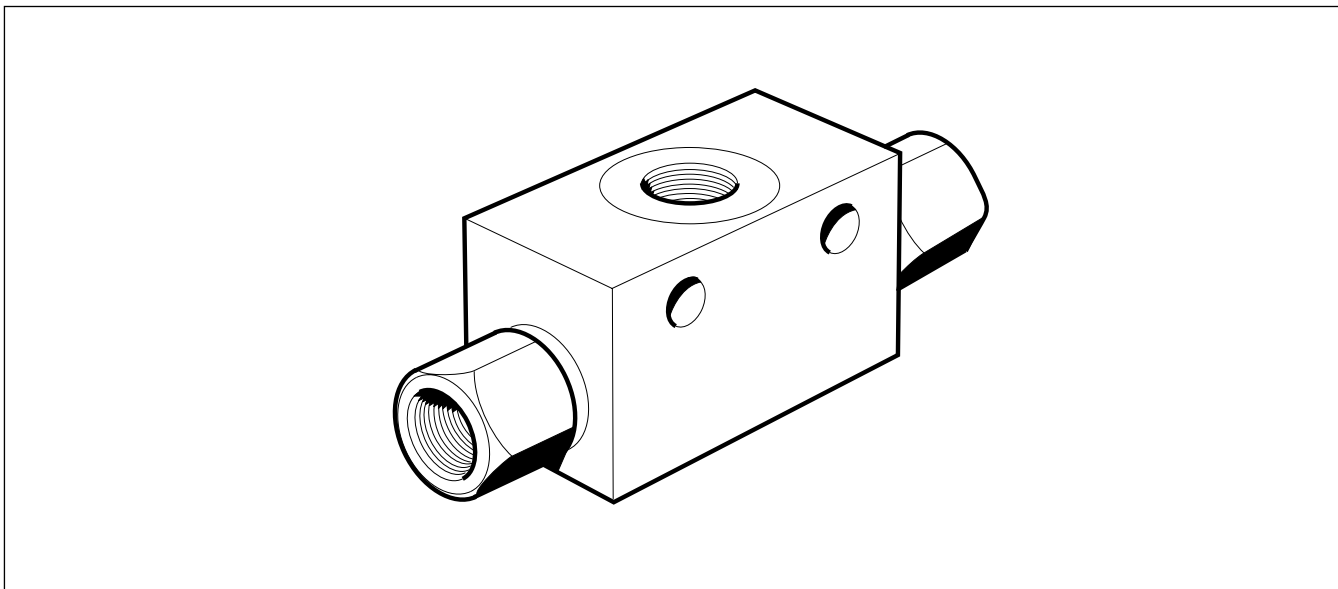
Auxiliary Valves

VV6

Shuttle Valve

Catalogue HY17-8602/UK
September, 2005





Applications

The VV6 enables two flows in a hydraulic system to be directed alternately into a common service line. The flow with the highest pressure takes priority.)

The valve is intended for use in load-signal systems and in pilot-operated systems that have two alternate operator's stations.

Design and function

The valve consists of a valve housing, a poppet and two valve seats. It has two inlets and one outlet.

The pressure differential that arises when oil flows through the valve pushes the poppet to the opposite inlet and blocks it, at the same time as the outlet is opened. The valve can only be used with the direction of flow going from the inlets to the outlet.

Technical data

Working pressure

Max. 250 bar

Recommended flow rate

Max. 20 l/min

Connections

All connections are available in two versions:

G-version (BSP pipe thread) for flat seal (type Tredo) according to ISO 228/1 and UN version for O-ring seal according to SAE J1926/1.

Weight

Approx. 0.4 kg

Hydraulic fluids

Best performance is obtained using mineral-base oil of high quality and cleanliness in the hydraulic system.

HLP hydraulic fluids (DIN 51524), automatic-gearbox oil type A and API CD engine oils can be used.

Synthetic, fire-resistant and environmentally friendly fluids can also be used. Please contact Parker for further information.

For best function, fluid viscosity should be between 15 and 45 mm²/s.

Filtration

Filtration should be arranged so that Target Contamination Class 20/18/14 according to ISO 4406 is not exceeded.

Temperature

Temperature range (fluid):

-20 °C to +80 °C

Temperature range (ambient):

-40 °C to +60 °C

Temperature change:

Max. 100 °C/s

General

The data given above is applicable at an oil temperature of 50 °C and viscosity of 30 mm²/s using mineral-base oil according to DIN 51524.

Advantages of VV6 shuttle valve

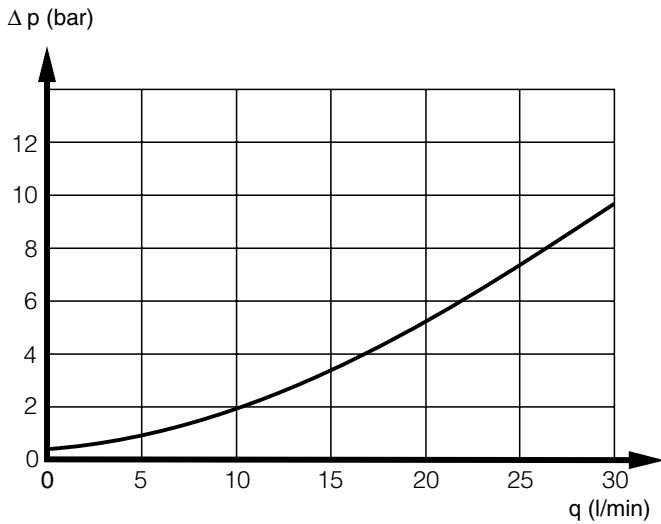
- Small dimensions, easy to install
- Rapid switching

The curves used in this publication are typical curves only. The manufacturer reserves the right to make modifications without prior notice.

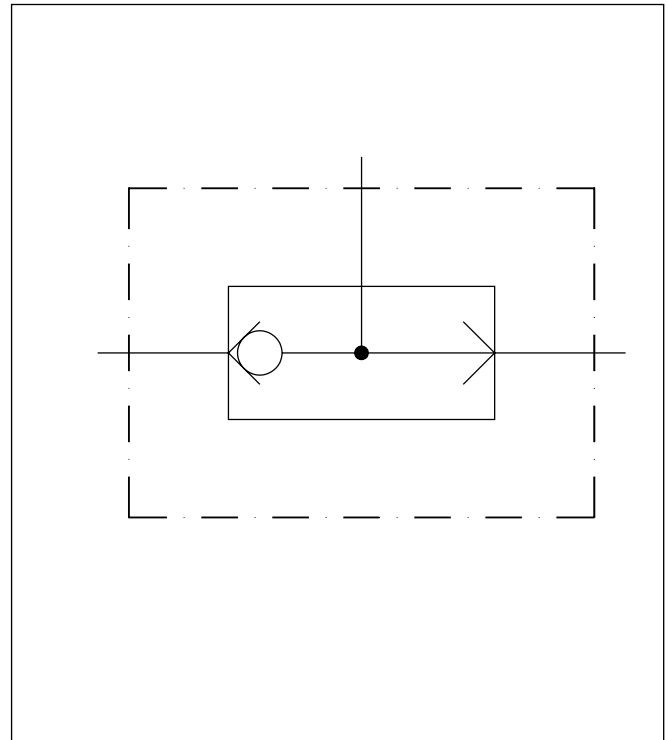
Ordering

The VV6 can be ordered using a designation code or ordering number.

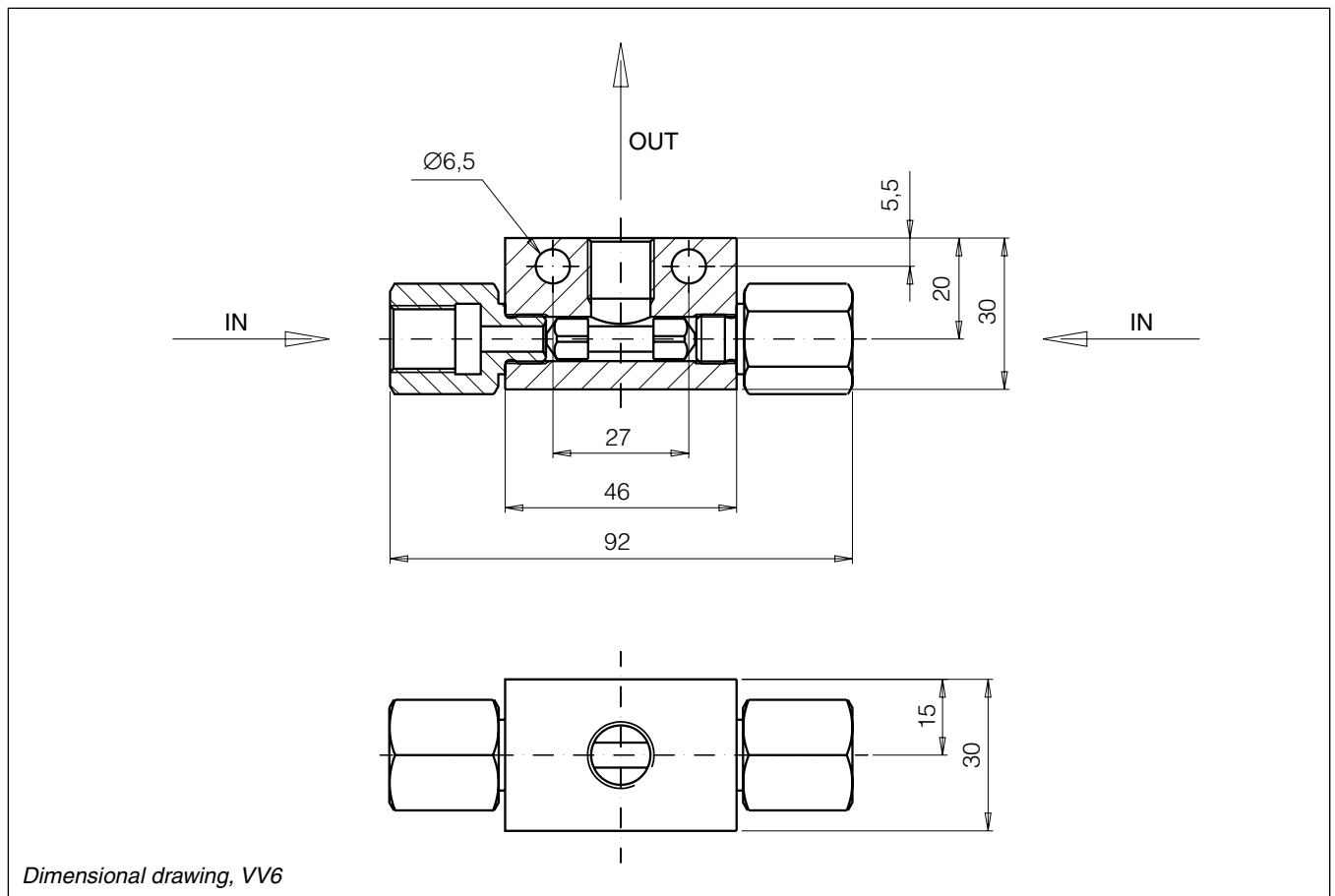
Thread	Designation	Ordering No.
G1/4	VV6G	8234 8902 70
UNF-9/16-18-2B	VV6U	8234 8902 71



Pressure-drop characteristics for VV6



Hydraulic symbol for VV6



Dimensional drawing, VV6

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Catalogue HY17-8602/UK
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Auxiliary valves

PLC series

Direct-acting pressure relief valves

Catalogue HY17-8702/UK
August 2005



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 **WARNING**

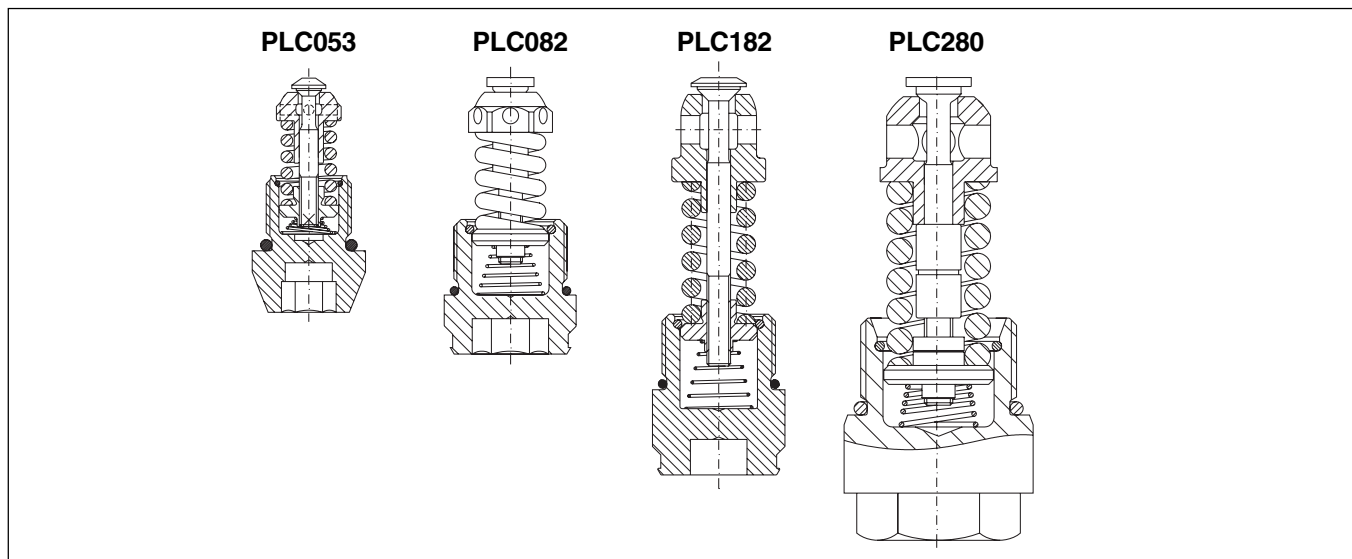
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The PLC series auxiliary valves are direct-acting, factory-set pressure relief valves of the cartridge type that can be supplied with or without a threaded plug. They can also be supplied with housings to facilitate in-line installation.

PLC valves are intended primarily to act as combined pressure-relief and anti-cavitation valves - otherwise known as port relief valves - in the service ports of our directional valves. However, they can also be used to advantage in other situations where pressure relief valves in this size range are required. Indeed, PLC cartridge valves are purchased in great quantities by several of the world's leading pump and transmission manufacturers.

Construction and function

PLC pressure relief valves are made of high-strength steel and consist of a seat, poppet, spring and nut. After the pressure setting has been made, the damper nut is locked against the poppet by welding, in order to prevent the factory-set opening value from changing. When the cartridge is supplied with a plug, a spring is included to enable the cartridge to function as an anti-cavitation valve. An anti-cavitation valve is essentially a check valve that enables oil to be sucked from the tank line in order to prevent cavitation in a consumer. The plug is fitted with an O-ring of nitrile rubber.

Poppets without a pressure relief function are also available. They are used when only a 'check valve' is required to perform an anti-cavitation function.

Technical data

Flow capacity

The flow capacities of the respective PLC valves are dependent on the extent of pressure increment that can be accepted,

and are illustrated in the typical graphs that begin overleaf. The nominal flow capacities, however, are as follows:

PLC053	50 l/min
PLC082	80 l/min
PLC182	180 l/min
PLC280	280 l/min

Pressure-setting flow

As standard, the desired pressure is set with a flow of 20 l/min passing through the pressure relief valve. The exception is the PLC053, for which the pressure setting is made with a flow of 10 l/min passing through the valve.

Weights

PLC053	0,06 kg
PLC082	0,11 kg
PLC182	0,165 kg
PLC280	0,39 kg

The PLC valves are all supplied with a threaded plug.

Housing for PLC082 cartridge (inclusive of cartridge)	1,6 kg
Housing for two PLC082 cartridges (inclusive of cartridges)	2,8 kg

Hydraulic fluids

Best performance is obtained using mineral-base oil of high quality and cleanness in the hydraulic system.

Hydraulic fluids of type HLP (DIN 51524), oil for automatic gearboxes Type A and engine oil type API CD can be used.

Synthetic, fire-resistant and environmentally friendly oils can also be used. If in doubt about the suitability of an oil, please contact your nearest Parker representative for advice.

For best function, oil viscosity should be between 15 and 45 mm²/s (cSt).

Filtration

Filtration should be arranged so that Target Contamination Class 20/18/14 according to ISO 4406 is not exceeded.

Temperature

Temperature range, fluid:
-20 °C to +90 °C

Temperature range, ambient:
-40 °C to +60 °C

Temperature shock resistance:
max. 100 °C/second

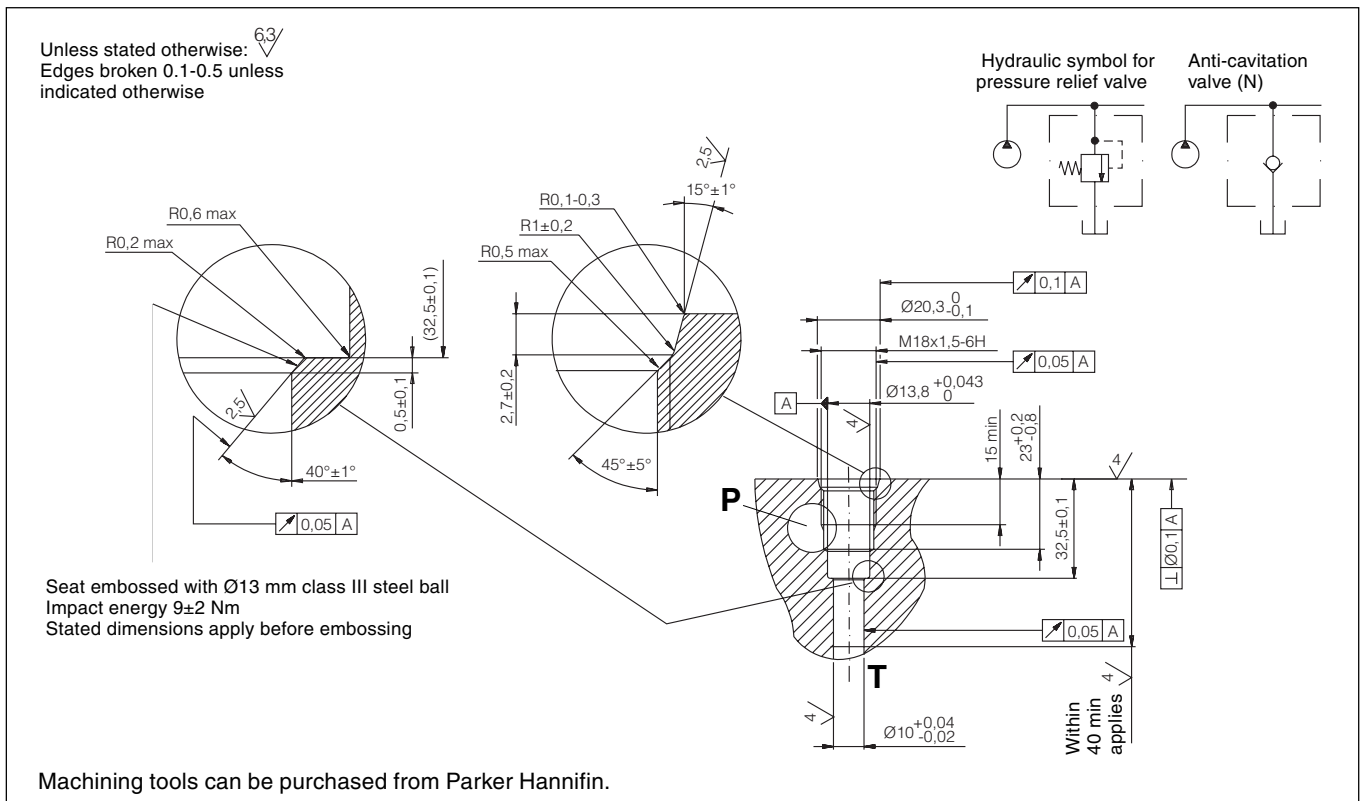
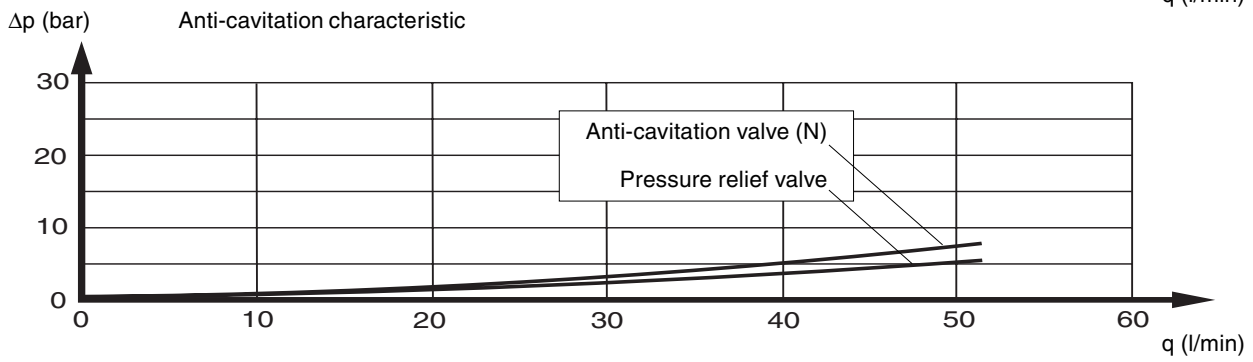
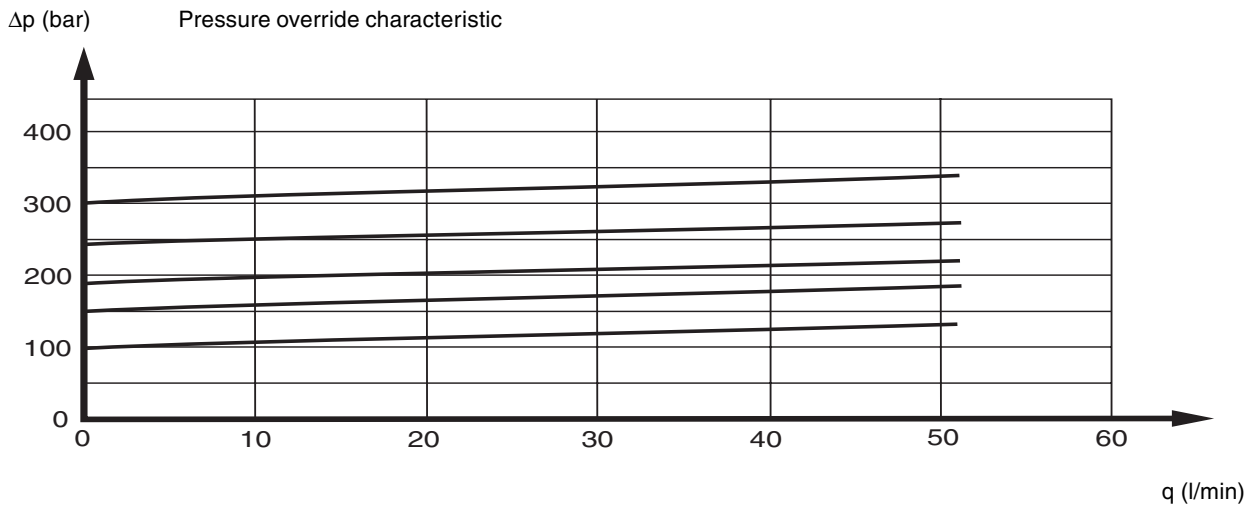
General

The data given in this catalogue is applicable at an oil temperature of 50 °C and viscosity of 30 mm²/s (cSt) using mineral-base oil complying with DIN 51524, when the cartridge valve is installed in a master manifold.

Features and benefits

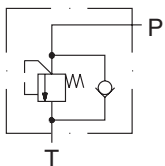
- Small dimensions - easy to install
- Single unit - facilitates installation
- Very tight - no unnecessary leakage losses
- Good characteristic – small pressure change between different flows
- Good opening and closing characteristics – distinct opening and closing
- Low hysteresis – good precision in pressure maintenance
- Fast acting – reacts quickly to pressure surges
- Setting locked by welding – prevents undesirable changing of pressure setting

Diagram for PLC053 pressure relief valve



Cavity drawing, PLC053

Single housing



Hydraulic symbol for single housing

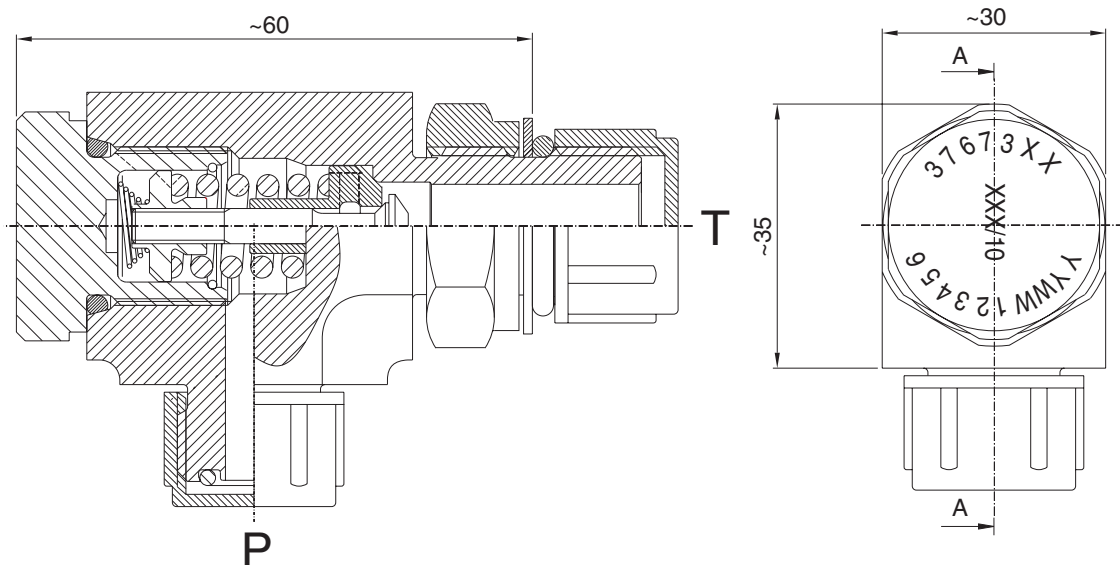
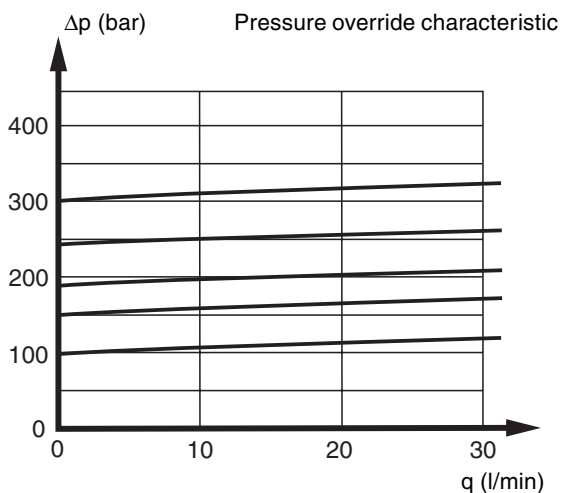


Diagram for PLC053 pressure relief valve



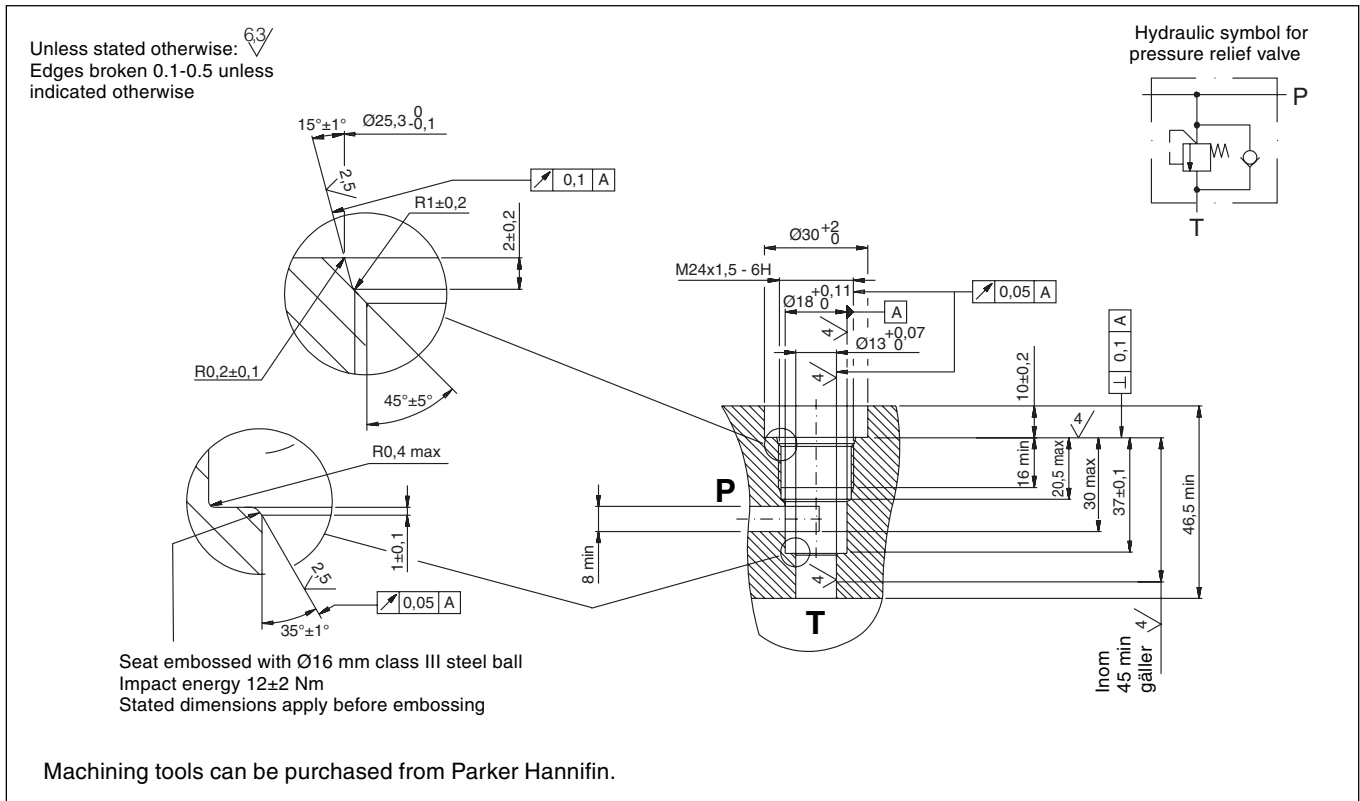
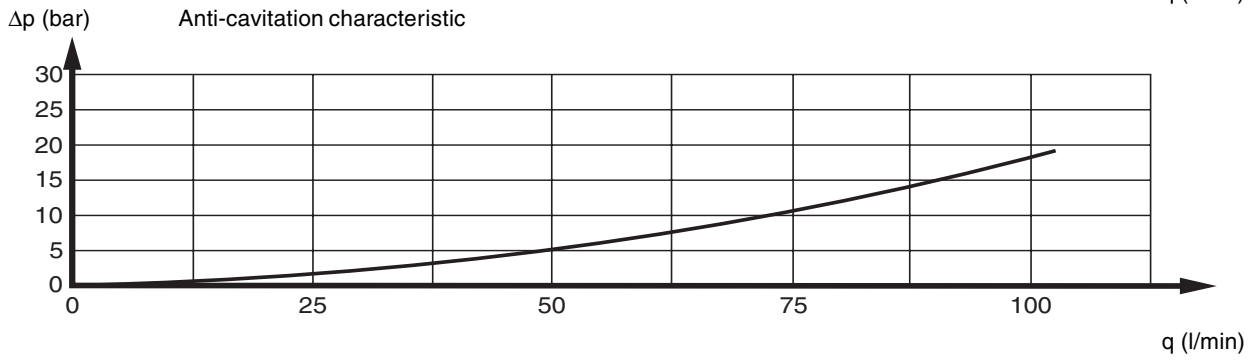
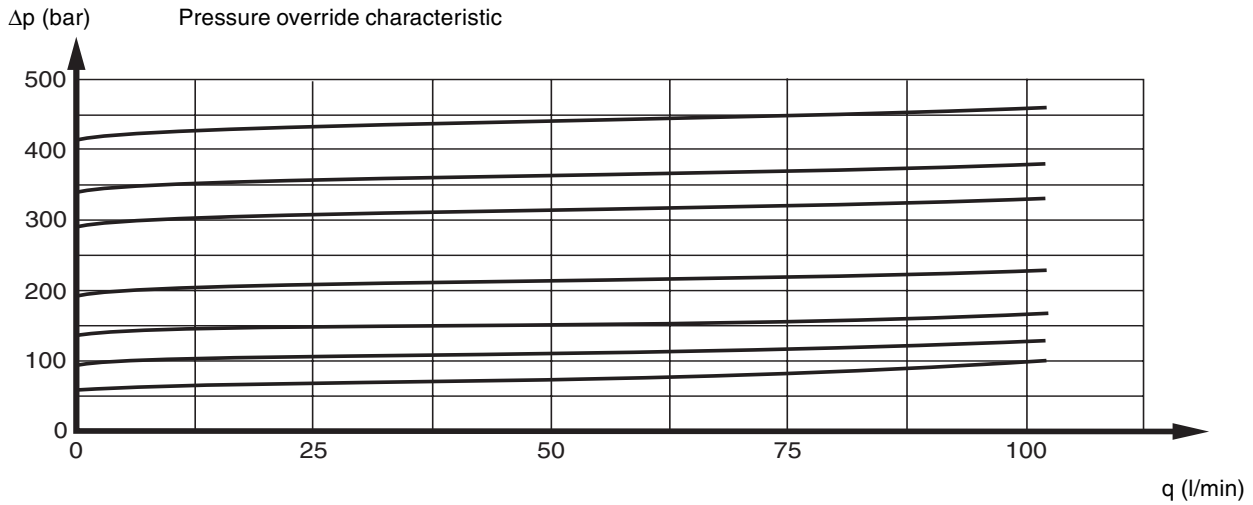
Ordering

PLC053 mounted in single housing

The PLC053 mounted in a single housing can be ordered using the ordering numbers below. Should you require a pressure setting not listed in the table, please contact your Parker Hannifin representative.

Pressure [bar]	Ordering No
50	3767317
63	3767318
80	3767319
100	3767320
125	3767321
140	3767322
160	3767323
175	3767324
190	3767325
210	3767326
230	3767327
240	3767328
250	3767329
260	3767330
270	3767331
280	3767332

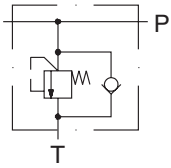
Diagram for PLC082 pressure relief valves



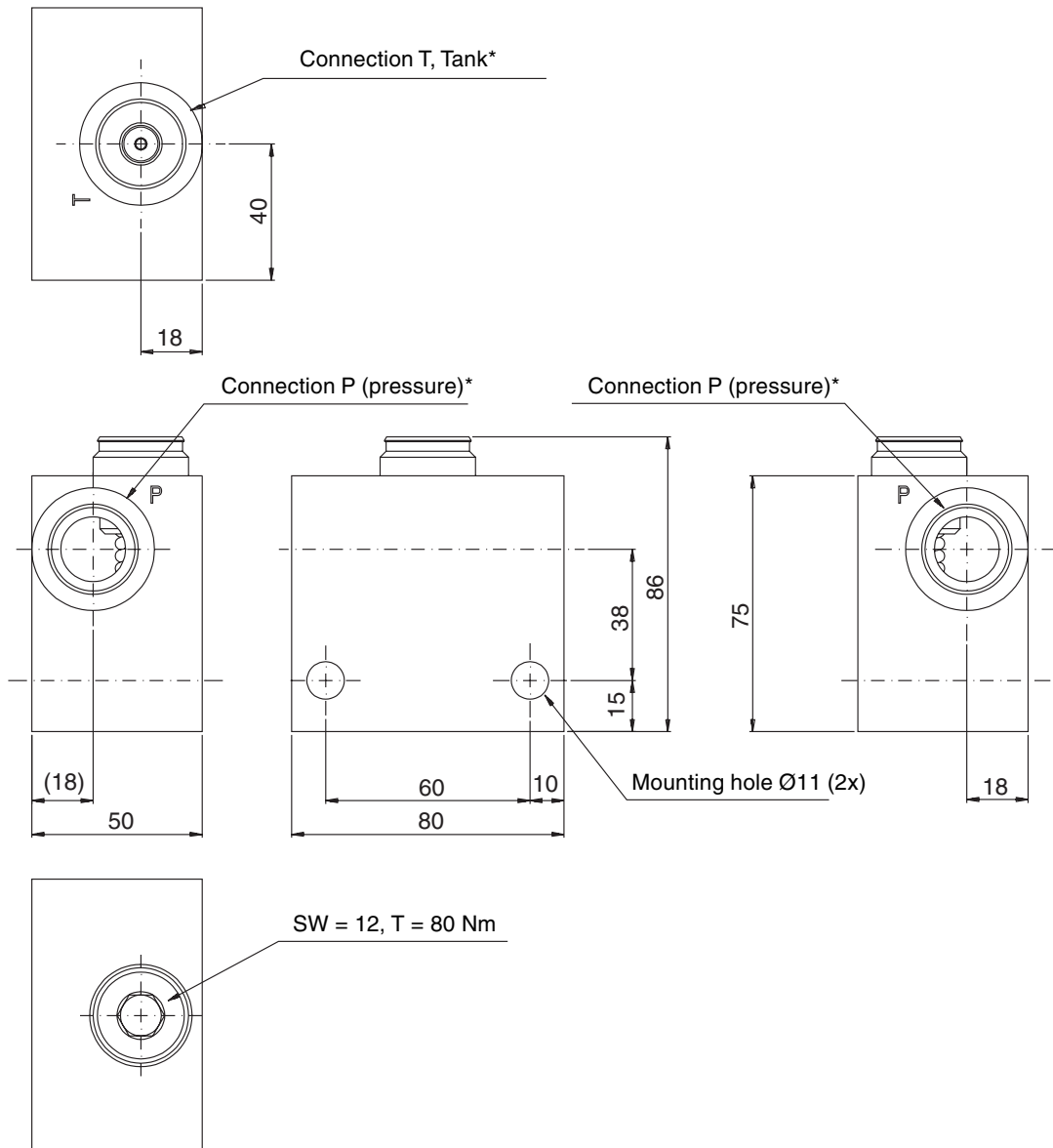
Cavity drawing, PLC082

Dimensions

Single housing



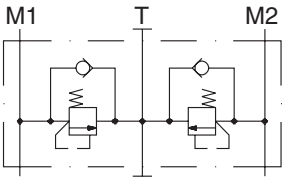
Hydraulic symbol for single housing



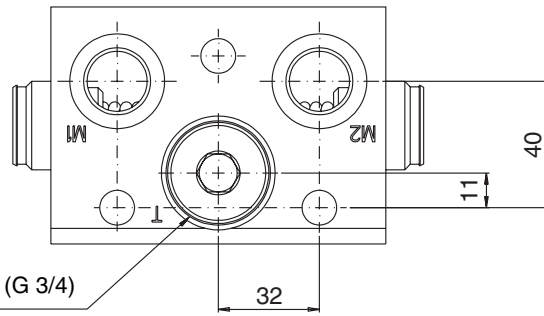
*) Thread dimension G 1/2 or G 3/4.
 See page 11.

SW = spanner width
 T = tightening torque

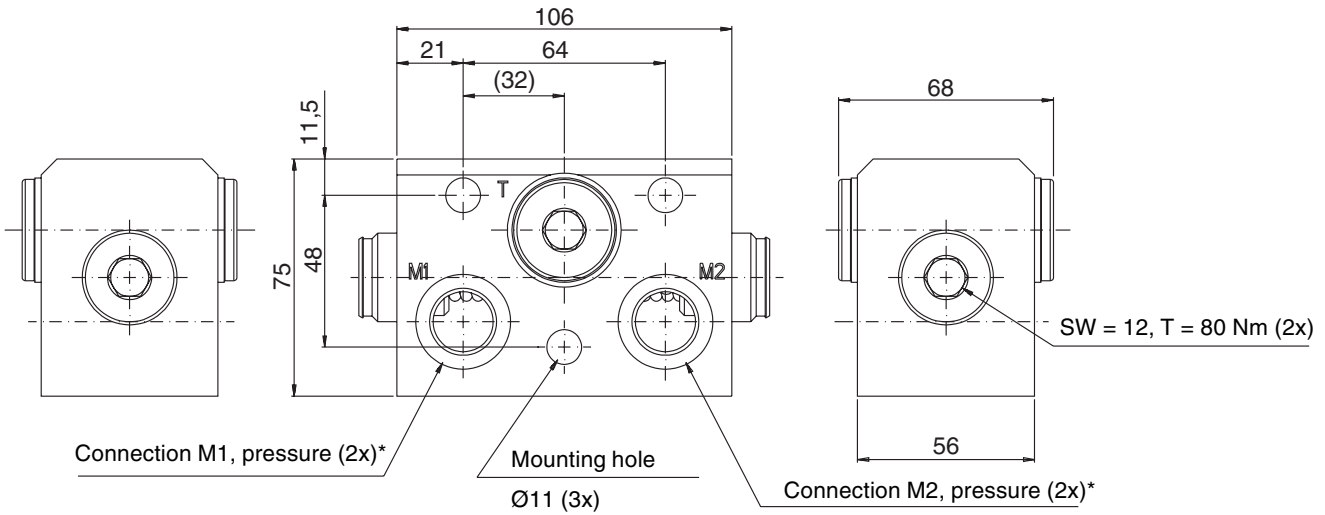
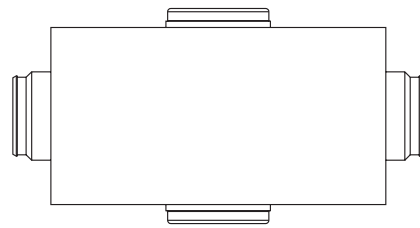
Double housing



Hydraulsymbol för dubbelhus



Connection T, Tank, plugged (G 3/4)

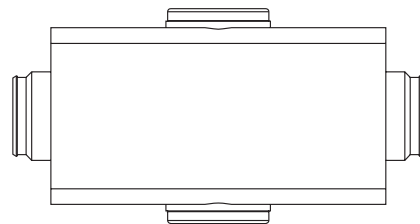


Connection M1, pressure (2x)*

Mounting hole
 Ø11 (3x)

Connection M2, pressure (2x)*

SW = 12, T = 80 Nm (2x)

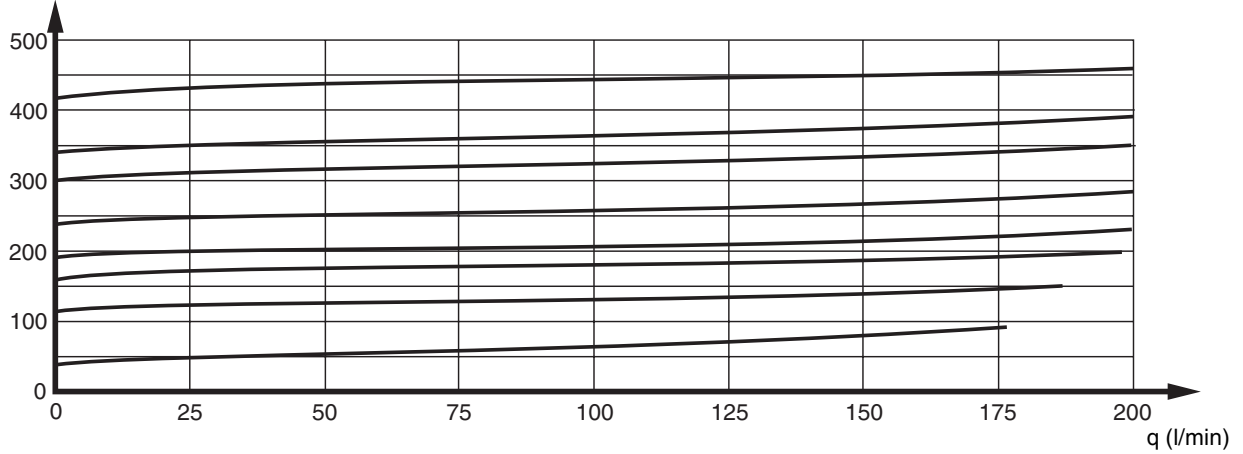


*) Thread dimension G 1/2 or G 3/4.
 See page 11.

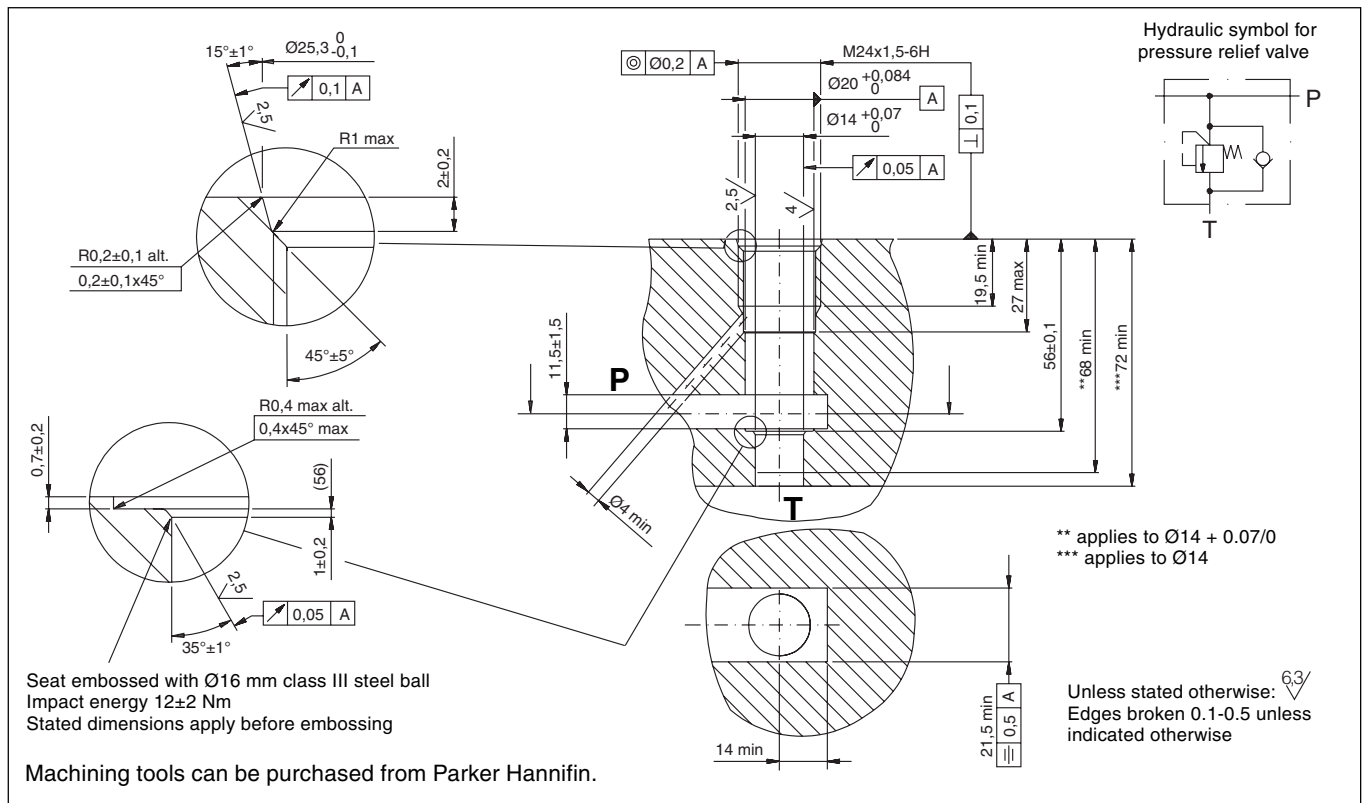
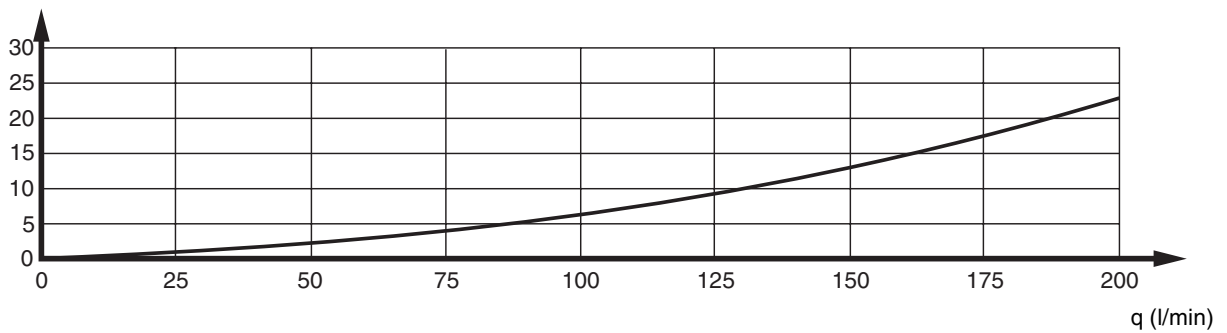
SW = spanner width
 T = tightening torque

Diagram for PLC182 pressure relief valves

Δp (bar) Pressure override characteristic

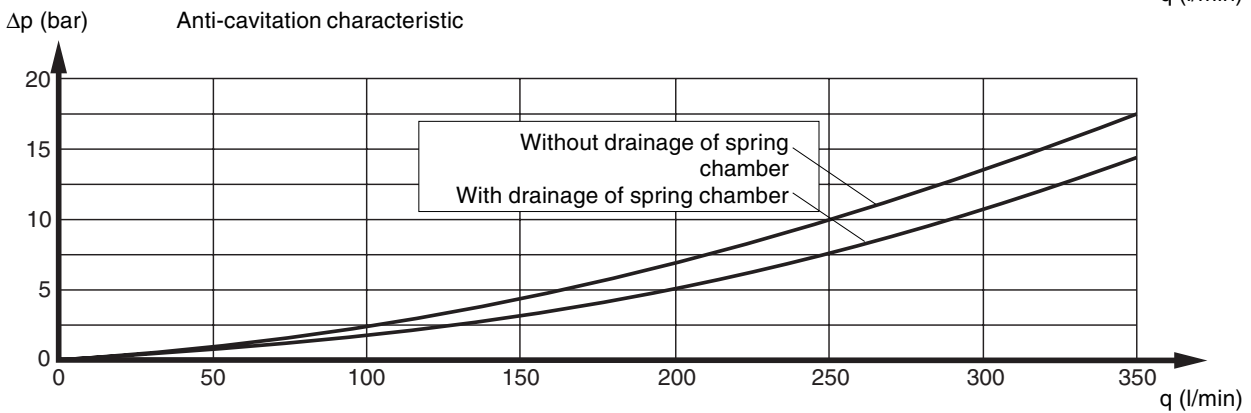
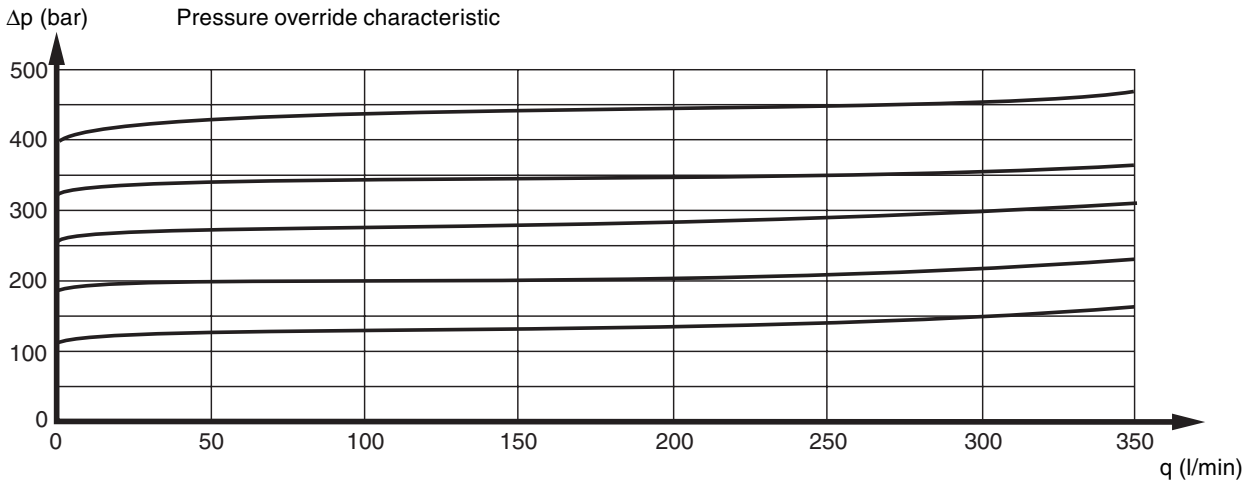


Δp (bar) Anti-cavitation characteristic



Cavity drawing, PLC182

Diagram for PLC280 pressure relief valve



Seat embossed with $\varnothing 25$ mm class II steel ball
 Impact energy 18 ± 3 Nm
 Stated dimensions apply before embossing

Hydraulic symbol for pressure relief valve

Groove for O-ring 39.2 x 3

SW = 34 T = 150 Nm

Unless stated otherwise: $\sqrt{6.3}$
 Edges broken 0.1-0.5 unless indicated otherwise

$\varnothing 17H10$	$+0,070$ 0
$\varnothing 25H11$	$+0,130$ 0
$\varnothing 40H9$	$+0,062$ 0
$\varnothing 44,8H11$	$+0,160$ 0

a) For emergency operation
 SW = Spanner width
 T = Tightening torque

Machining tools can be purchased from Parker Hannifin.

Cavity drawing, PLC280

PLC-series pressure relief valves can be ordered using the ordering numbers in the table below.

Should you require a pressure setting not listed in the table, or require the pressure setting to be made at a flow different to standard, please contact your Parker Hannifin representative.

Pressure PLC053 [bar]	PLC082	PLC182	PLC280 with plug
40	—	9120 0291 03	9120 0292 50
50	393000K176	9120 0291 04	9120 0292 51
63	393000K177	9120 0291 05	9120 0292 52
80	393000K178	9120 0291 06	9120 0292 53
100	393000K179	9120 0291 07	9120 0292 54
125	393000K180	9120 0291 08	9120 0292 55
140	393000K181	9120 0291 09	9120 0292 56
160	393000K182	9120 0291 10	9120 0292 57
175	393000K183	9120 0291 11	9120 0292 58
190	393000K184	9120 0291 12	9120 0292 59
210	393000K185	9120 0291 13	9120 0292 60
230	393000K186	9120 0291 14	9120 0292 61
250	393000K187	9120 0291 15	9120 0292 62
280	393000K189	9120 0291 16	9120 0292 63
300	393000K190	9120 0291 17	9120 0292 64
330	393000K191	9120 0291 18	9120 0292 65
350	393000K192	9120 0291 19	9120 0292 66
380	393000W018	9120 0291 20	9120 0292 67
400	—	9120 0291 21	9120 0292 68
420	393000U020	9120 0291 22	9120 0292 69
N*	393000K194	9120099686	—

* Anti-cavitation valve without pressure-relief function

PLC082 mounted in single housing

The PLC082 mounted in a single housing can be ordered using the ordering numbers below. Should you require a pressure setting not listed in the table, please contact your Parker Hannifin representative.

Pressure [bar]	G1/2	G3/4
50	3766780	3766789
125	3766781	—
160	3766782	—
175	3766783	—
190	3766784	3766903
210	3766785	3766904
230	3766786	3766862

PLC082 mounted in double housing

Pressure [bar]	G1/2	G3/4
140	3766767	—
160	3766769	3766777
175	3766770	—
190	3766771	—
210	3766772	—
230	3766773	3766900
250	—	3766901
280	—	3766873

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