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PLC series Auxiliary Valves

Direct-acting Pressure Relief Valves



ENGINEERING YOUR SUCCESS.

List of contents	Page
General Information.....	3
PLC053.....	4
Single housing for PLC053.....	5
PLC082.....	6
Single housing for PLC082.....	7
Double housing for PLC082.....	8
PLC182.....	9
PLC280.....	10
Ordering	11

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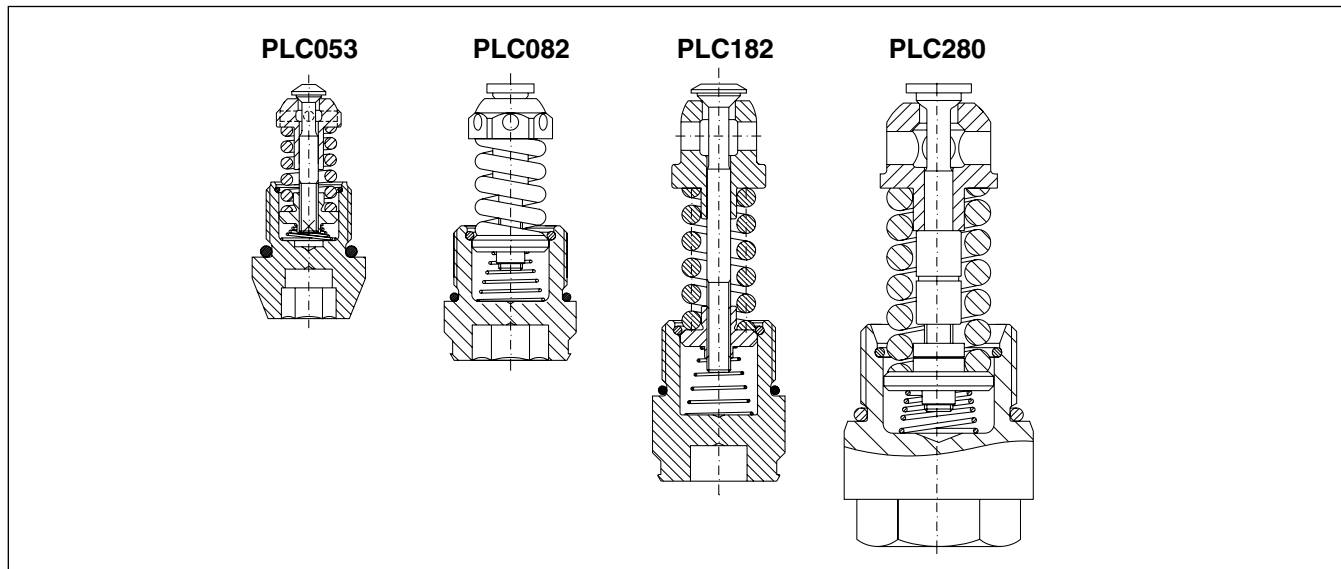
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The PLC series auxiliary valves are direct-acting, factory-set pressure relief valves. The insert type cartridge can be supplied with or without a threaded plug. They can also be supplied with housings to facilitate in-line installation.

PLC valves are intended primarily to act as combined pressure-relief and anti-cavitation valves - otherwise known as service port relief valves used in mobile directional controls. They can be also used in manifolds or line mounted port bodies for any over pressure protection in four different cavity sizes. PLC cartridge valves are purchased in large 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. The 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.

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

Technical data

Flow capacity

The flow capacities of the respective PLC valves are dependent on the extent of pressure rise 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

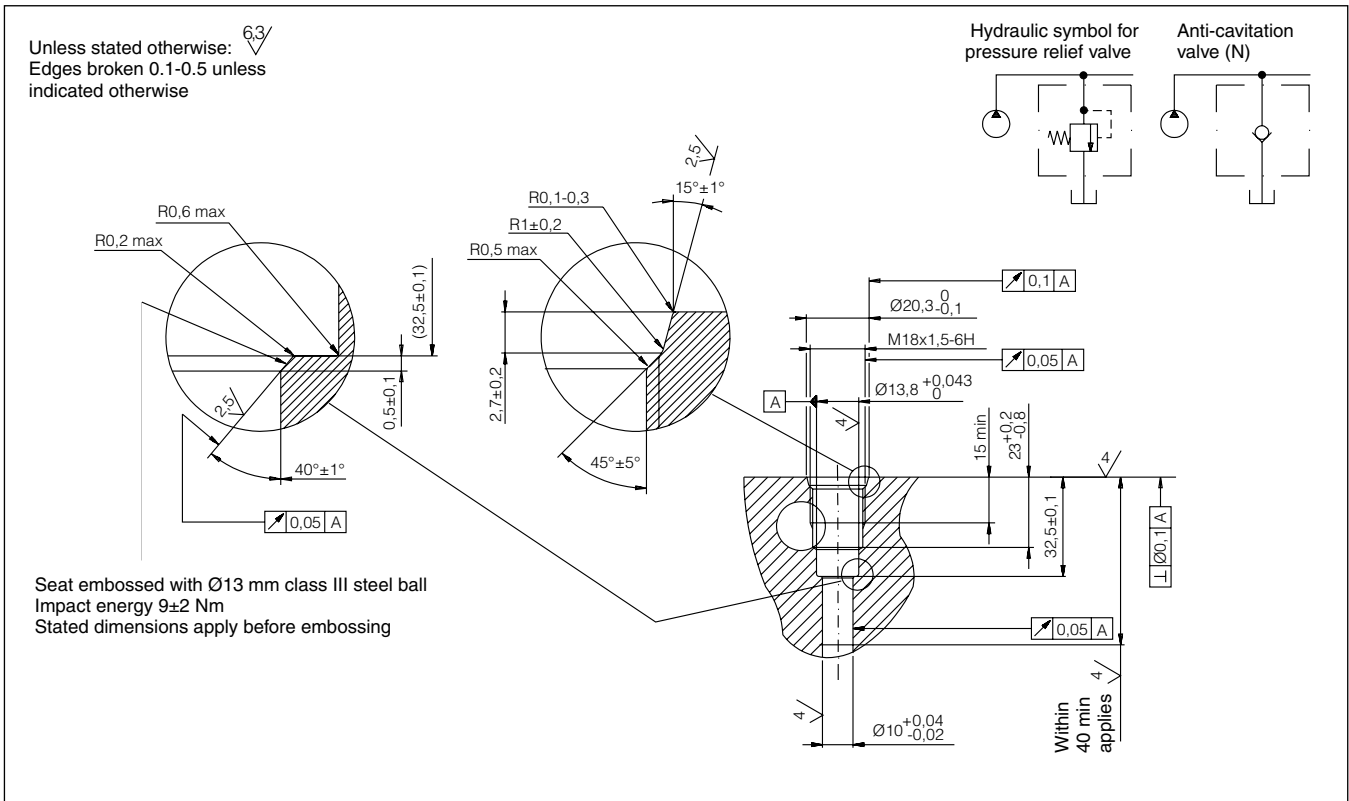
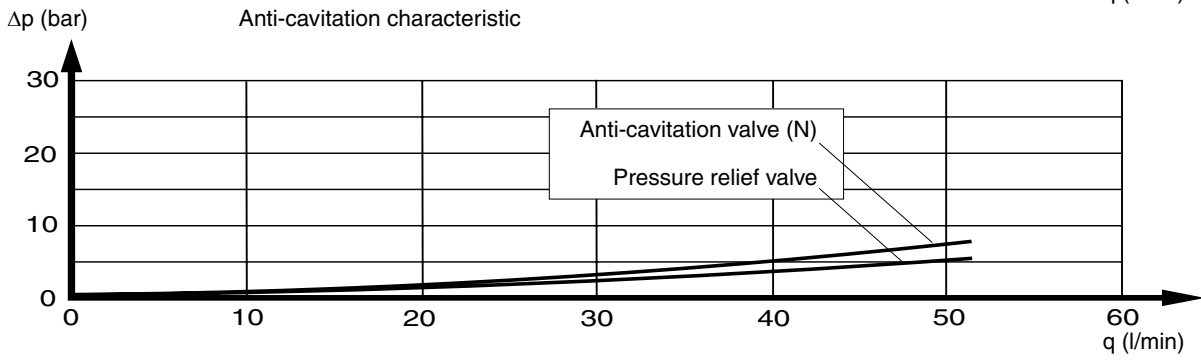
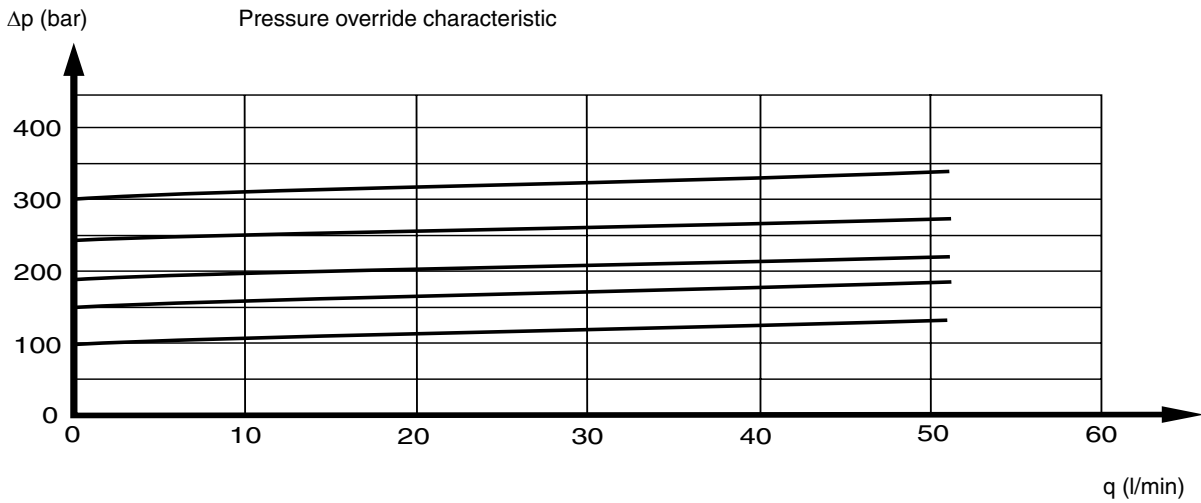
General

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

Features and benefits

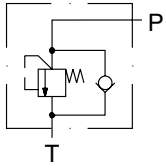
- Small dimensions - easy to install
- Single unit - facilitates installation
- Very tight - no unnecessary leakage losses
- Good characteristic – small pressure change between different flows
- Good opening and closing characteristics – distinct opening and closing
- Low hysteresis – good precision 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

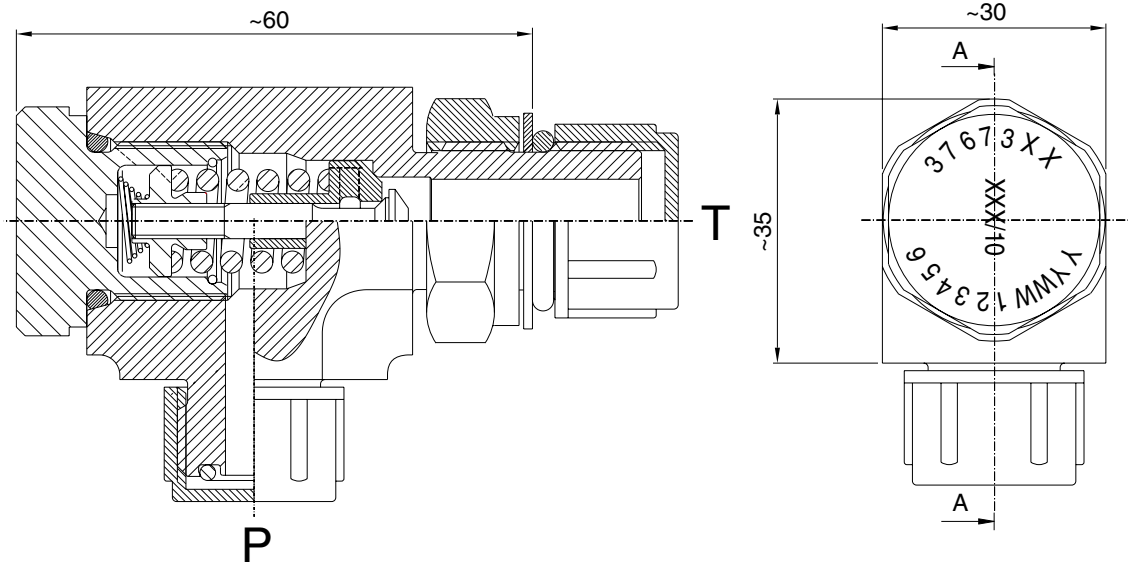


Diagram for PLC053 pressure relief valve

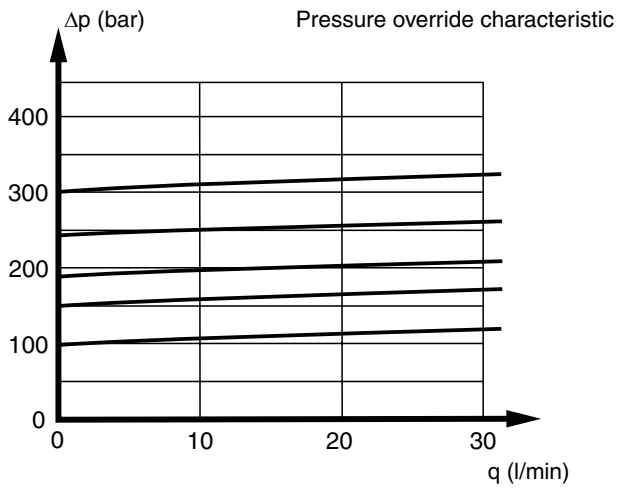
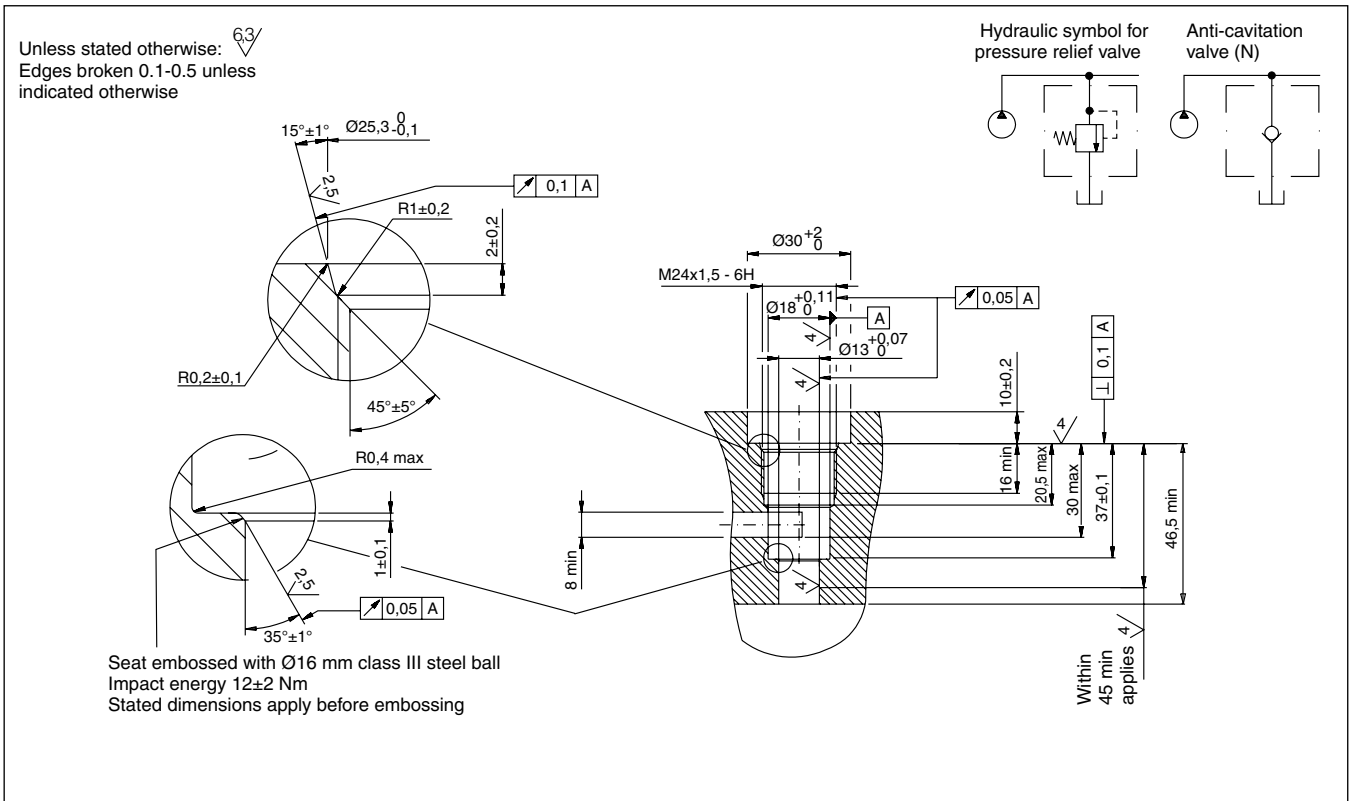
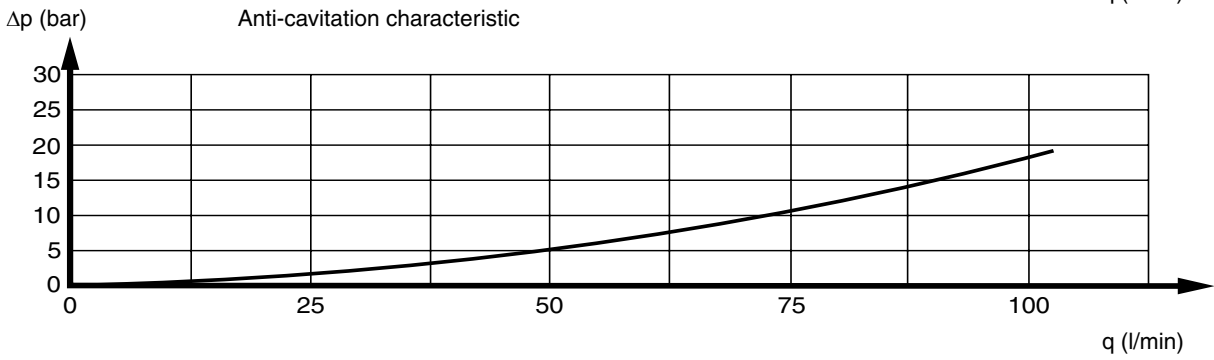
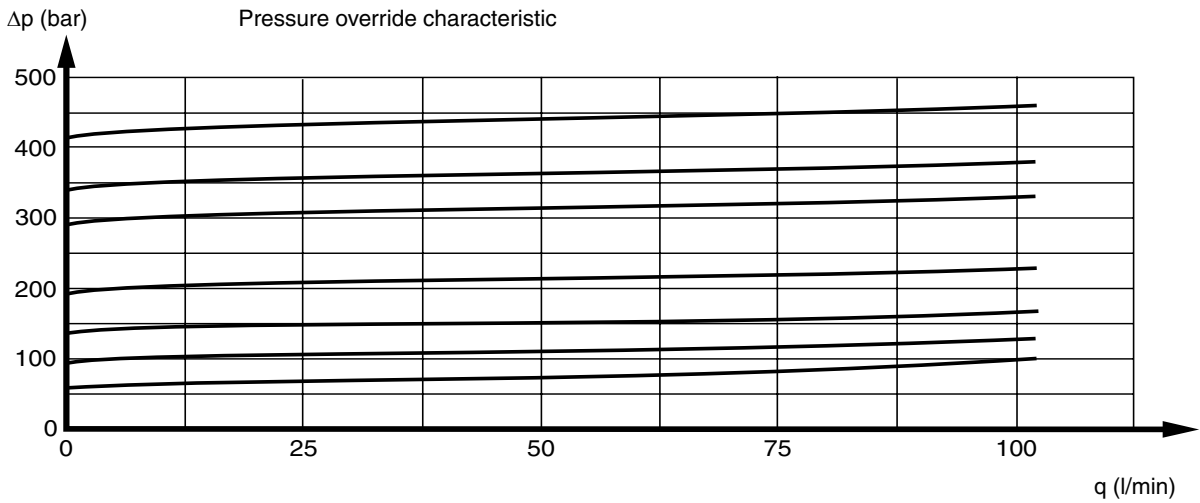


Diagram for PLC082 pressure relief valves

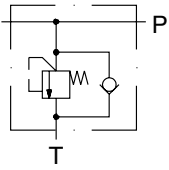


Cavity drawing, PLC082

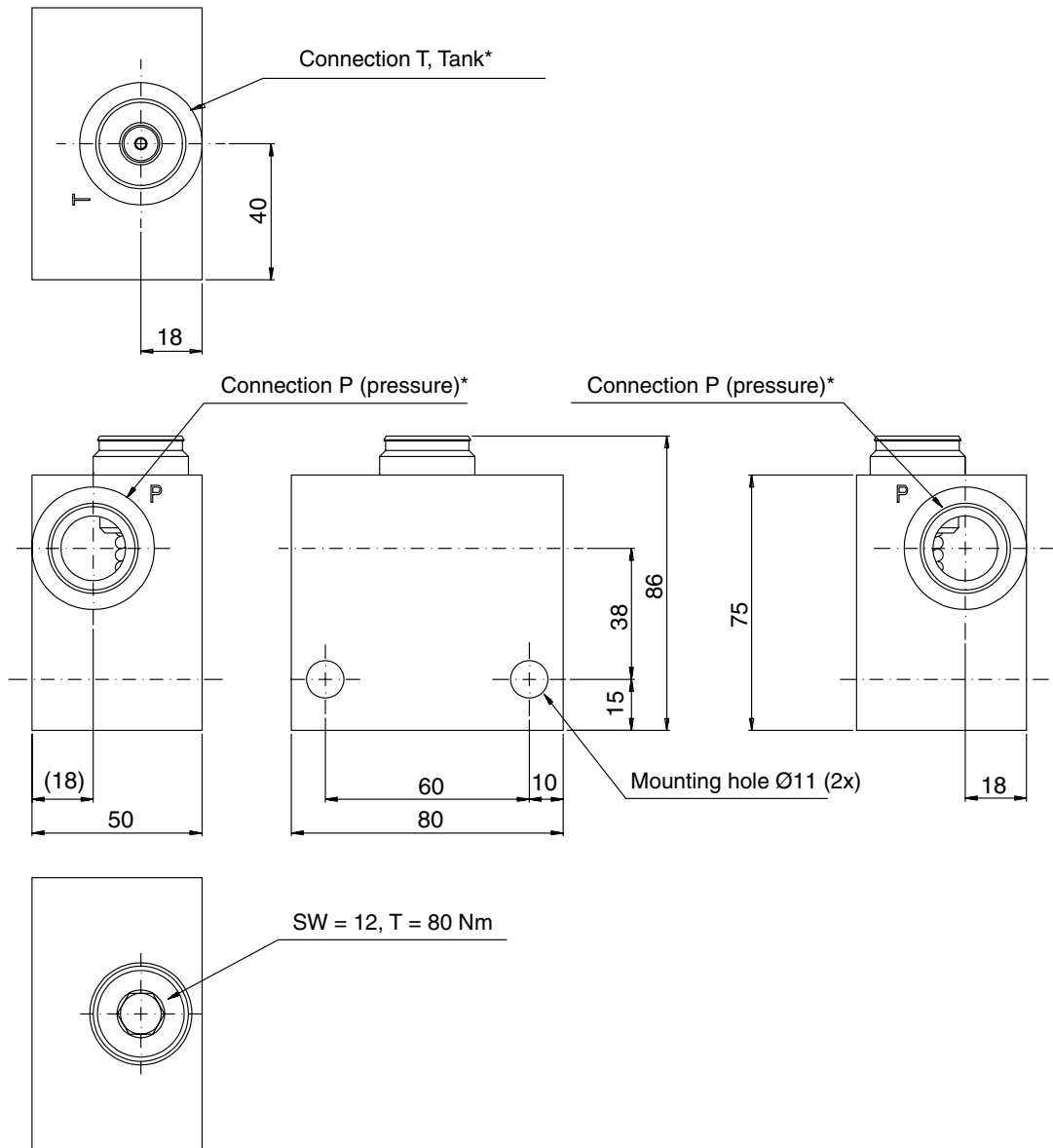
Dimensions

PLC082 series

Single housing



Hydraulic symbol for single housing



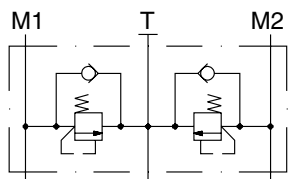
*) Thread dimension G 1/2 or G 3/4.
See page 11.

SW = spanner width
T = tightening torque

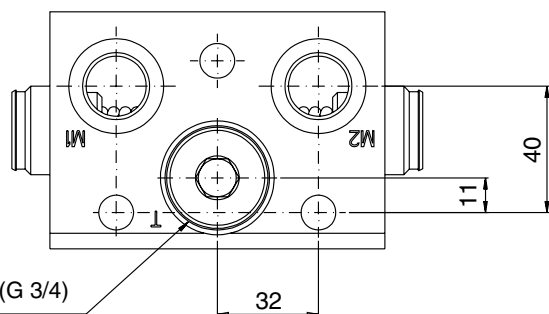
Dimensions

PLC082 series

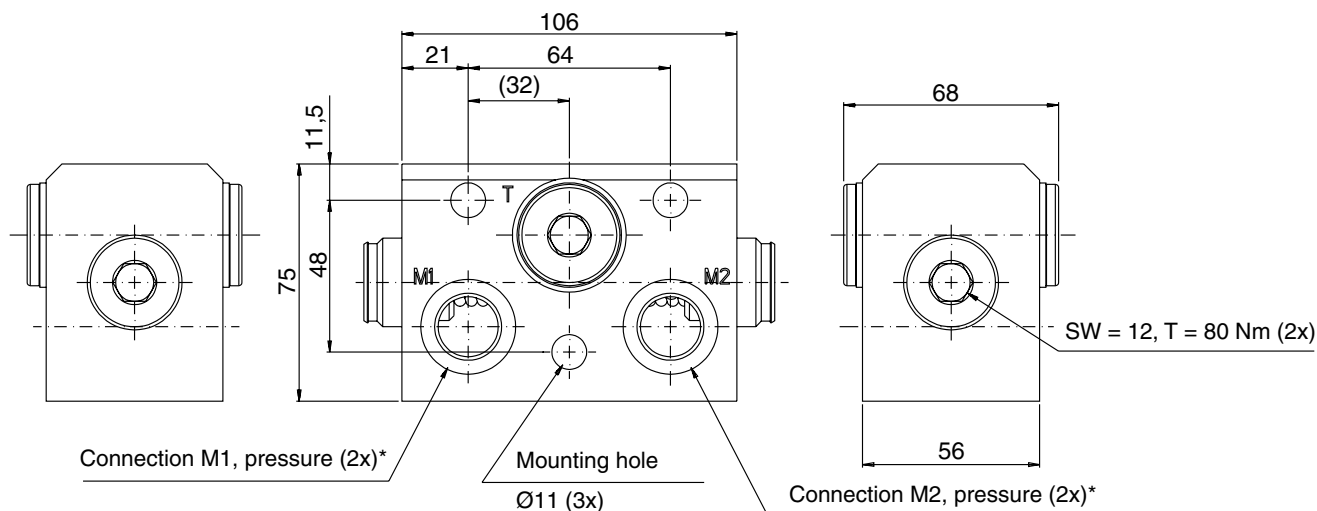
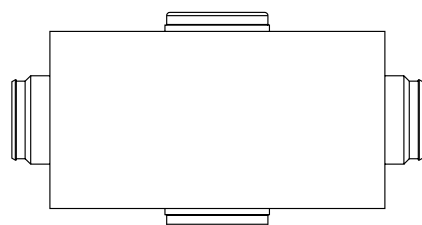
Double housing



Hydraulic symbol for double housing



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

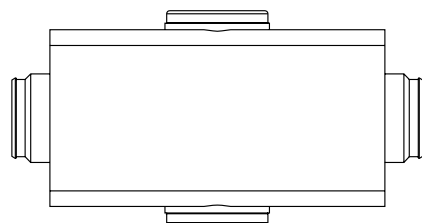


Connection M1, pressure (2x)*

Mounting hole
Ø11 (3x)

Connection M2, pressure (2x)*

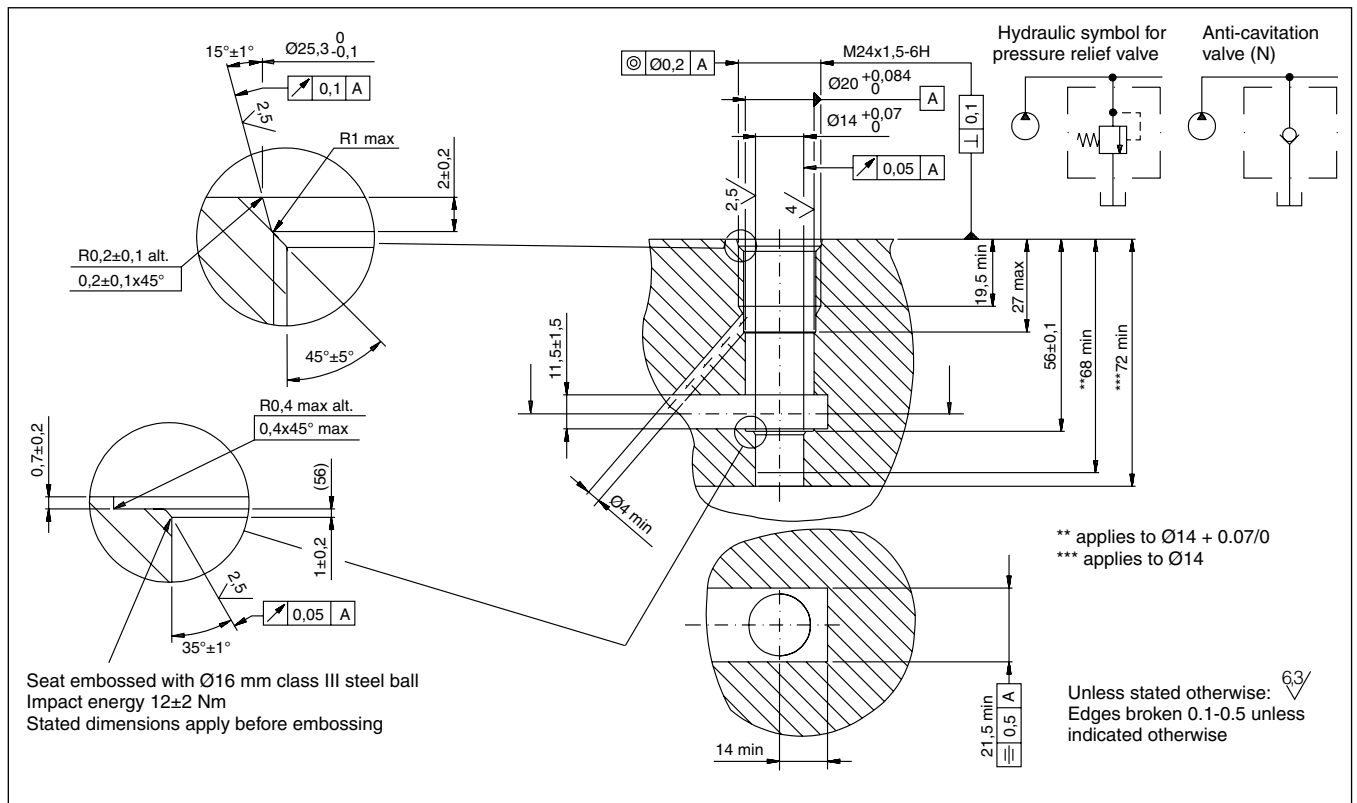
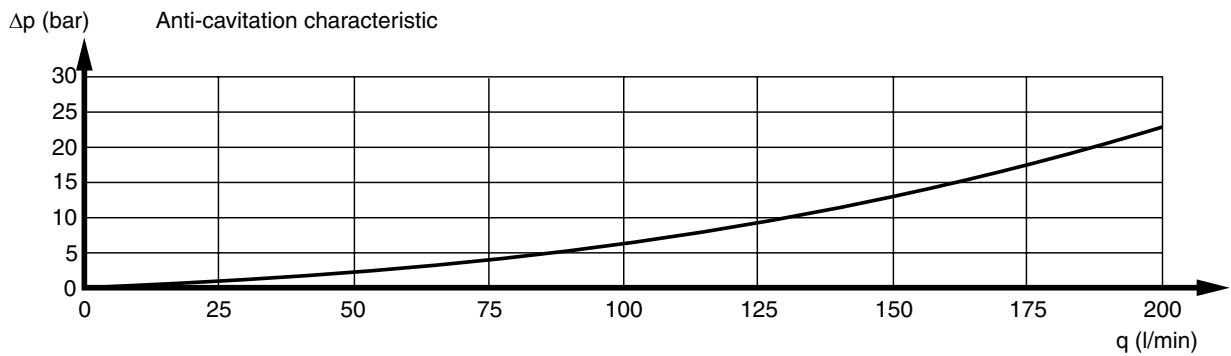
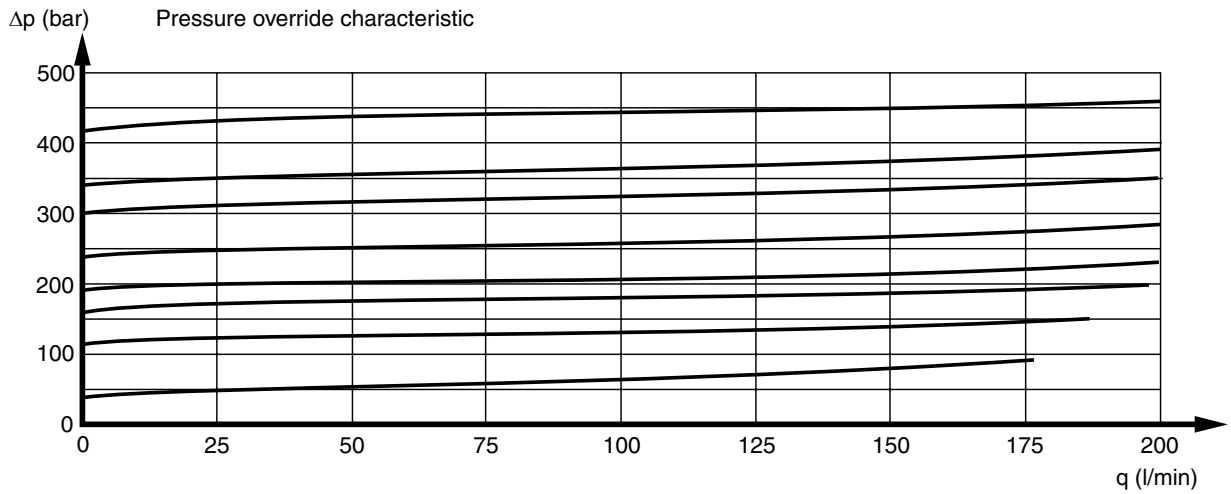
SW = 12, T = 80 Nm (2x)



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

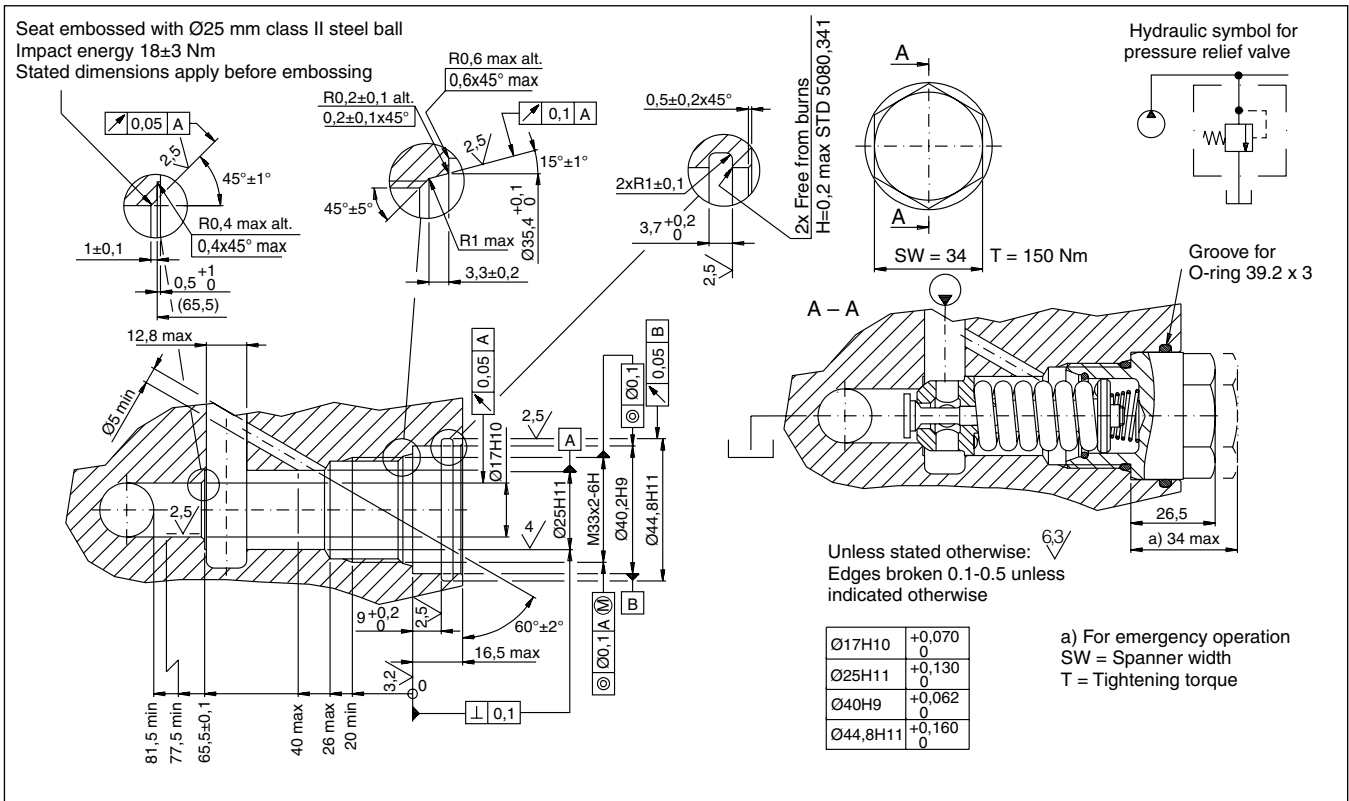
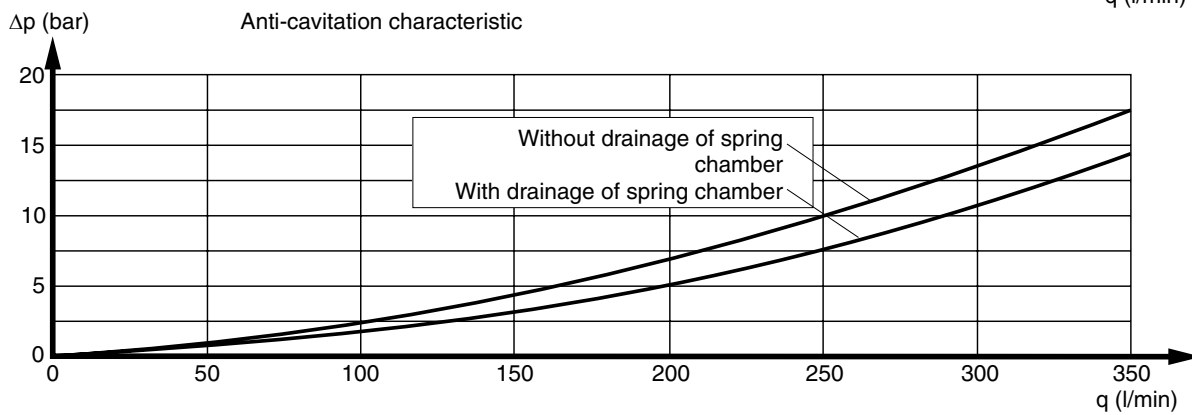
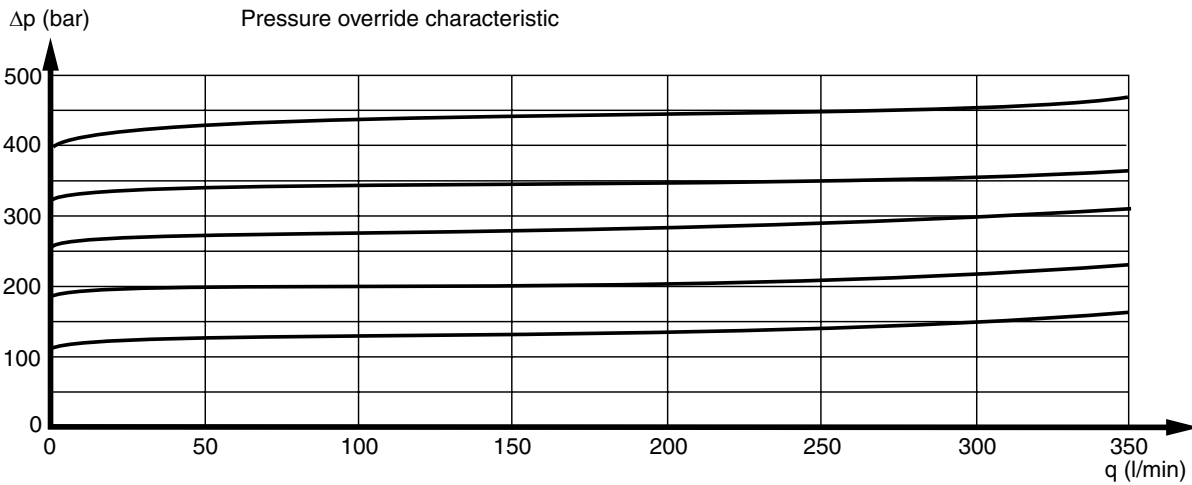
SW = spanner width
T = tightening torque

Diagram for PLC182 pressure relief valves



Cavity drawing, PLC182

Diagram for PLC280 pressure relief valve



Cavity drawing, PLC280

Ordering

PLC series

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

Pressure [bar]	PLC053	PLC082	PLC182	PLC280 with plug
40	—	9120029103	9120029250	—
50	393000K176	9120029104	9120029251	—
63	393000K177	9120029105	9120029252	—
80	393000K178	9120029106	9120029253	—
100	393000K179	9120029107	9120029254	—
125	393000K180	9120029108	9120029255	—
140	393000K181	9120029109	9120029256	—
160	393000K182	9120029110	9120029257	—
175	393000K183	9120029111	9120029258	—
190	393000K184	9120029112	9120029259	—
210	393000K185	9120029113	9120029260	—
230	393000K186	9120029114	9120029261	20006727
250	393000K187	9120029115	9120029262	20004981
280	393000K189	9120029116	9120029263	20007439
290	—	9120029149	—	—
300	393000K190	9120029117	9120029264	20005798
330	393000K191	9120029118	9120029265	—
350	393000K192	9120029119	9120029266	20000990
380	393000W018	9120029120	9120029267	20006115
400	—	9120029121	9120029268	—
420	393000U020	9120029122	9120029269	00153491
N*	393000K194	9120099686	—	—

* Anti-cavitation valve without pressure-relief function

PLC053 mounted in single housing

Ordered by using the ordering numbers in the table below.

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

PLC082 mounted in single housing

Ordered by using the ordering numbers in the table below.

Pressure [bar]	G1/2"	G3/4"
050	3766780	3766789
063	3769967	—
080	3770611	3768456
100	3768462	—
125	3766781	—
160	3766782	—
175	3766783	3768457
190	3766784	3766903
210	3766785	3766904
230	3766786	3766862
250	3767836	3768458
280	—	3768290

PLC082 mounted in double housing

Ordered by using the ordering numbers in the table below.

Pressure [bar]	G1/2"	G3/4"
050	3768981	—
125	3768928	—
140	3766767	3770004
160	3766769	3766777
175	3766770	—
190	3766771	—
210	3766772	—
230	3766773	3766900
250	3771159	3766901
280	—	3766873

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