PREFILL EXHAUST VALVES/ 30,000 LPM/ 315bar

Pre-fill valves are check valves with hydraulic (pilot) release function. They are also referred to as exhaust valves and are generally installed between a cylinder and oil reservoir in hydraulic presses and injection moulding machines where high speed operation is required. The use of these valves enables the manufacturer to use a smaller capacity pump and motor and at the same time achieve the expected cycle time.

During high speed forward stroke of cylinder, the pre-fill valve pulls a large amount of oil from the reservoir needed to fill the cylinder and the main pump-motor now sized optimally is used to achieve the required pressure. During pressurisation, the valve closes completely and prevents reverse oil flow. For the return stroke, the valve is opened by supplying a pilot pressure that opens the path back to reservoir and retract the cylinder. The decompression feature enables controlled pressure release.

Bemco Fluidtechnik (FLUIDIK) offers a comprehensive range of pre-fill valves to meet diverse application requirements as detailed below,

Model Code	Type	Sizes	Flow Capacity
FPV...	Sandwich Type	NG50...NG400	Upto 30,000 LPM
PVF...	Flange Mounting	NG63...NG80	Upto 750 LPM
PVT...	Tank Mounting	NG63...NG300	Upto 11,800 LPM

KEY FEATURES & BENEFITS

FLUIDIK offers one of the widest range of pre-fill exhaust valves in-terms of mounting interfaces and size range. Custom designs and high pressure versions with forged materials are also available based on application requirements.

COMMON APPLICATIONS

- Extrusion presses
- Industrial hydraulic presses (forging, stamping, deep drawing)
- Injection moulding and die-casting machines
- Heavy material handling and hoists

Refer the following pages for detailed product information and contact us today to discuss on your pre-fill exhaust valves requirements and discover how FLUIDIK valves can enhance your equipment performance.

PRE-FILL EXHAUST VALVE - FPV

Sandwich Type | Pilot Operated | NG50 - NG200*

Specification/ Technical Data

Maximum Pressure	315 bar
Maximum Flow	5,200 LPM
Max. Internal Leakage	0.3ml/min
Cracking Pressure	0.125 bar
Design	Sandwich
Min. Pilot Pressure	10 bar
Body Material	SG Iron
Media	Mineral Oil
Oil Temperature Range	+10 to 80°C
Oil Viscosity	ISO VG 46-100
Oil Cleanliness (ISO 4406)	20/18 /15
Orientation	Any
Weight (approx)	3.5 - 85 Kg

Note: Refer PVF for Flange mounted version or PVT for Tank mounted version
* Consult factory for NG 300 and NG400 sizes

Ordering Information

Basic Code	Sandwich	FPV
Size	NG 050…200	50…200
Decomp.	Standard	No code
Cracking Pr.	0.125 bar	No code
Seal MOC	Viton	No code
Version		2x



Pre-fill valves are check valves with hydraulic (pilot) release function. They are also referred to as exhaust valves and are generally installed between a cylinder and oil reservoir in hydraulic presses and injection moulding machines where high speed operation is required. The use of these valves enables the manufacturer to use a smaller capacity pump and motor and at the same time achieve the expected cycle time of the equipment.

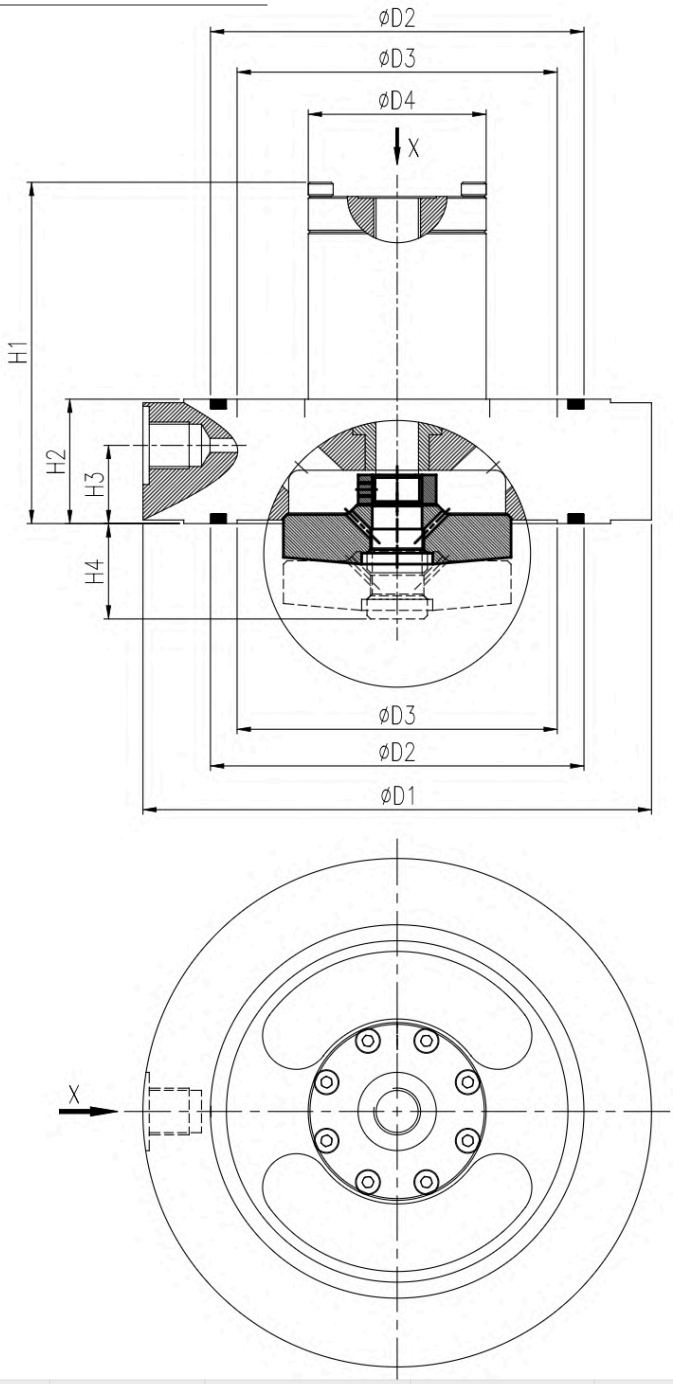
During the high speed forward stroke of cylinder, the pre-fill valves pulls a large amount of oil from the reservoir needed to fill the cylinder and the main pump-motor now sized optimally is used to achieve the required pressure. During pressurisation, the valve closes completely and prevents reverse oil flow. For the return stroke, the valve is opened by supplying a pilot pressure that opens the path back to reservoir and retract the cylinder. The decompression feature is built-in to the valve to enable controlled pressure release.

FPV valves have a unique sandwich design that enables the valve to be mounted between sandwich flanges and comes with decompression feature as standard across the range up to NG 200.

Nominal Size	Nominal Flow lpm at 0.3bar ΔP	Max. Flow lpm at 0.4bar ΔP	Weight Kg
NG 050	200	400	3.5
NG 063	250	450	4
NG 080	400	750	7
NG 100	600	1400	12
NG 125	1000	2200	20
NG 160	1500	3200	40
NG 200	2500	5200	85

For optimal performance flow at 0.3bar ΔP to be considered

Size NG 50 - NG 200

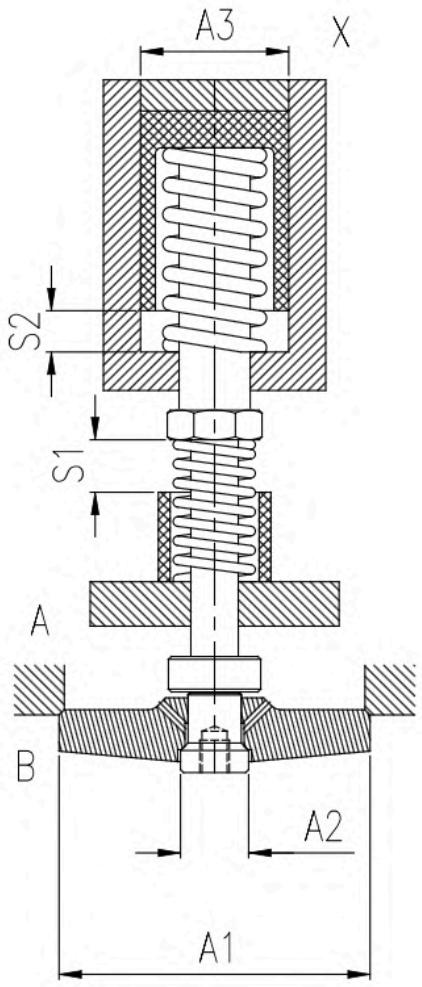


The unused pilot port X should be plugged.

Size	FPV 50	FPV 63	FPV 80	FPV 100	FPV 125	FPV 160	FPV 200
X	1/4"BSP	1/4"BSP	1/4"BSP	3/8"BSP	3/8"BSP	1/2" BSP	3/4" BSP
Ø D1	135	143	169	212	247	310	420
Ø D2	105	105	135	160	190	242	326
Ø D3	90	90	118	130	170	210	295
Ø D4	50	50	56	72	88	120	148
H1 (Max)	100	100	108	148	178	248	300
H2	35	35	42	53	60	80	110
H3	22	22	27	36	42	55	75
H4	27	27	29	38	43	60	87
Rectangular Ring	105x98x3.2	105x98x3.2	135x124.5x4.75	160x150x4.75	190x179x4.75	242x225x6	326x308x7.25

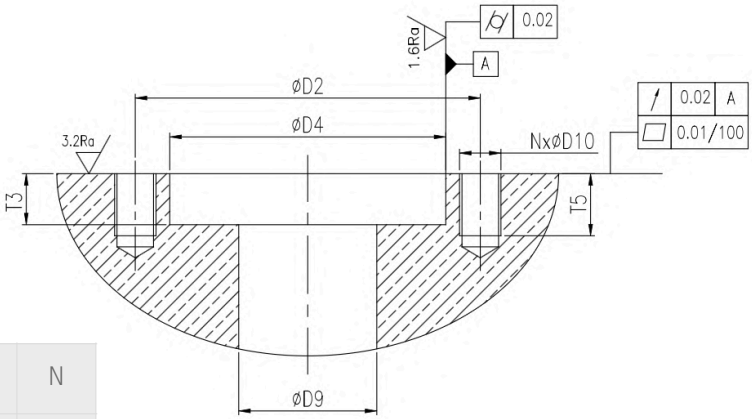
All dimensions in mm

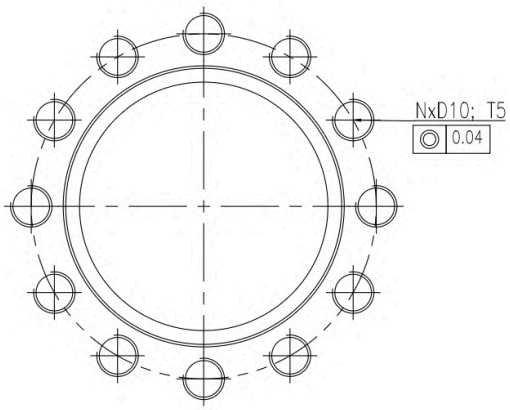
Poppet Design



Size	Area A1 cm²	Area A2 cm²	Area A3 cm²	S1 mm	S2 mm	Opening Pilot Vol. cm³	Pilot Area Ratio
FPV 50	32.1	2.26	9.62	13	10	9.6	3.8
FPV 63	32.1	2.26	9.62	13	10	9.6	3.8
FPV 80	59.4	3.14	12.56	15	10	12.5	4.1
FPV 100	86.5	4.00	19.50	22	14	27.5	4.9
FPV 125	126.5	5.00	33.00	29	20	66.5	6.7
FPV 160	208.5	10.00	63.50	30	25	160.0	6.3
FPV 200	346.0	18.00	95.00	53	50	475.0	5.2

Interface Dimension on Cylinder



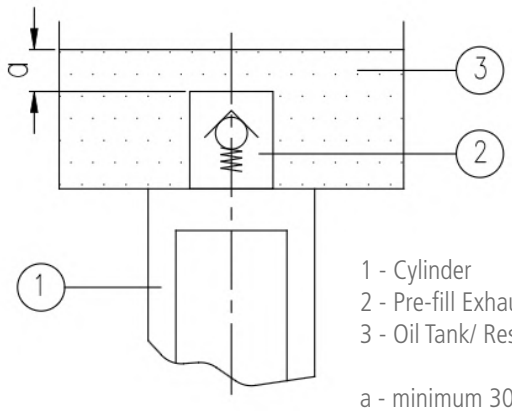


Size	Ø D2	Ø D4 H7	Ø D9 Tol -2mm	Ø D10	T3 Min	T5	N
FPV 50	156	90	60	M16	42	30	10
FPV 63	162	90	60	M16	42	30	10
FPV 80	192	118	82	M20	45	35	10
FPV 100	240	130	100	M24	62	45	12
FPV 125	275	170	122	M24	75	45	14
FPV 160	344	210	158	M30	95	55	16
FPV 200	460	295	205	M36	145	65	16

Spares List

Seal Kit NG050	SSVFPV0502x
Seal Kit NG063	SSVFPV0632x
Seal Kit NG080	SSVFPV0802x
Seal Kit NG100	SSVFPV1002x
Seal Kit NG125	SSVFPV1252x
Seal Kit NG160	SSVFPV1602x
Seal Kit NG200	SSVFPV2002x

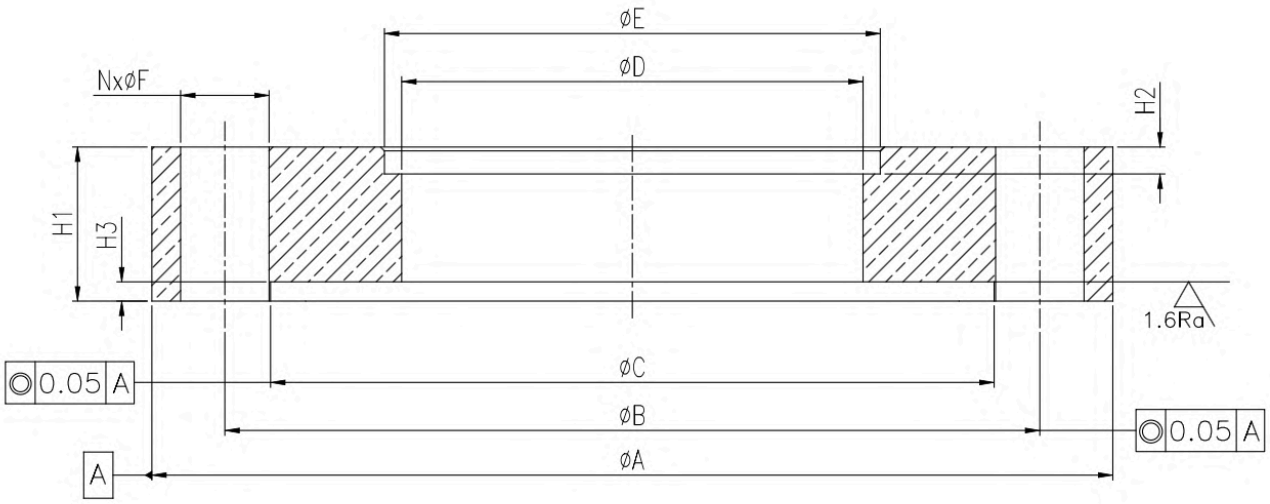
Installation Guidelines



1 - Cylinder
2 - Pre-fill Exhaust Valve (FPV)
3 - Oil Tank/ Reservoir

a - minimum 300mm with extended cylinder
b - maximum 1000mm with retracted cylinder

Suction Flange Dimension (Not Supplied with Valve)



Valve Size	ø A	ø B	ø C	ø D	ø E	ø F	H1	H2	H3	N	Mounting Bolt	Tightening Torque
FPV 50	185	156	135.5	86	89	18	30	5	4	10	M16 x 90L	210 Nm
FPV 63	190	162	143.2	86	89	18	30	5	4	10	M16 x 90L	210 Nm
FPV 80	225	192	169.2	108	115	22	35	7	5	10	M20 x 110L	400 Nm
FPV 100	280	240	212.2	140	169	26	40	7	5	12	M24 x 130L	660 Nm
FPV 125	315	275	247.2	160	169	26	45	7	5	14	M24 x 140L	660 Nm
FPV 160	395	344	310.2	210	220	32	60	8	5	16	M30 x 180L	1400 Nm
FPV 200	520	460	420.2	300	325	38	70	10	5	16	M36 x 240L	2300 Nm

Suction Flanges are not part of supply scope
Do not use Spring washers or plain washers
Use hardened washers (if required)
Use Gr. 12.9 mounting bolts

All dimensions in mm

BEMCO FLUIDTECHNIK LLP, Khanapur Road, Udyambag, Belgaum - 590 008 KA IN +91 831 4263001 info@fluidik.co

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PRE-FILL EXHAUST VALVE - PVF

Flange Mounted | Pilot Operated | NG63 - NG80

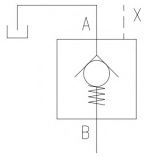
Specification/ Technical Data

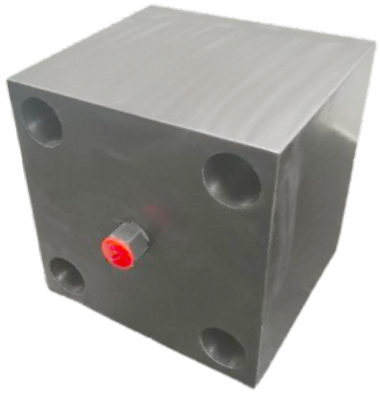
Maximum Pressure	315 bar
Maximum Flow	750 LPM
Max. Internal Leakage	0.3 ml/min
Cracking Pressure	0.125 bar
Design	Flange Mounted
Decompression	Standard
Material	Carbon Steel
Media	Mineral Oil
Oil Temperature Range	+10 to 80°C
Oil Viscosity	ISO VG 46-100
Oil Cleanliness (ISO 4406)	20/18 /15
Orientation	Any
Weight	30 - 35 Kg

Note: Refer PVT for tank mounted version or FPV for sandwich version

Ordering Information

Basic Code	Flange mounted	PVF
Size/ NG	63…80	63…80
Decomp.	Standard	No code
Cracking Pr.	0.125bar	No code
Seal Material	Viton	No code
Version		1x





Prefill valves are check valves with hydraulic (pilot) release function. They are also referred to as exhaust valves and are generally installed between a cylinder and oil reservoir in hydraulic presses and injection moulding machines where high speed operation is required. The use of these valves enables the manufacturer to use a smaller capacity pump and motor and at the same time achieve the expected cycle time of the equipment.

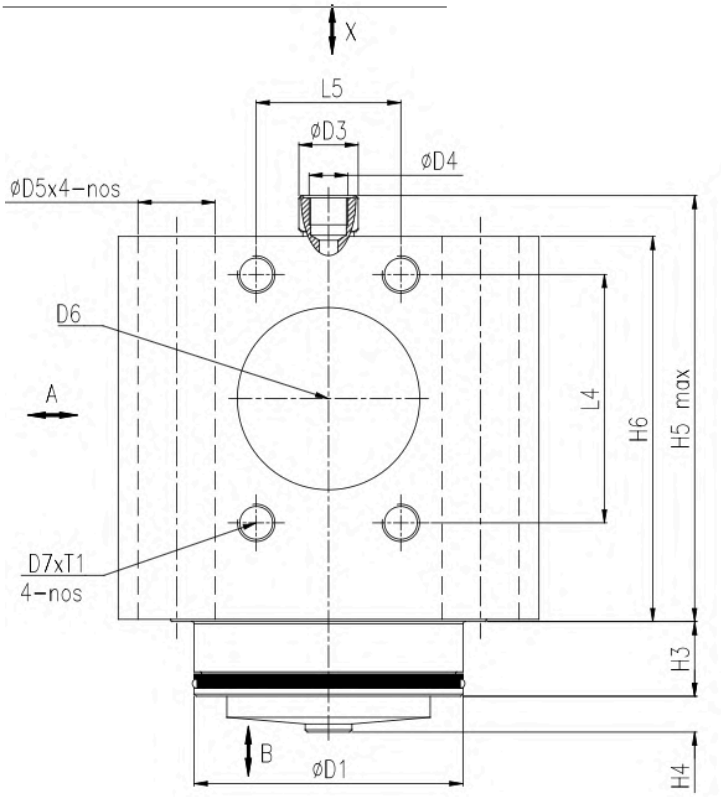
During the high speed forward stroke of cylinder, the pre-fill valves draws a large amount of oil from the reservoir needed to fill the cylinder and the main pump-motor now sized optimally is used to achieve the required pressure. During pressurisation, the valve closes completely and prevents reverse oil flow. For the return stroke, the valve is opened by supplying a pilot pressure that opens the path back to reservoir and retract the cylinder. The decompression feature is built-in to the valve to enable controlled pressure release.

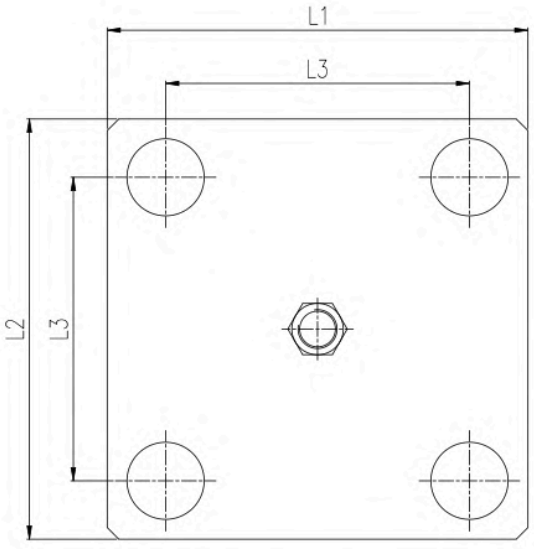
PVF valves have a flange mount design that enables the valve to be mounted between tank and cylinder and comes with decompression feature as standard.

Nominal Size	Nominal Flow lpm at 0.3bar ΔP	Max. Flow lpm at 0.4bar ΔP	Pilot Area Ratio k	Weight Kg
NG 63	250	450	4.2	30
NG 80	400	750	4.0	35

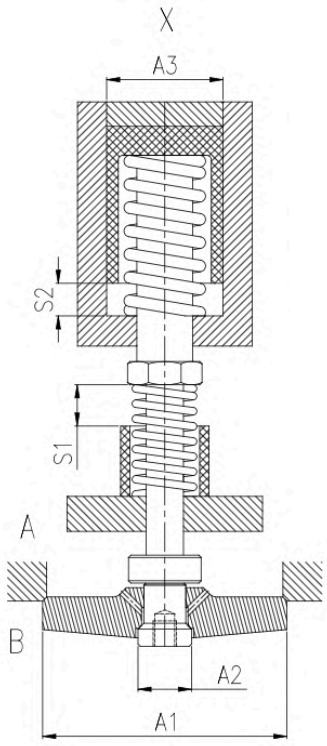
For optimal performance flow at 0.3bar ΔP to be considered

Size NG 63 - NG 80





Poppet Design



Size	A1	A2	A3	S1	S2	Pilot Oil Vol.
NG 63	32.2	2.26	9.62	13	10	9.6 cm^3
NG 80	59.4	3.14	12.56	15	10	12.5 cm^3

Pilot Ratio (k) = A3/ A2

Area in cm^2

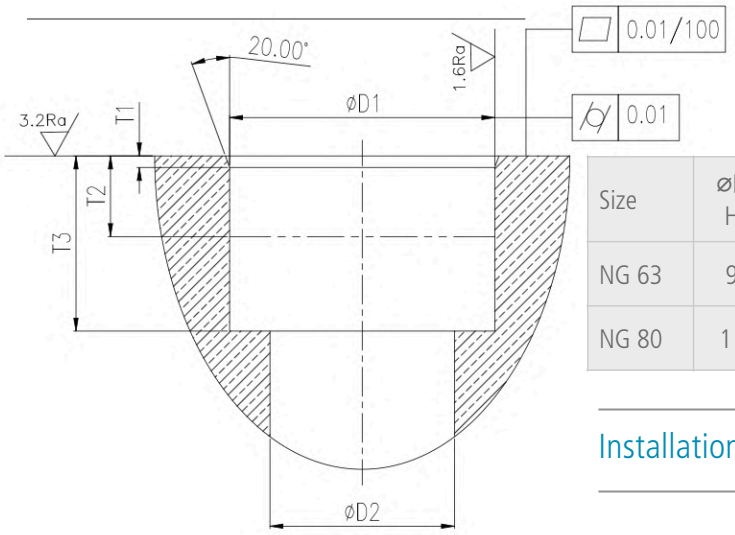
Size	øD1	øD3	øD4	øD5	øD6	øD7	H3	H4	H5	H6
NG 63	95	A/F22	G 3/8"	26	78	M16	30	14	200	146
NG 80	115	A/F22	G 3/8"	33	78	M16	32	16	200	165

Size	L1	L2	L3	L4	L5	T1	Mounting Bolt	Torque N-m
NG 63	145	160	105	106.4	61.9	25	M24 x 185L	880
NG 80	180	180	130	106.4	61.9	25	M30 x 210L	1800

Use Bolts of Gr. 12.9

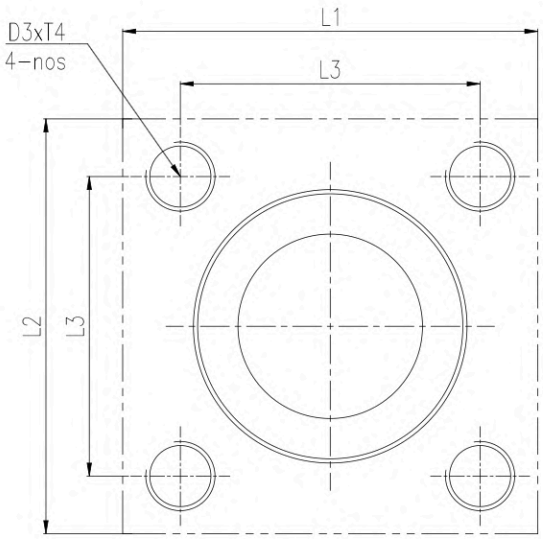
All dimensions in mm

Interface Dimensions NG 63 - NG 80



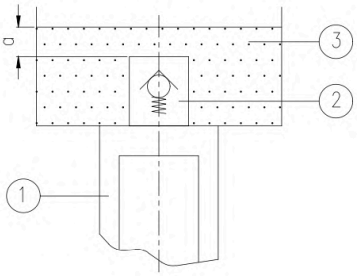
Size	øD1 H7	øD2 (max)	øD3	T1	T2	T3 (min)	T4	L1	L2	L3
NG 63	95	60	M24	5	35	64	40	145	145	105
NG 80	115	80	M30	5	35	76	47	180	180	130

All dimensions in mm

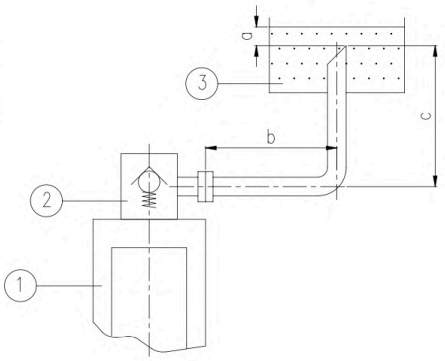


Installation Guidelines

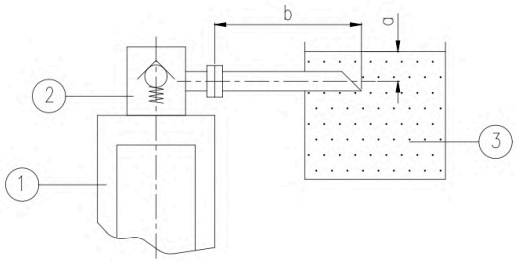
Case of application–1



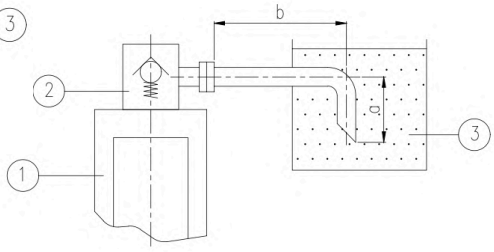
Case of application–2



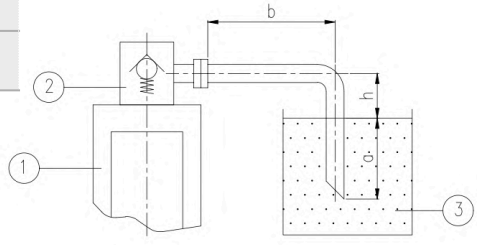
Case of application–3



Case of application–4



Case of application–5



Notes :
1 – Cylinder
2 – Prefill Exhaust Valve
3 – Reservoir

a – Min. 300mm with extended cylinder.
Max. 1000mm with retracted cylinder.
b – upto 1000mm with the specified max. flows
c – h ≤ 500mm
h – 300mm ≤ h ≤ 500mm

Spares List

Seal Kit	SSVPVTF0631x
Seal Kit	SSVPVTF0801x

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PRE-FILL EXHAUST VALVE - PVT

Tank Mounted | Pilot Operated | NG63 - NG300

Specification/ Technical Data

Maximum Pressure	315 bar
Maximum Flow	11,800 LPM
Max. Internal Leakage	0.3ml/min
Cracking Pressure	0.125 bar
Min. Pilot Pressure	10 bar
Design	Tank Mounted
Decompression	Standard
Material	Carbon Steel
Media	Mineral Oil
Oil Temperature Range	+10 to 80°C
Oil Viscosity	ISO VG 46-100
Oil Cleanliness (ISO 4406)	20/18 /15
Orientation	Any
Weight	10 - 400Kg

Note: Refer PVF for Flange mounted version or FPV for sandwich version
Consult factory for NG 400 & NG 500 valves

Ordering Information

Basic Code	Tank mounted	PVT
Size/ NG	63…300	63…300
Decomp.	Standard	No code
Cracking Pr.	0.125bar	No code
Seal Material	Viton	No code
Version		1x



Pre-fill valves are check valves with hydraulic (pilot) release function. They are also referred to as exhaust valves and are generally installed between a cylinder and oil reservoir in hydraulic presses and injection moulding machines where high speed operation is required. The use of these valves enables the manufacturer to use a smaller capacity pump and motor and at the same time achieve the expected cycle time of the equipment.

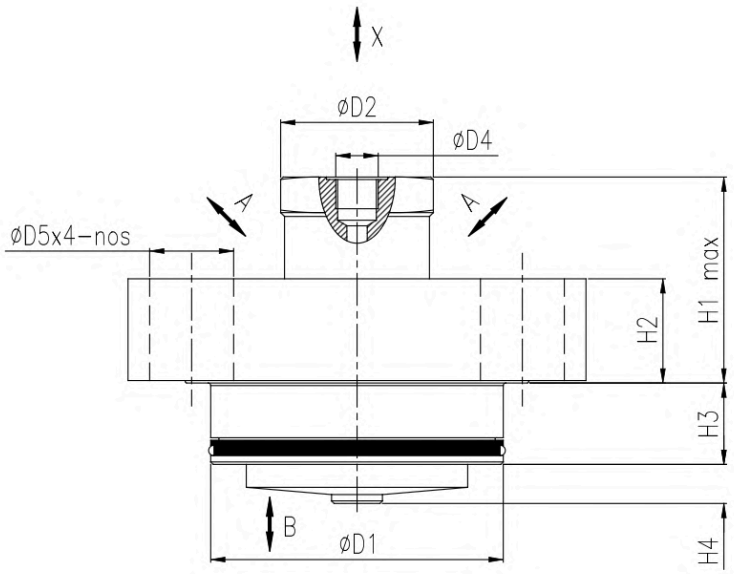
During the high speed forward stroke of cylinder, the pre-fill valves draws a large amount of oil from the reservoir needed to fill the cylinder and the main pump-motor now sized optimally is used to achieve the required pressure. During pressurisation, the valve closes completely and prevents reverse oil flow. For the return stroke, the valve is opened by supplying a pilot pressure that opens the path back to reservoir and retract the cylinder. The decompression feature is built-in to the valve to enable controlled pressure release.

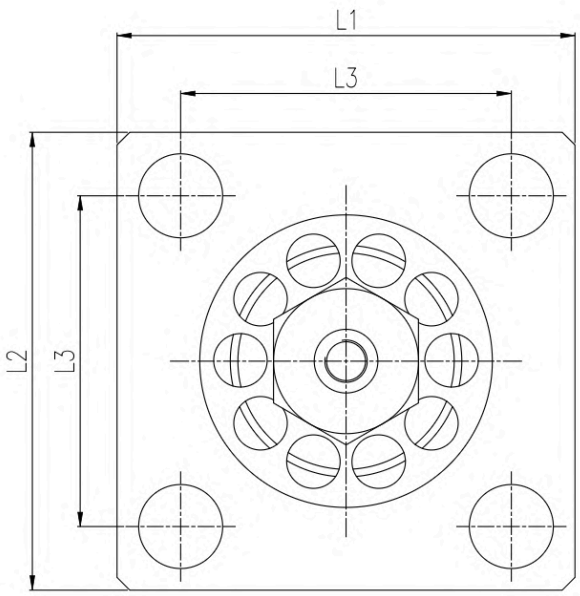
PVT valves have a unique tank mount design that enables the valve to be mounted directly on the cylinder and come with decompression feature as standard.

Nominal Size	Nominal Flow lpm at 0.3bar ΔP	Max. Flow lpm at 0.4bar ΔP	Pilot Area Ratio k	Weight Kg
NG 63	250	450	4.2	10
NG 80	400	750	4.0	15
NG 100	600	1400	4.9	18
NG 125	1000	2200	6.7	20
NG 150	1500	3200	6.3	40
NG 200	2500	5200	5.2	85
NG 300	5800	11800	6.4	~400

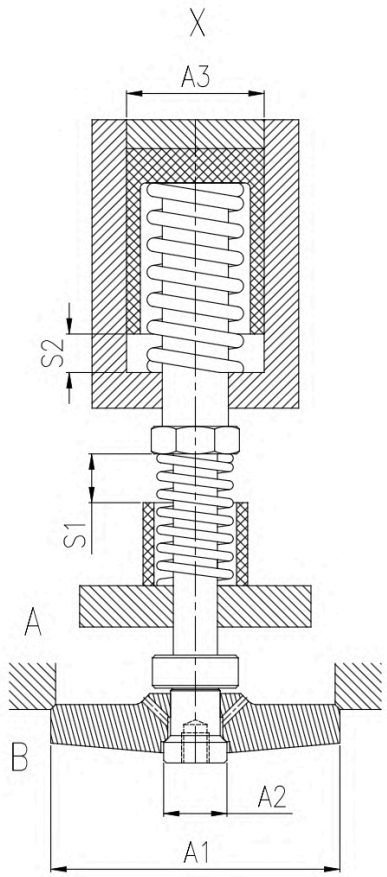
For optimal performance flow at 0.3bar ΔP to be considered

Size NG 63 - NG 80





Poppet Design



Size	A1	A2	A3	S1	S2	Pilot Oil Vol.
NG 63	32.2	2.26	9.62	13	10	9.6 cm^3
NG 80	59.4	3.14	12.56	15	10	12.5 cm^3

Pilot Ratio (k) = A3/ A2

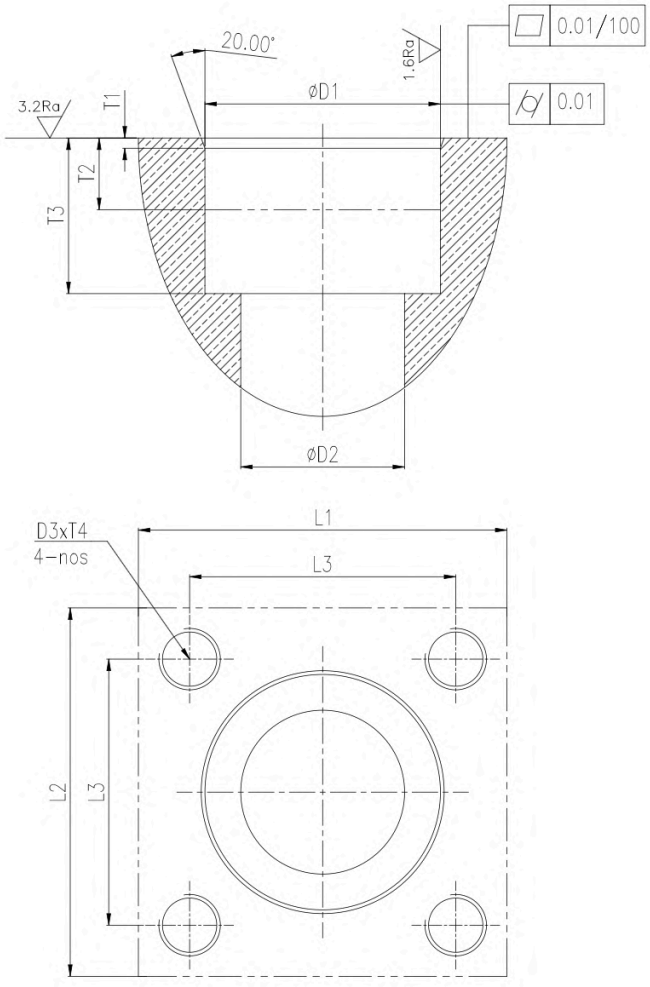
Area in cm^2

Size	øD1	øD2	øD4	øD5	H1	H2	H3	H4	L1	L2	L3	Mounting Bolt	Torque N-m
NG 63	95	A/F 50	G 3/8"	26	100	31	30	14	145	145	105	M24 x 70L	880
NG 80	115	A/F 60	G 3/8"	33	100	41	32	16	180	180	130	M30 x 85L	1800

All dimensions in mm

Use Bolt of Gr. 12.9

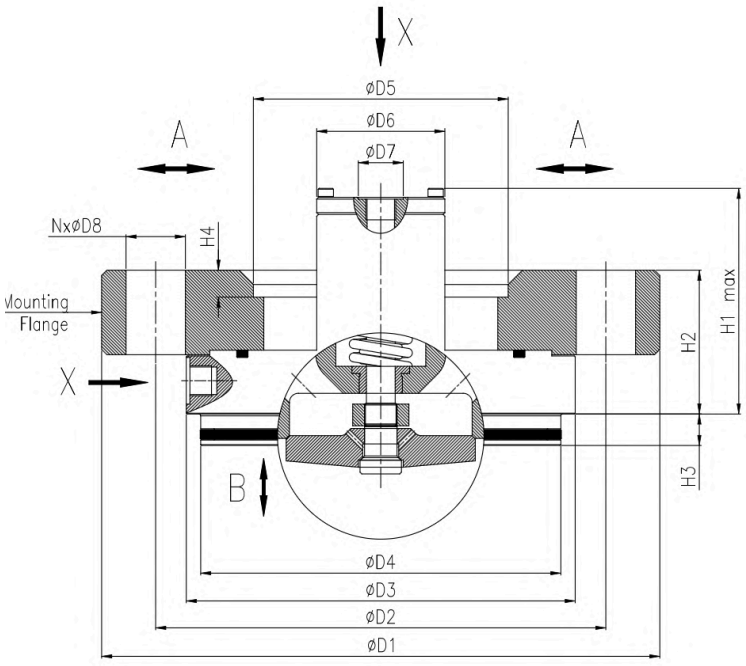
Interface Dimensions NG 63 - 80

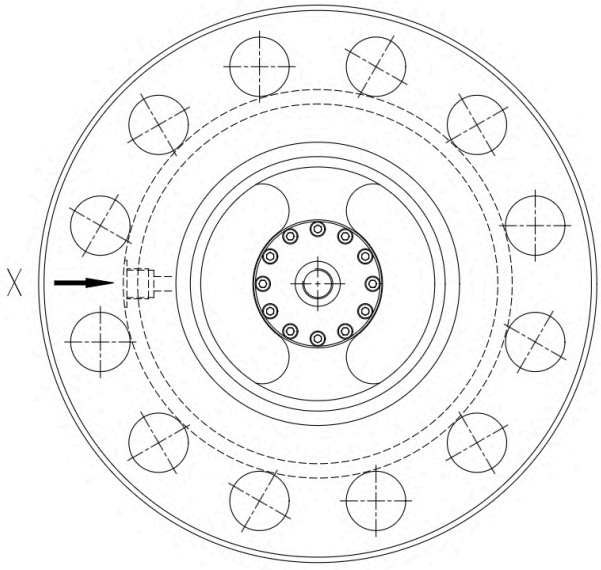


Size	øD1	øD2 (max)	øD3	T1	T2	T3 (min)	T4	L1	L2	L3
NG 63	95	60	M24	5	35	64	40	145	145	105
NG 80	115	80	M30	5	35	76	47	180	180	130

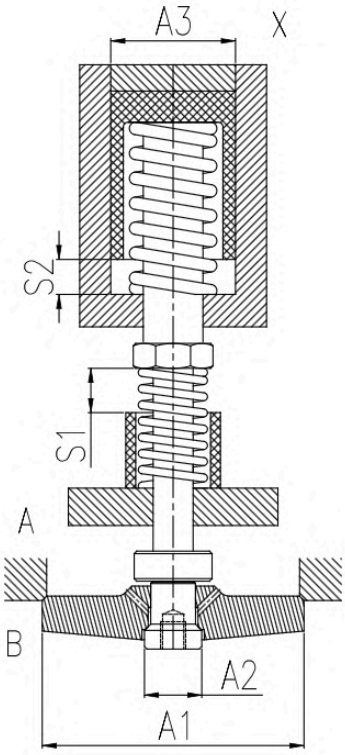
All dimensions in mm

Size NG 100 - NG 200





Poppet Design



Size	A1	A2	A3	S1	S2	Pilot Oil Vol.
NG 100	86.5	4.0	19.5	22	14	27.5 cm³
NG 125	126.5	5.0	33.0	29	20	66.5 cm³
NG 150	208.5	10.0	63.5	30	25	160 cm³
NG 200	346.0	18.0	95.0	53	50	475 cm³

Pilot Ratio (k) = A3/ A2

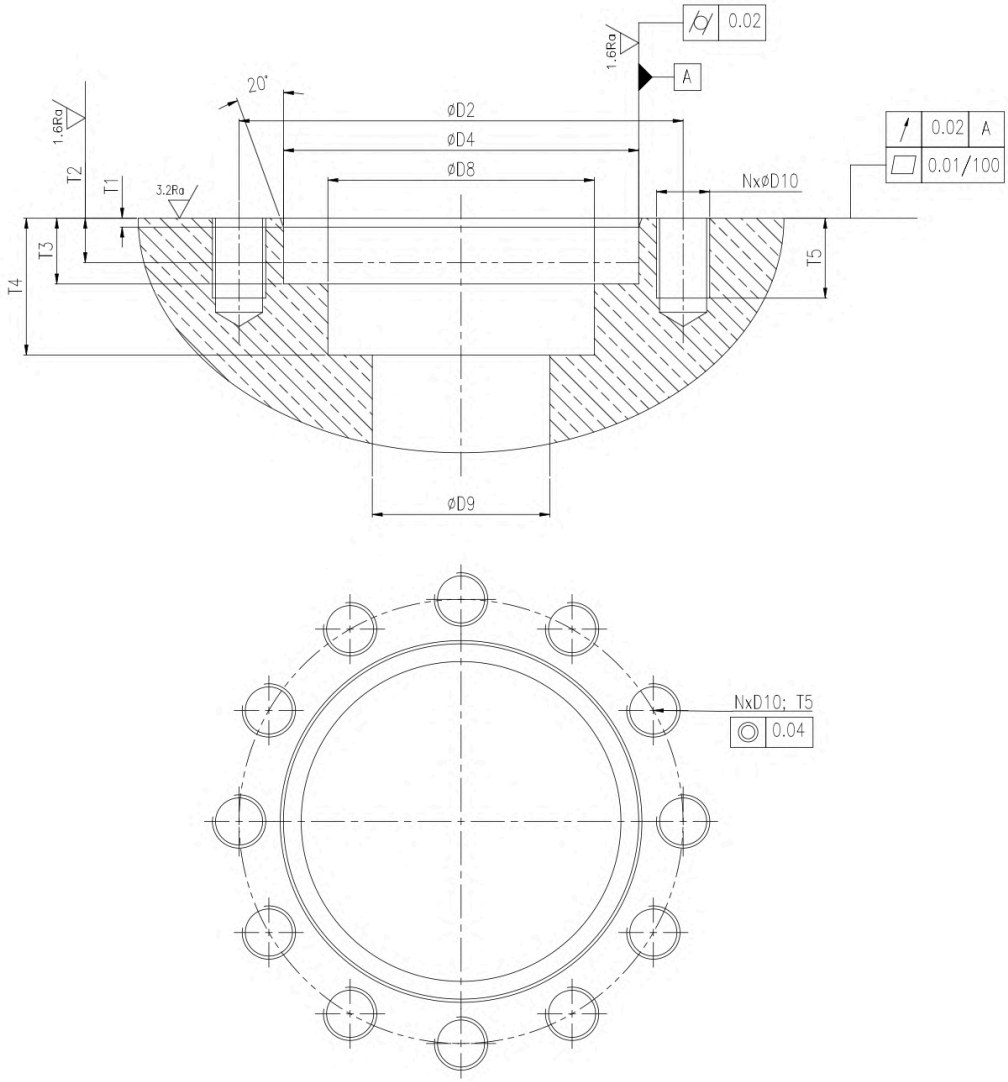
Area in cm²

Size	øD1	øD2	øD3	øD4	øD5	øD6	øD7	øD8	H1	H2	H3	H4	N	Mounting	Torque
NG 100	310	250	216	200	141.5	71.5	G3/8"	33	150	80	17.5	15	12	M30x125	650 Nm
NG 125	380	310	263	250	168.5	88	G3/8"	40	175	90	20	15	12	M36x140	1250 Nm
NG 150	420	350	310	290	219	119	G1/2"	40	225	100	30	15	15	M36x150	1250 Nm
NG 200	530	445	400	380	324	148	G3/4"	46	275	120	35	15	18	M42x180	2000 Nm

All dimensions in mm

Use Bolt of Gr. 12.9

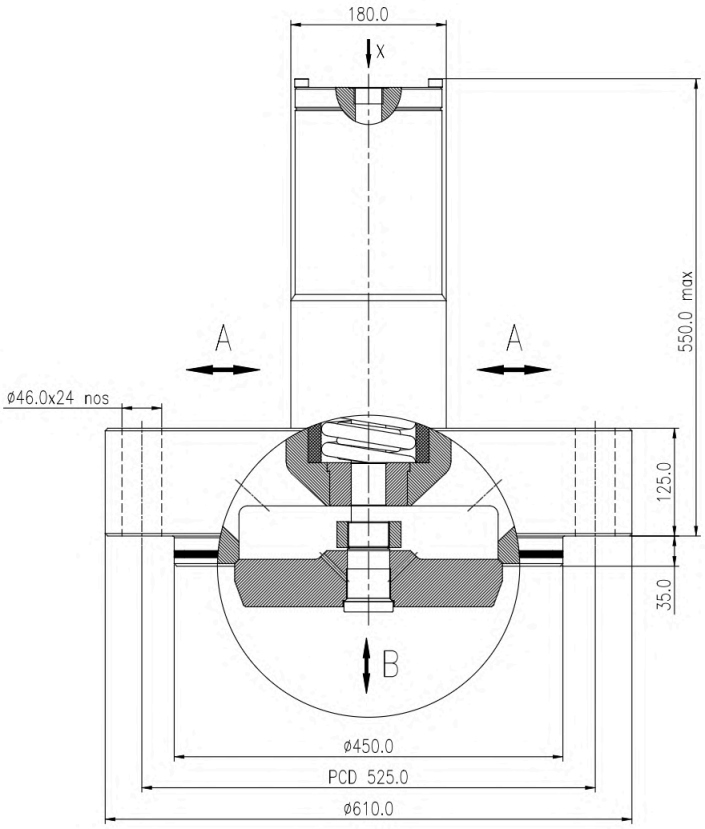
Interface Dimensions NG 100 - NG 200

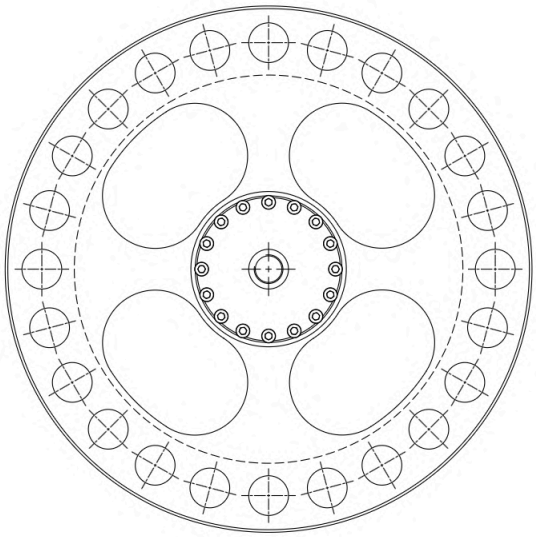


Size	øD2	øD4 H7	øD8 Max	øD9 Tol. -2mm	øD10	T1	T2	T3 (min)	T4	T5	N
NG 100	250	200	150	100	M30	5	20	37	77	50	12
NG 125	310	250	190	122	M36	5	20	37	100	55	12
NG 150	350	290	240	158	M36	5	30	37	115	55	15
NG 200	445	380	300	205	M42	8	30	37	176	65	18

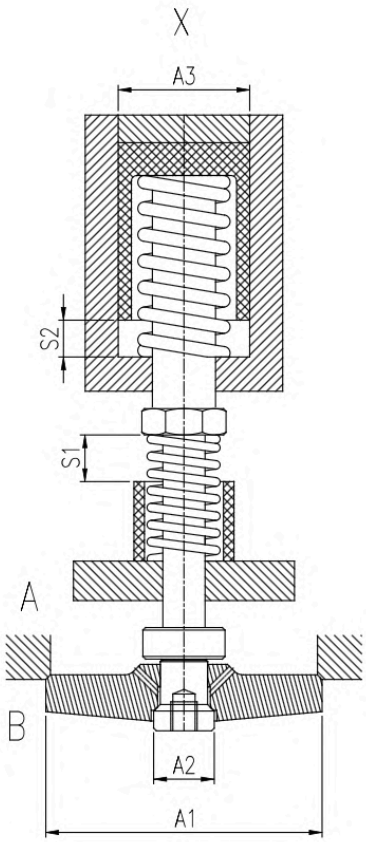
All dimensions in mm

Size NG 300





Poppet Design



Size	A1	A2	A3	S1	S2	Pilot Oil Vol.
NG 300	755	24.0	154	78	70	1080 cm^3

Pilot Ratio (k) = A3/ A2

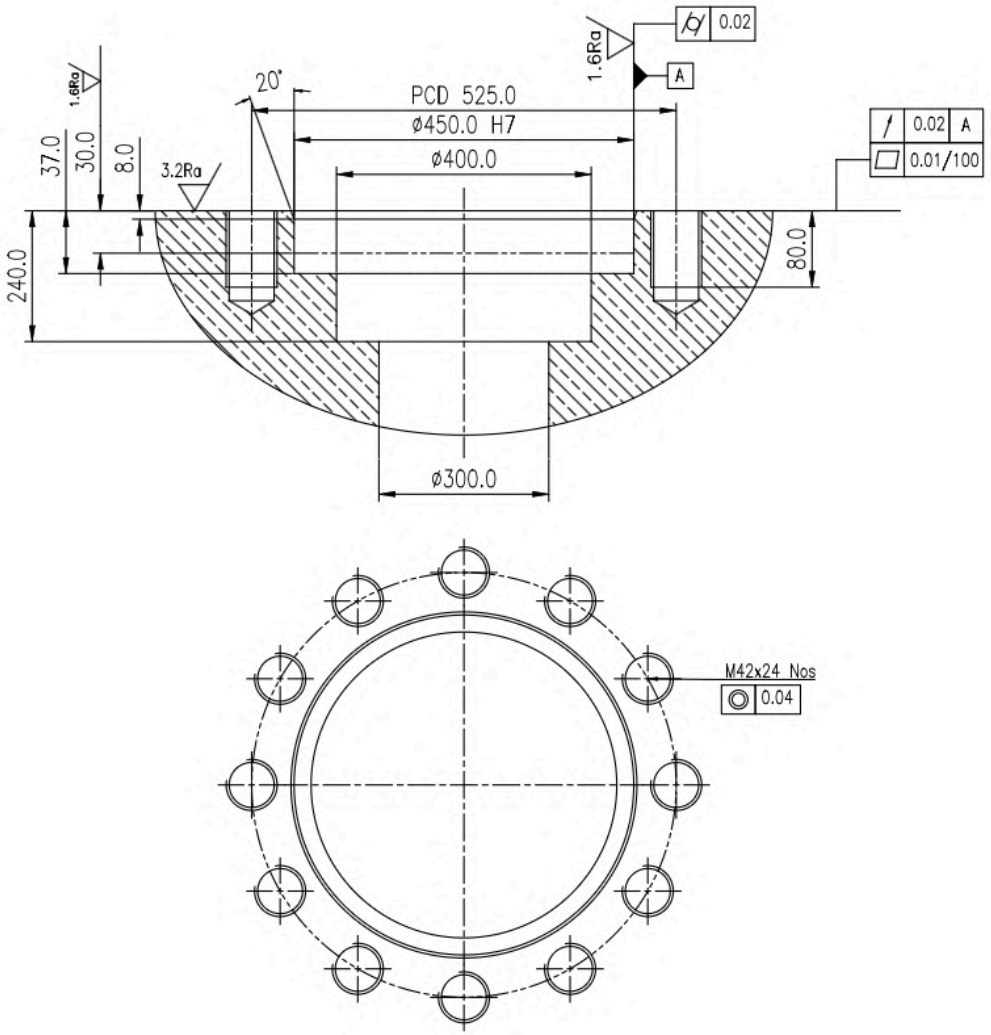
Area in cm^2

Size	X	Mounting Bolt	Torque N-m
NG 300	1" BSP	M46 x 200L	1750

All dimensions in mm

Use Bolt of Gr. 12.9

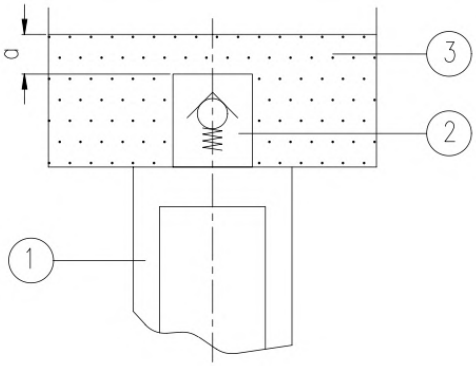
Interface Dimensions NG 300



Spares List

Seal Kit PVT63	SSVPVT0631x
Seal Kit PVT80	SSVPVT0801x
Seal Kit PVT100	SSVPVT1001x
Seal Kit PVT125	SSVPVT1251x
Seal Kit PVT150	SSVPVT1501x
Seal Kit PVT200	SSVPVT2001x
Seal Kit PVT300	SSVPVT3001x

Installation Guidelines



1 - Cylinder
2 - Pre-fill - Exhaust Valve PVT
3 - Reservoir/ Oil Tank

a: min. 300mm with cylinder extended
max.1000mm with cylinder retracted

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