WATER AND SPECIAL HYDRAULICS

System solutions for Industry

TABLE OF CONTENTS

Stainless Steel Cartridge valves according to DIN24342

The valves are designed for use with water, water and oil emulsions, oil and gases. Their robust construction and compact design provide long life, ease of maintenance, and high performance.

These slip in cartridge type valves can be combined in many different ways to satisfy the requirements of a wide variety of applications. The sealed poppet design provides drop tight, leak free shut off.

Product range:

Cartridges for directional functions

Soft seated ND10 to 100 for water, oil and pneumatic applications up to 350bar

Soft seated ND10 to 250 for water, descaling water and oil up to 350bar

Soft seated ND10 to 40 for water, oil and pneumatic applications up to 800bar

Hard seated ND 16 to 32 water and oil up to 350bar

Cartridges for pressure relief functions

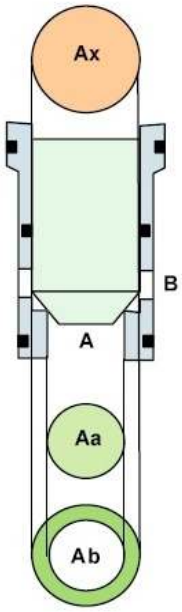
Hard seated ND 16 to 32 for water and oil up to 350bar

Cartridges for pressure reducing functions

Hard seated ND 16 to 32 for water and oil up to 350bar

Descriptions and Diagrams

Functional description



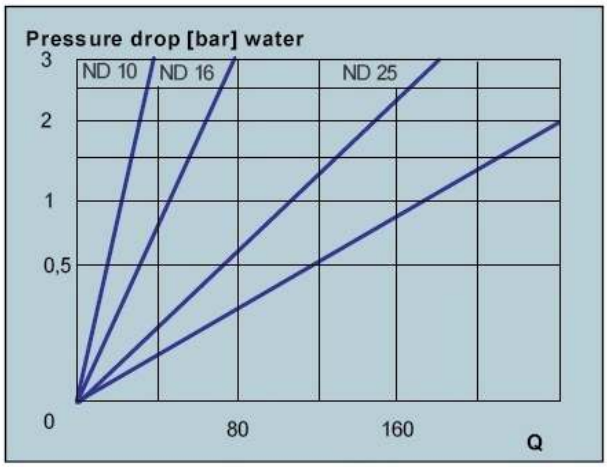
These valves are designed for use with special fluids:

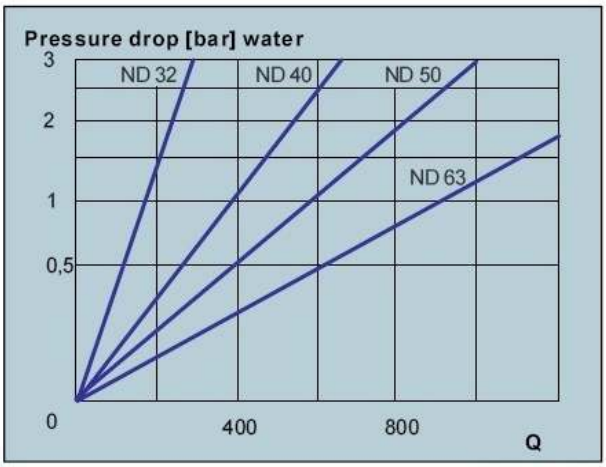
No metal to metal contact at the sliding surfaces.
– the use of non-lubricating mediums is possible.
All pressurized areas are separated by soft seals
–for thin fluids and gases under high pressure.
Special geometry and non-corroding material
– for water and descaling applications.

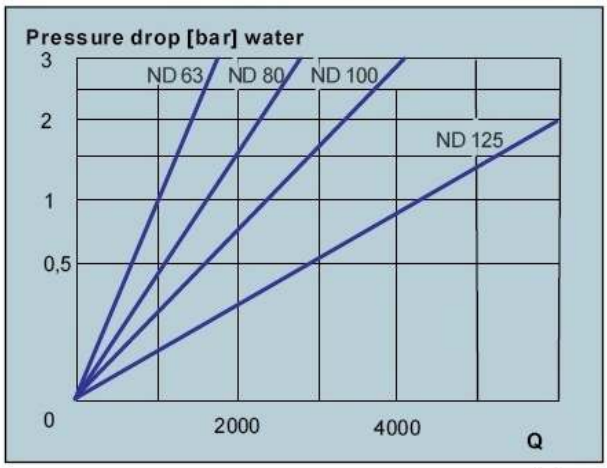
An important dimension for the function of cartridge valves is the surface ratio of the seat area Aa and the annulus area Ab to the pilot area Px. By using a surface ratio of 1:1 the valve can be operated only in one direction. By using a surface ratio of 1:1.6 or 1:2 the valve can be operated in both directions, but cannot be used for pressure functions because of the pressure ratio which creates pre-opening of the pilot valve.

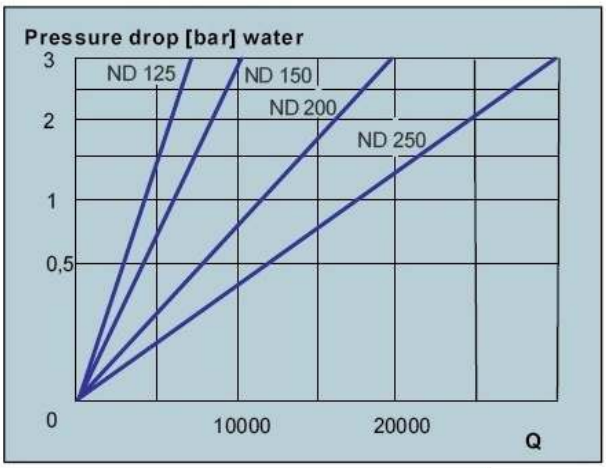
Soft-seated valves are suitable for use in shut-off and directional functions. These valves are absolutely leak-free even for long-term operation in gas or high-pressure circuits.
Hard seated valves are suitable for use in pressure control functions. Because of their robust seats they can be used also in high pressure water hydraulic circuits.

Diagrams









Cartridge Program

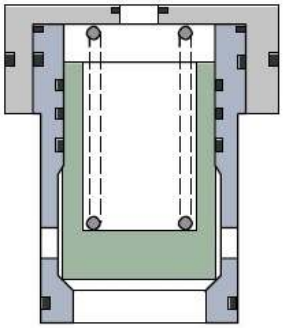
Cartridge Valve Type 1

For directional, pressure and flow-control applications
Dimension according to DIN 24342
Material: stainless steel
Hard seated
Area ratio 1:1 / 45°

Example / Order code

GEO- **025 - 00 - 0.0 - 1D / 0**

Nominal size 016, 025, 032



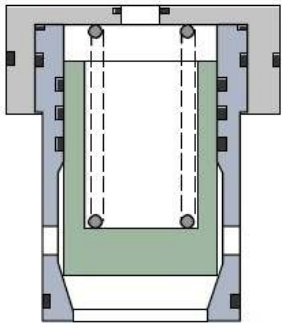
Cartridge Valve Type 2

For pressure-control applications
Dimension according to DIN 24342
Material: stainless steel
Hard seated
Area ratio 1:1 / 15°

Example / Order code

GEO- **025 - 00 - 0.0 - 2D / 0**

Nominal. size 016, 025, 032



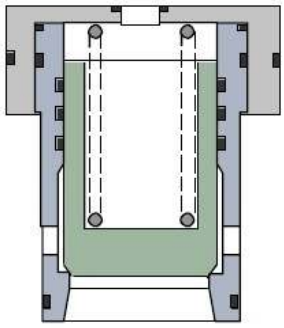
Cartridge Valve Type 3

For directional and shut off applications
Dimension according to DIN 24342
Material: stainless steel
Hard seated
Area ratio 1:1.6 / 45°

Example / Order code

GEO- **025 - 00 - 0.0 - 3D / 0**

Nominal. size 016, 025, 032



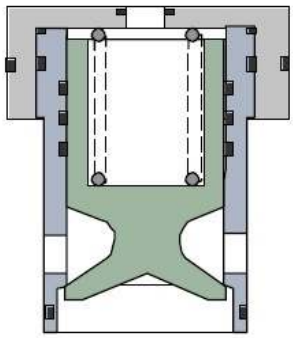
Cartridge Valve Type 4

For pressure reducing, check and flow control functions
Dimensions according to DIN 24342
Material: stainless steel
Hard seated
Area ratio 1:1

Example / Order code

GEO- **025 - 00 - 0.0 - 4D / 0**

Nomn. size 016, 025, 032



Cartridge Program

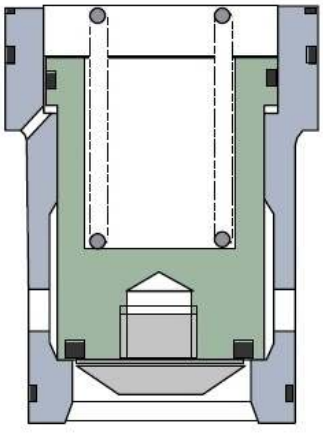
Cartridge Valve Type 6

For directional and shut off applications
Dimensions according to DIN 24342
Material: stainless steel, soft seated, metal support area ratio 1:2, Type /Z 1:1.6

Example / Order code

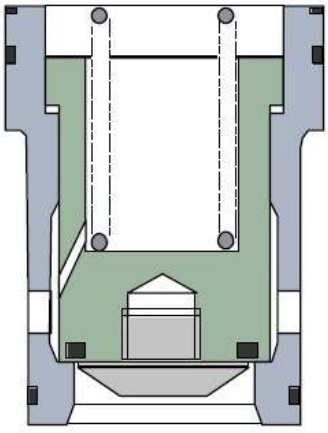
GEO– **125 – 00 - 5.5 - 6D / Z**

- / S =Standard design
  / R =Non return valve
  / A =Active valve
  / Z =Descaling valve
  / H =High pressure valve
- Nozzle dimension in mm only type /Z
- Size 010, 016, 025, 032, 040, 050, 063, 080,100, 125, 150, 200, 250mm



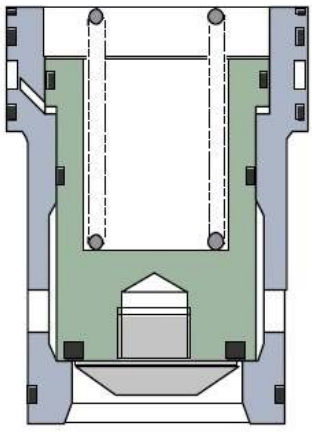
Standard design
Type 6D / S

350bar - ND 010 to 100
for water, oil and gas.
For descaling applications up to size ND 250



Non return valve
Type 6D / R

Up to 350bar - ND 010, 016, 025
for water, descaling water, oil and gas.



Active valve
Type 6D / A

Up to 350 bar - ND 16 to 100
for water, oil and gas

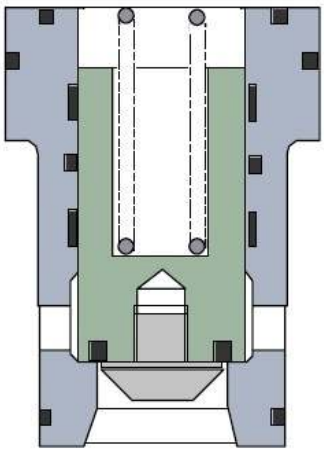
Cartridge Program

High pressure valve Type 6D / H

Size ND 016 to 040 for water and oil.

These valves are designed for pressures up to 800bar. Pressurized opening and closing is possible with the following pressure ratings:
Oil up to 800bar Water with more than 5% oil up to 600bar Water up to 500 bar
Compressed air up to 800bar (nozzle in serial necessary)

Because of the stronger wall thickness the flow rate is reduced. For calculation please use the following flow curves:
ND 16 = flow curve ND 10
ND 25 = flow curve ND 16
ND 32 = flow curve ND 25
ND 40 = flow curve ND 32



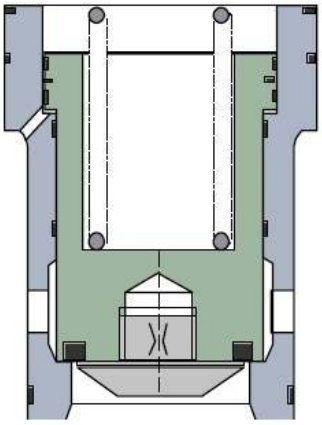
Descaling valve Type 6D / Z

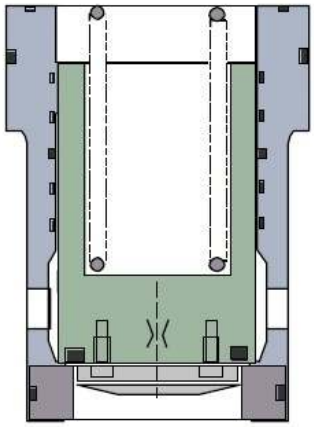
Up to 350bar - ND 063 to 250

ND 62 – 100mm area ratio 1:2

ND125 – 250mm area ratio 1:1,6

for water, descaling water and oil





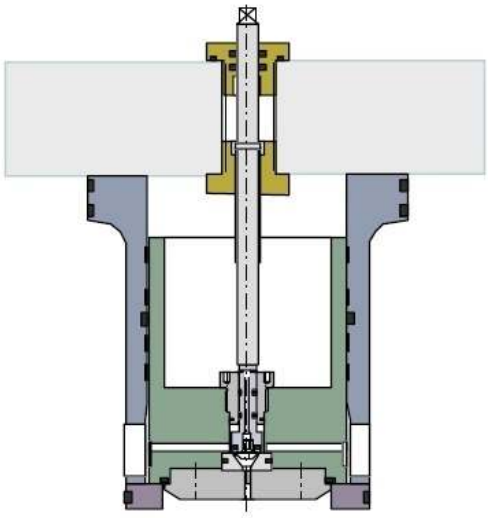
Manual operated Valve Typ 7D

Up to 350bar - ND 063 bis 150

for Water and Oil

These valves are designed for shut off functions. The servo system reduces the necessary manual power so that the valve can be operated under high pressures.

The manual spindle locks the piston in closed position even und pressure.



Cartridge Cover

These stainless steel cartridge covers are used for complete valve assemblies with Schrupp cartridge valves according to DIN 24342 and Schrupp pilot valves.
In addition to the standard types shown it is possible to produce special versions for individual applications:

Special covers for descaling valves

Cover with integrated functions such as position indicators, pilot combinations, special dimensions.

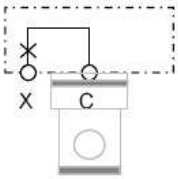
Covers for compressed air pilot valve ND6

Covers for filter

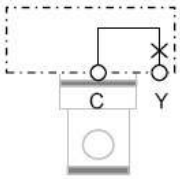
Covers with stroke limiter

Hydraulic piloting and non return function

Type HX



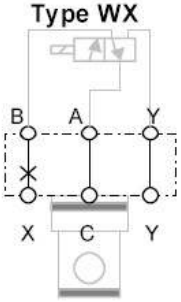
Type HY



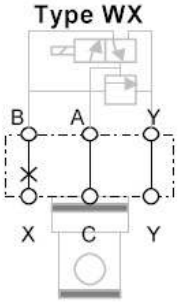
10	16	25	32	40	50	63	SIZE
25	35	35	35	40	45	50	HEIGHT
M5x 30	M8x4 0	M12x 40	M16x 45	M20x 55	M20x 60	M30x 70	FIXING SCREWS

Pressure and directional functions

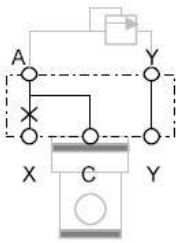
Type WX



Type WX



Type DX



16	25	32	SIZE
35	35	35	HEIGHT
M8x4 0	M12x 40	M16x 45	FIXING SCREWS

Example / Ordering Code

WX – 025 – 0.5

- 0.5 – Orifice 0.5, 0.6, 0.7, 0.8, 0.9, 1.0, 1.1, 1.2
- 025 – Sizes 010, 025, 032, 040, 050, 063 for HX and HY; 016, 025, 032 for WX and DX
- WX – Cover type WX, DX, HX, HY

Pilot Valve

2/2 directional control seat valve
3/2 directional control seat valve
DN 3 ,DN 6 , DN 10
for water, oil, and air

작동하는 element는 90’로 회전할 수 있다.
소모품들은 쉽게 획득할 수 있고 교체 또한 빠르게 할 수 있다.

Application:
밸브는 수압과 유압 제어 시스템에서 사용된다.
또한 pilot 제어 밸브로도 사용될 수 있다.

Technical data:

Type: 직동형 ball seat valve

취부형태 :
서브 플레이트 취부형

서브 플레이트 나사 종류
DN3 = G1/4"
DN6 = G3/8"
DN10 = G1/2"

유체의 방향 :
2/2W: From "P" to "A"
3/2W: From "P" to "A" or from "A" to "R"

유체 :
오더 할 시에는 수압,유압,공압을 정확히 명시할 것

유량 :
압력 유량 그래프 참조

점도 :
1 to 300 cSt

재질:
유량 매체와 접촉하는 모든 부분은 부식을 방지할 수 있는 재질로 만들어진다.

대기 온도 :
“ Technical data of control element”를 참조
보다 높은 온도가 요구될 시에는 문의요망

Seals:
NBR, other seal materials available upon request

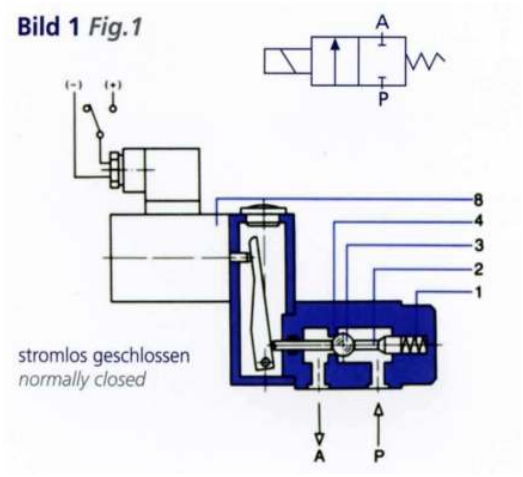
작동 모드 :
전기, 유압, 공압, 기계적인 또는 manual operation.

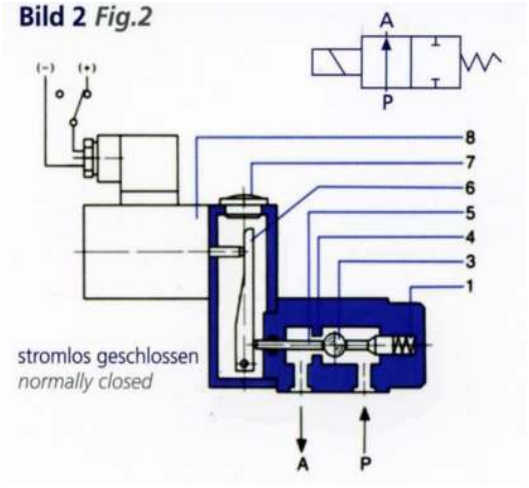
Sealing:
Ball on seat

압력 범위 :
320 bar , 500 bar , 700 bar

3/2 직동형 밸브 :
R 포트에 걸린 압력은 작동압력의 50%를 초과할 수 없다.

2/2 directional control seat valves

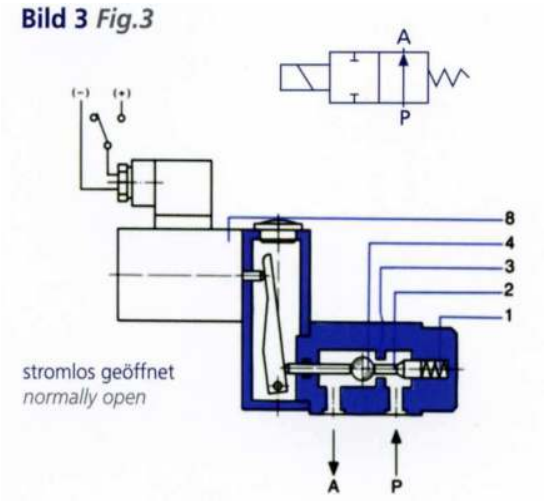


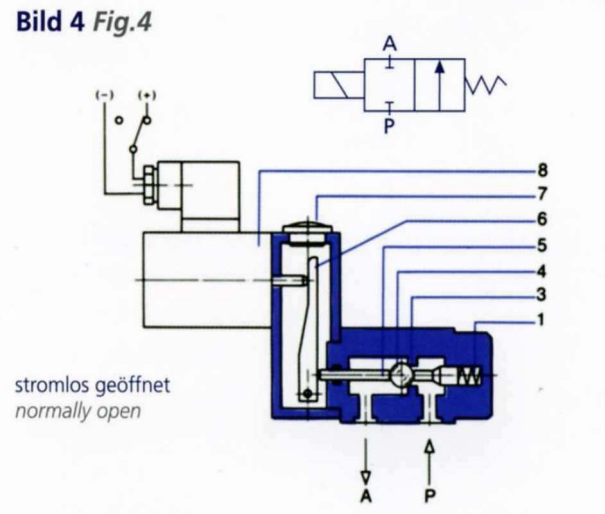


Valve version “normally closed”

(전기가 통하지 않을 때에는 밸브는 닫혀있다.)
Fig 1(전기가 통하지 않을 경우)
(1)의 압력 스프링이 (2)의 push rod를 통하여 (3)의 볼 밸브를 밸브시트까지 밀어낸다.”P”로부터 공급 받은 매체의 압력은 (1)의 압력 스프링 작동을 지원한다.
이 결과로 “P”에서 “A”는 막히게 된다.

Fig 2(전기가 통할 경우)
Electromagnet가 작동되면 (8)의 솔레노이드 플런저는 (6)의 레버와 (5)의 push rod를 통하여 (1)의 압력스프링과 “P”포트에서 들어온 매체의 압력으로 지탱되는 볼 밸브를 밀어낸다. 그러므로 “P”와 “A”는 연결된다.





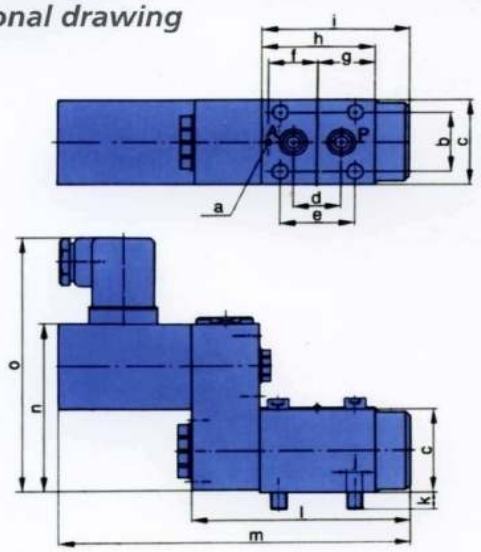
Valve version “normally open”

(전기가 통하지 않을 때 밸브는 열려있다.)
Fig 1(전기가 통하지 않는 경우)
(1)의 압력스프링이 (4)의 볼 밸브를 (5)의 밸브 시트부터 (2)의 push rod를 통하여 밀어올린다.
그러므로 “P”와 “A”는 연결된다.

Fig 2(전기가 통하는 경우)
Electromagnet가 작동되면 (8)의 솔레노이드 플런저는 (6)의 레버와 (5)의 push rod를 통하여 (1)의 압력스프링과 “P”포트에서 들어온 medium의 압력으로 지탱되는 볼 밸브를 밀어낸다. “P”와 “A”는 막히게 된다.

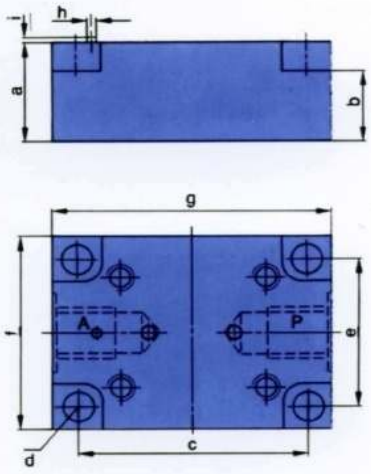
2/2 directional control seat valves

Maßzeichnung
Dimensional drawing



DN	a	b ±0,1	c	d ±0,1	e ±0,1	f	g	h	i	j	k	l	m	n	o
3	Ø3 2 tief	28	40	21	33	22	25	50	65	M6	10	95	155	80	123
6	Ø3 3 tief	36	50	26	36	28	30	67,5	87,5	M8	10	117,5	194,5	100	143
10	Ø5 3 tief	48	65	40	60	40	50	100	125	M10	10	165	260	130	173

Anschlußplatte
Connection plate

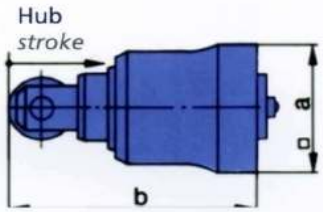


Andere Gewindeanschlüsse auf Anfrage
Other threaded connections on request

DN	a	b	c ±0,1	d	e ±0,1	f	g	h	i	P	A	Type
3	30	23	53	6,4	38	50	65	Ø2,5	1,5	G1/4"	G1/4"	634 320
6	35	26	65	9	45	60	80	Ø3	2	G3/8"	G3/8"	634 356
10	50	39	92	11	47	65	110	Ø3	2	G1/2"	G1/2"	634 667

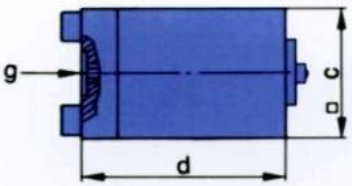
Weitere Betätigungsarten des Ventils
Other types of actuation

mechanisch
mechanical roller

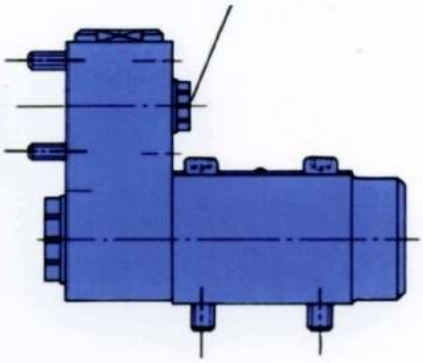


hydraulisch
hydraulic

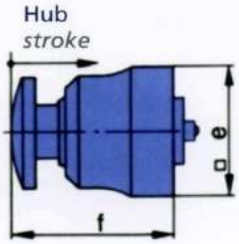
pneumatisch
pneumatic



Gewinde für Näherungsschalter
M12 x 1
Thread for proximity switch
M12 x 1



manuell
manual



DN	a	b	c	d	e	f	g	Hub/*stroke*
3	40	70	40	58	40	45	G1/4"	4 ±0,5
6	50	80	50	70	50	45	G1/4"	5 ±0,5
10	65	100	65	81	65	55	G1/4"	8,5 ±0,5

2/2 directional control seat valves

Kenngrößen *Characteristics*

Nenngröße	DN 3		DN 6		DN 10		nominal bore
Anschlüsse	P	A	P	A	P	A	connection
Max. Betriebsdruck*	320 bar	320 bar	320 bar	320 bar	320 bar	320 bar	max. operating pressure*
Medium**	Wasser *(water)*, HFA, HFB, HFC, Mineralöl, *(mineral oil)*						medium**
Durchfluß Qmax.	siehe Durchflußdiagramm *(see pressure-flow graph)*						flow rate Qmax.
Durchflußrichtung	P->A						flow direction
	Anschlüsse dürfen nicht vertauscht werden *connections may not be reversed*						
Einbaulage	beliebig *(as required)*						fitting position
Betätigungsteil	Elektromagnet *(solenoid operated)*						actuator
Schutzart	IP 65 DIN 40 050						type of protection
Betriebsspannung***	24 V =		24 V =		24 V =		working voltage***
Stromstärke	0,87 A		1,5 A		2,29 A		current requirement
Leistungsaufnahme	21 W		36 W		55 W		solenoid rating
Haltekraft	30 N		92 N		125 N		retaining power
Einschaltdauer	100% ED		100% ED		100% ED		duty cycle
Umgebungstemperatur	max. 50°		max. 50°		max. 50°		ambient temperature

*andere Drücke auf Anfrage **andere Medien auf Anfrage ***andere Spannungen auf Anfrage
**other operating pressures on request **other pressure media on request ***other voltages on request*

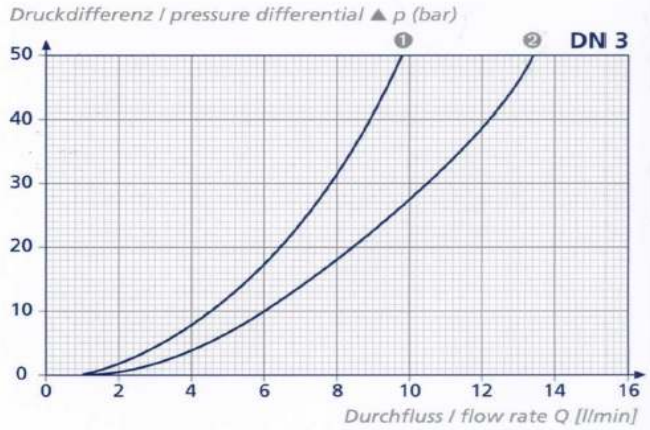
Durchflußdiagramm
Pressure-flow graph

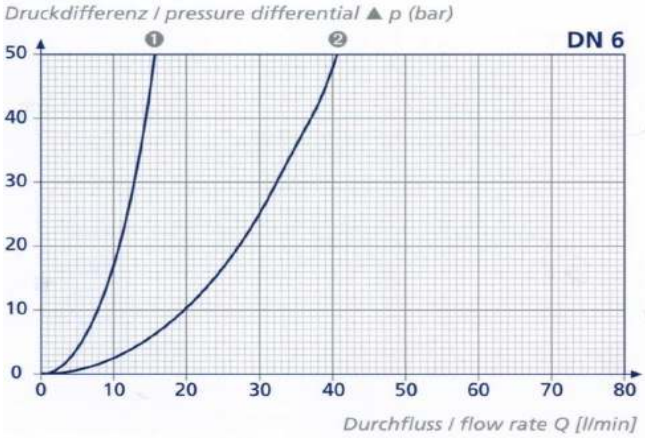
❶ : mit Blende
with orifice

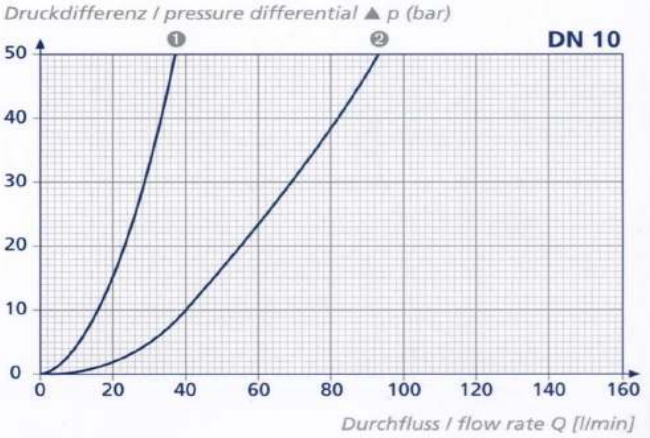
❷ : ohne Blende
without orifice

Gemessen bei 20°C mit HFA-S
Measured at 20°C with HFA-S

Änderungen vorbehalten
Subject to alteration



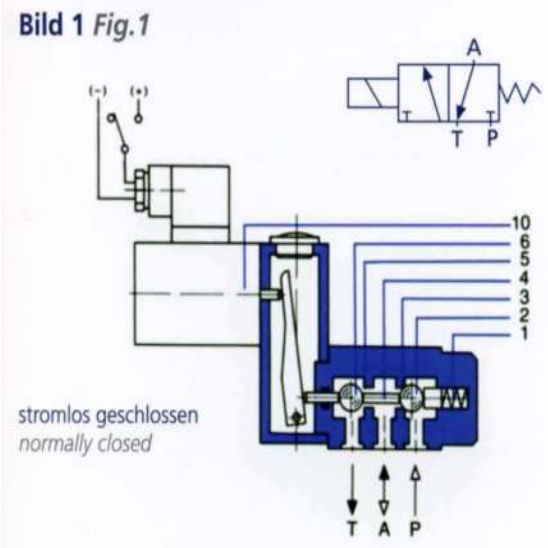


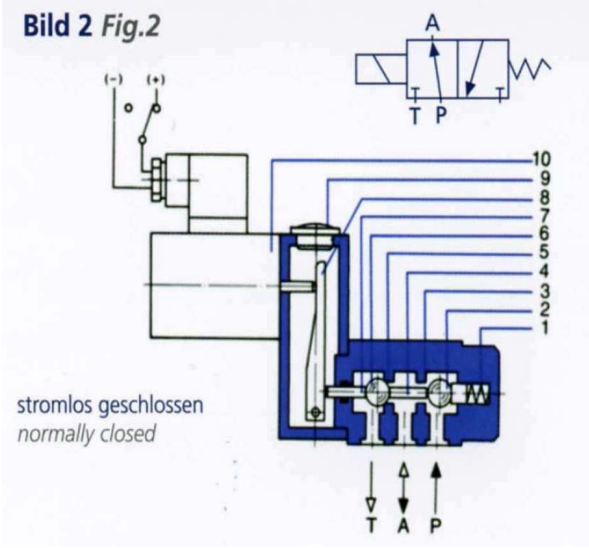


***Code number**

	MODEL	PART NO.	VOLTAGE		MODEL	PART NO.	VOLTAGE
normally closed	DN 3	6545572	AC110V,220V ,DC24	normally open	DN 3	6545580	AC110V,220V ,DC24
	DN 6	6546684	AC110V,220V ,DC24		DN 6	6546714	AC110V,220V ,DC24
	DN 10	6235557	AC110V,220V ,DC24		DN 10	6235565	AC110V,220V ,DC24

3/2 directional control seat valves





Valve version "normally closed"

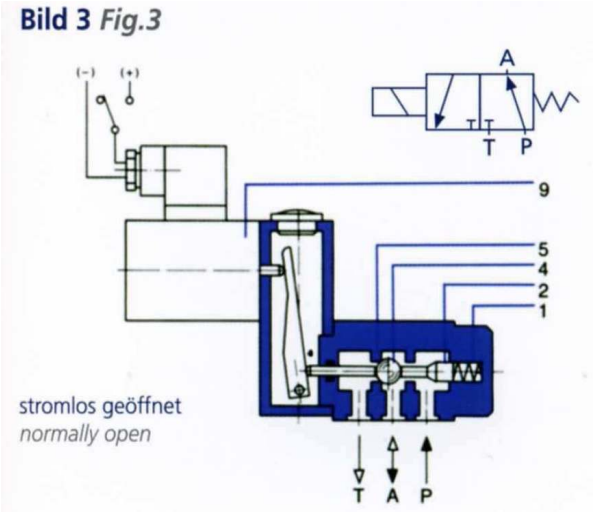
(전기가 흐르지 않을 때에 "P"에서 "A"로는 흐르지 않는다.)

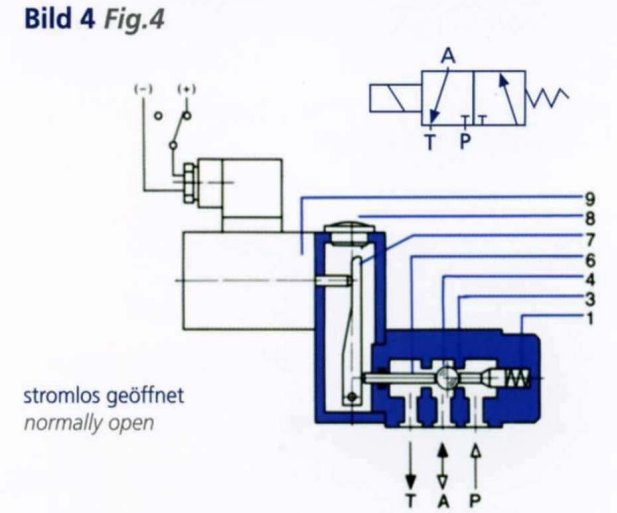
Fig 1(전기가 통하지 않을 경우)

매체가 "P"를 통하여 들어와 (3)의 밸브시트까지 (1)의 압력스프링에 의하여 지탱되고 있는 (2)의 볼 밸브에 압력을 가한다. 그리하여 "P"와 "A"는 막히게 된다.

Fig 2(전기가 통할 경우)

Electromagnet가 켜지면 솔레노이드 플런저는 압력스프링의 장력을 이겨내고 레버와 push rod를 통하여 볼 밸브(6)를 밸브시트(5)까지 밀어낸다. 그러면 드레인 포트인 "R"이 막히게 되고 동시에 (4)번의 spcer pin을 이용하여 (2)의 밸브를 (3)의 밸브시트로부터 압을 가하여 밀어내서 "P"와 "A"를 열어주게 된다.





Valve version "normally open"

(전기가 흐르지 않을 때에는 "P"와 "A"는 열려있다.)

Fig 1(전기가 통하지 않을 경우)

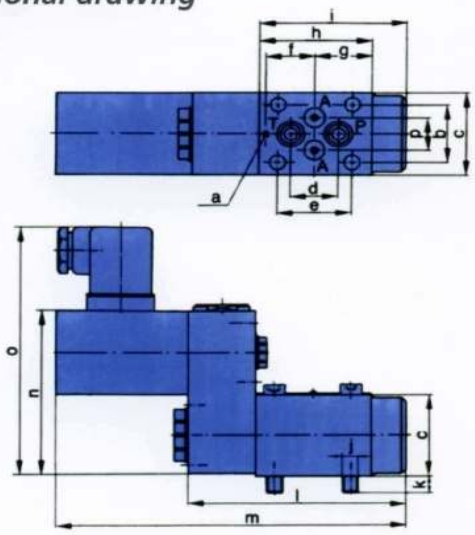
(1)의 압력 스프링이 (2)의 push rod를 통하여 볼 밸브를 (5)의 밸브시트까지 들어올린다. "P"로부터 들어와 working line으로 통하는 medium 유량은 압력스프링을 지원한다. 그 결과로 드레인 포트인 "R"은 막히게 되고 "A"와 "P"는 열리게 된다.

Fig 2(전기가 통할 경우)

Electromagnet가 켜지면 솔레노이드 플런저는 압력스프링의 장력과 "P"로부터 들어온 medium의 압력을 이겨내고 레버와 pushrod를 통하여 볼 밸브를 밀어낸다. 그리하여 드레인 포트인 "R"은 열리게 되고 "A"와 "P"는 막히게 된다.

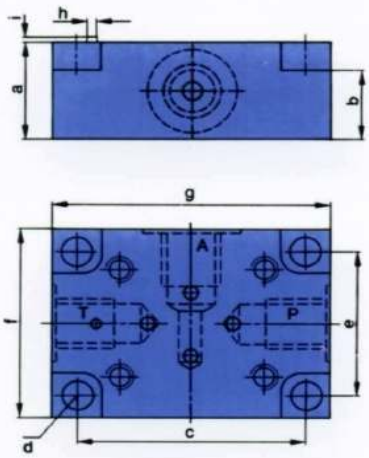
3/2 directional control seat valves

Maßzeichnung
Dimensional drawing



DN	a	b*0,1	c	d*0,1	e*0,1	f	g	h	i	j	k	l	m	n	o	p*0,1
3	Ø3 2 tief	28	40	21	33	22	25	50	65	M6	10	95	155	80	123	16
6	Ø5 3 tief	36	50	26	36	28	30	67,5	87,5	M8	10	117,5	194,5	100	143	20
10	Ø5 3 tief	48	65	40	60	40	50	100	125	M10	10	165	260	130	173	26

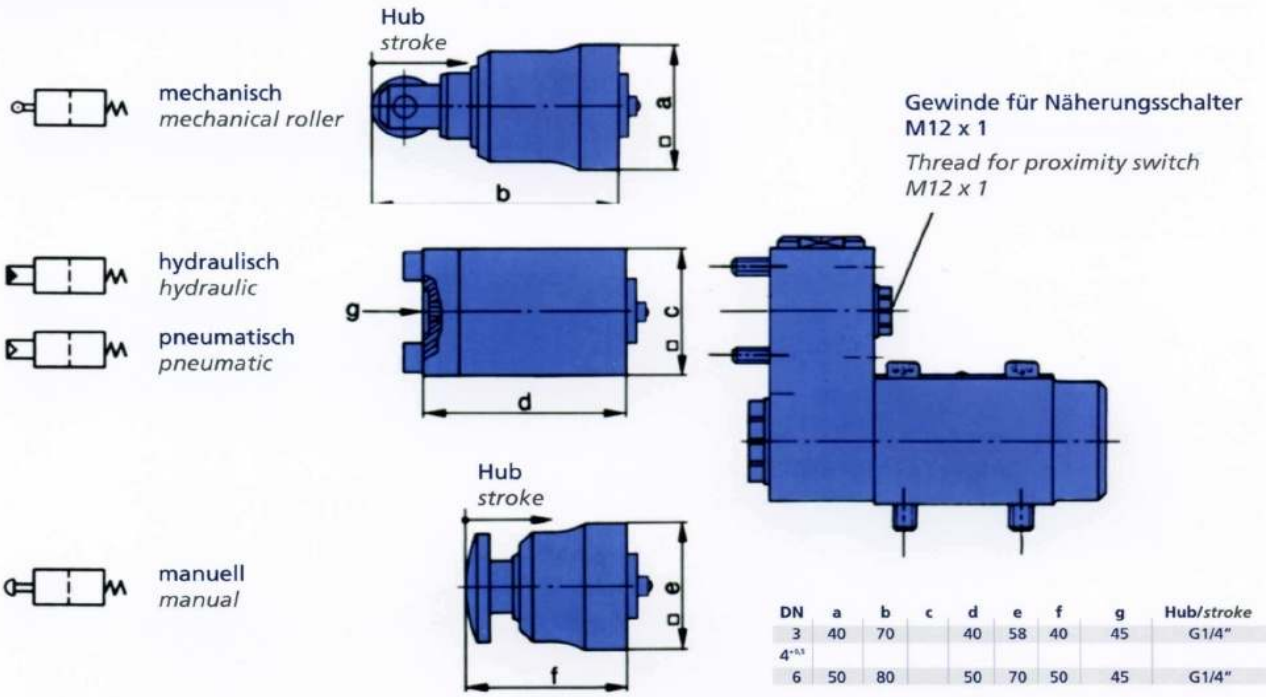
Anschlußplatte
Connection plate



Andere Gewindeanschlüsse auf Anfrage
Other threaded connections on request

DN	a	b	c*0,1	d	e*0,1	f	g	h	i	P	A	T	Type
3	30	23	53	6,4	38	50	65	Ø2,5	1,5	G1/4"	G1/4"	G1/4"	634 314
6	35	26	65	9	45	60	80	Ø3	2	G3/8"	G3/8"	G3/8"	634 325
10	50	39	92	11	47	65	110	Ø3	2	G1/2"	G1/2"	G1/2"	634 666

Weitere Betätigungsarten des Ventils
Other types of actuation



DN	a	b	c	d	e	f	g	Hub/*stroke*
3	40	70		40	58	40	45	G1/4"
4*0,3								
6	50	80		50	70	50	45	G1/4"

3/2 directional control seat valves

Kenngrößen *Characteristics*

Nenngröße	DN 3			DN 6			DN 10			nominal bore
Anschlüsse	P	A	T	P	A	T	P	A	T	connection
Max. Betriebsdruck*	320 bar	320 bar	50 bar	320 bar	320 bar	50 bar	320 bar	320 bar	50 bar	max.operating pressure*
Medium**	Wasser *(water)*, HFA, HFB, HFC, Mineralöl, *(mineral oil)*									medium**
Durchfluß Qmax.	siehe Durchflußdiagramm *(see pressure-flow graph)*									flow rate Qmax.
Durchflußrichtung	P->A, A->T									flow direction
	Anschlüsse dürfen nicht vertauscht werden *connections may not be reversed*									
Einbaulage	beliebig *(as required)*									fitting position
Betätigungsteil	Elektromagnet *(solenoid operated)*									actuator
Schutzart	IP 65 DIN 40 050									type of protection
Betriebsspannung***	24 V =			24 V =			24 V =			working voltage***
Stromstärke	0,87 A			1,5 A			2,29 A			current requirement
Leistungsaufnahme	21 W			36 W			55 W			solenoid rating
Haltekraft	30 N			92 N			125 N			retaining power
Einschaltdauer	100% ED			100% ED			100% ED			duty cycle
Umgebungstemperatur	max. 50°			max. 50°			max. 50°			ambient temperature

*andere Drücke auf Anfrage **andere Medien auf Anfrage ***andere Spannungen auf Anfrage
**other operating pressures on request **other pressure media on request ***other voltages on request*

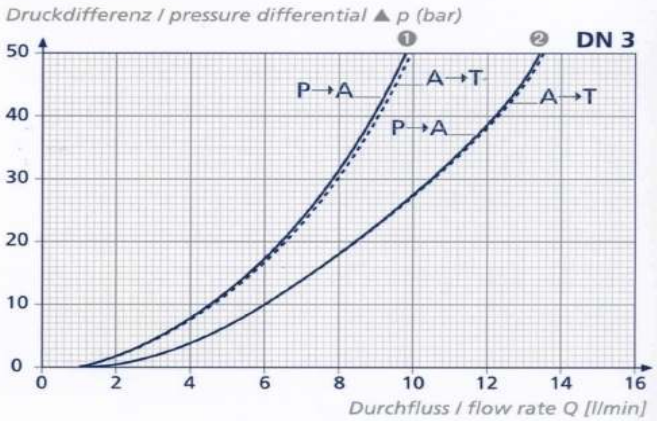
Durchflußdiagramm
Pressure-flow graph

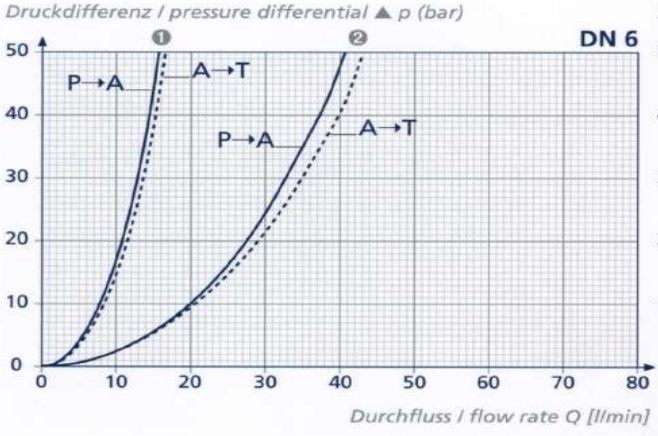
❶ : mit Blende
with orifice

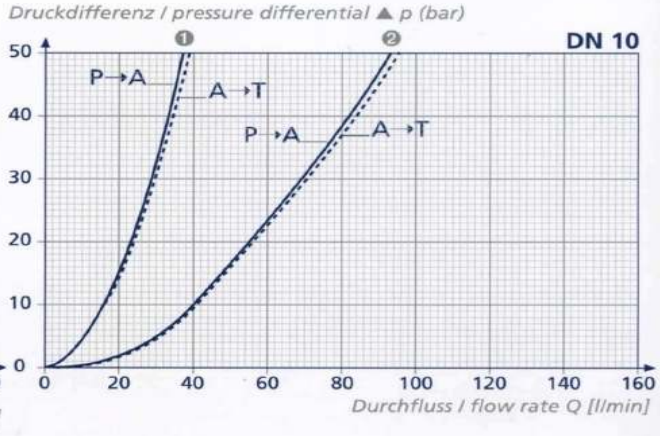
❷ : ohne Blende
without orifice

Gemessen bei 20°C mit HFA-S
Measured at 20°C with HFA-S

Änderungen vorbehalten
Subject to alteration







***Code number**

	MODEL	PART NO.	VOLTAGE		MODEL	PART NO.	VOLTAGE
normally closed (UN)	DN 3	6545599	AC110V,220V ,DC24	normally open(MAIN)	DN 3	6545602	AC110V,220V ,DC24
	DN 6	6546749	AC110V,220V ,DC24		DN 6	6546773	AC110V,220V ,DC24
	DN 10	6235530	AC110V,220V ,DC24		DN 10	6235549	AC110V,220V ,DC24

Complete Valves

카트리지밸브는 여러 방법으로 결합하여 사용할 수 있다.
이장에서의 구색은 가장 널리 쓰이는 밸브에 대한 개요 이다

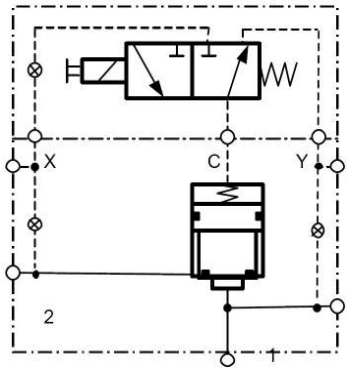
Special designs, Custom Design 인 경우 문의 하시길 바랍니다.

Type **2/2 Way Directional Valve**

Medium	Water	Material	SS, brass
Oper. Press.	350bar	Sizes*	16, 25, 32mm
Filtration	25mic	Voltage*	24Vdc, 220Vac
Sealing	Soft seat, metal supported		

*Other voltages and sizes on request.

Detailed Symbol



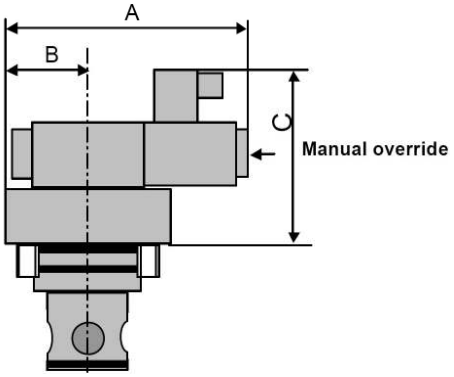
Symbol
NC or NO possible

Description

누유 방지의 방향제어 밸브는 양방향으로 흐를 수 있다.
노말 오픈 과 노말 클로즈 버전이 가능하며
파이루트 x,y port,가 내부 외부선택이 가능 합니다.

튼튼하고 간결하게 디자인 된 이 밸브는
다양한 분야의 application에 적용될 수 있게 제작되었다.

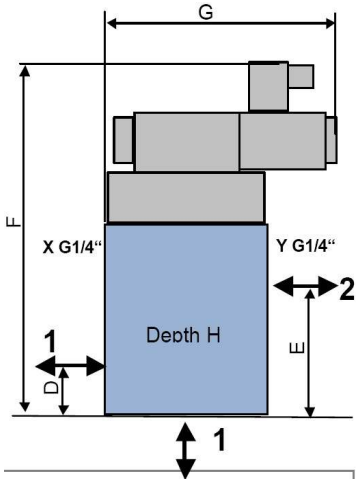
ND	Connections 1,2			A	B	C	D	E	F	G	H
16	G1/2"	G3/4"	SAE ¾" Standard	180	33	130	32	71	235	190	65
25	G3/4"	G1"	SAE 1" Standard	190	43	130	36	86	260	200	85
32	G1"	G11/4"	SAE 1¼" Standard	198	51	130	43	103	285	207	102



Example / Ordering Code

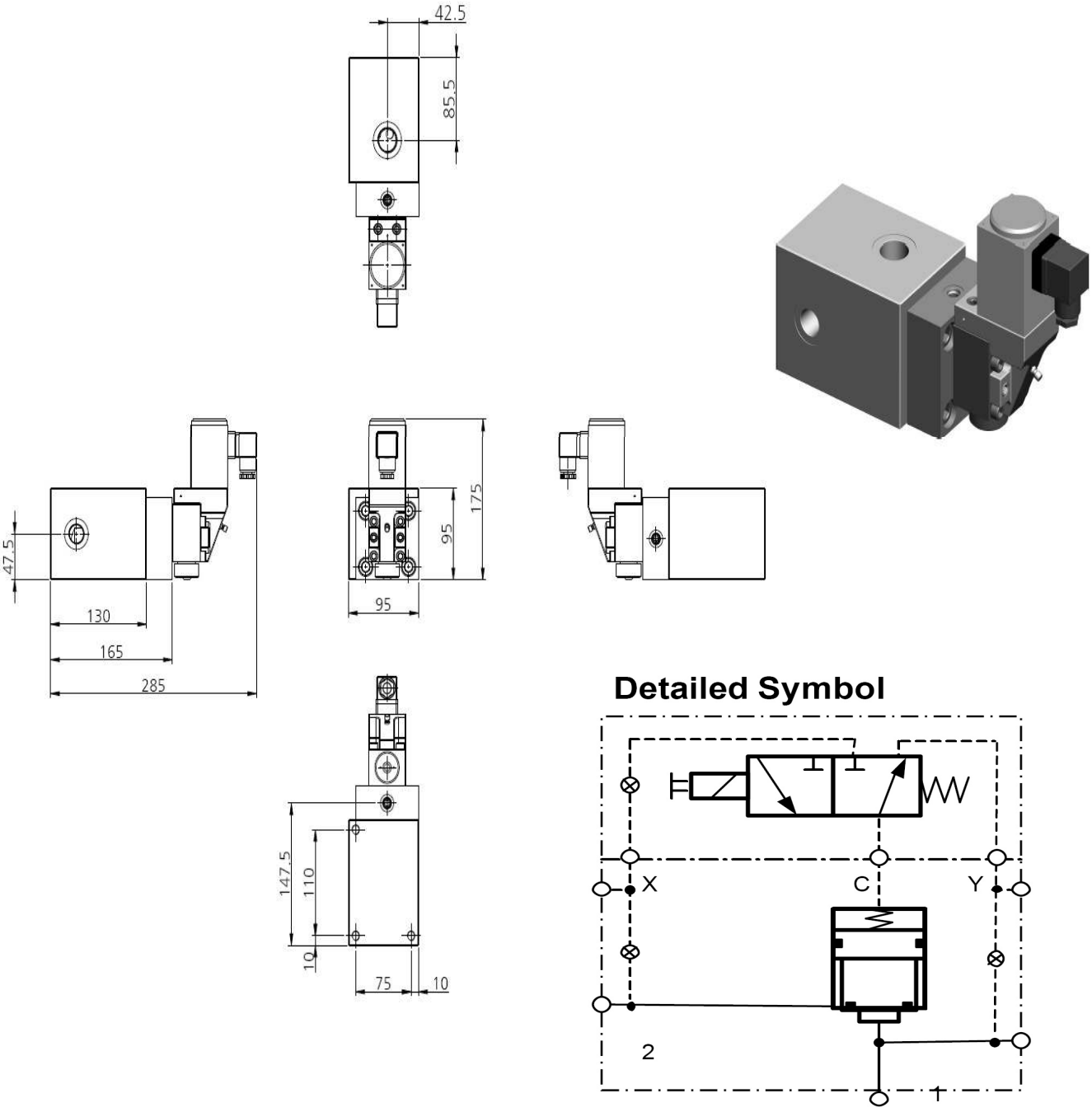
GFC – 016 – WX - 08 - 6D-17-FS-024G-**

- Special Design
- 220G = 220V AC , 110G=110AC
  024G = 24V DC
- 17 = Normally closed (NC)
  18 = Normally open (NO)
- Size 016=Size 16, 025=Size 25, 032=Size 32
- KEO = for manifold mounting, GFC = Custom Design
  KR2 = ND16 thread-connections G3/4“, R5 = ND25 thread-connections G1“
  KR8 = ND32 thread-connections G1¼“



OEM customization

Model : GFC-025-WX-08-6D-H-18-FS-024G-KV1 (DC24V용)
GFC-025-WX-08-6D-H-18-FS-110G-KV1 (AC110V용)
GFC-025-WX-08-6D-H-18-FS-220G-KV1 (AC220V용)



OEM customization

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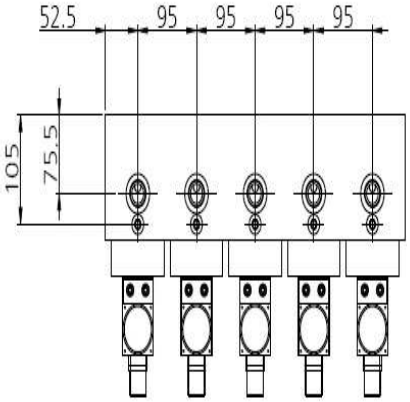
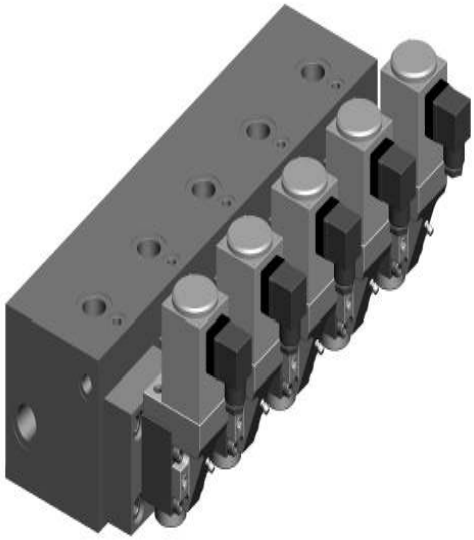
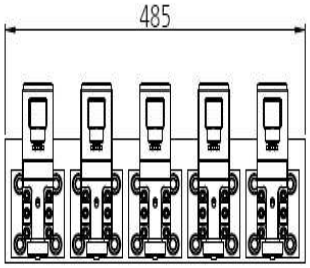
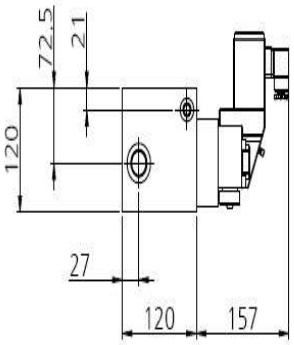
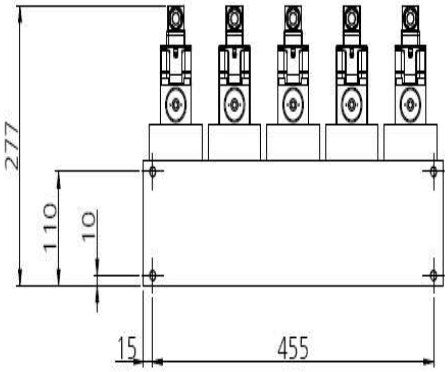




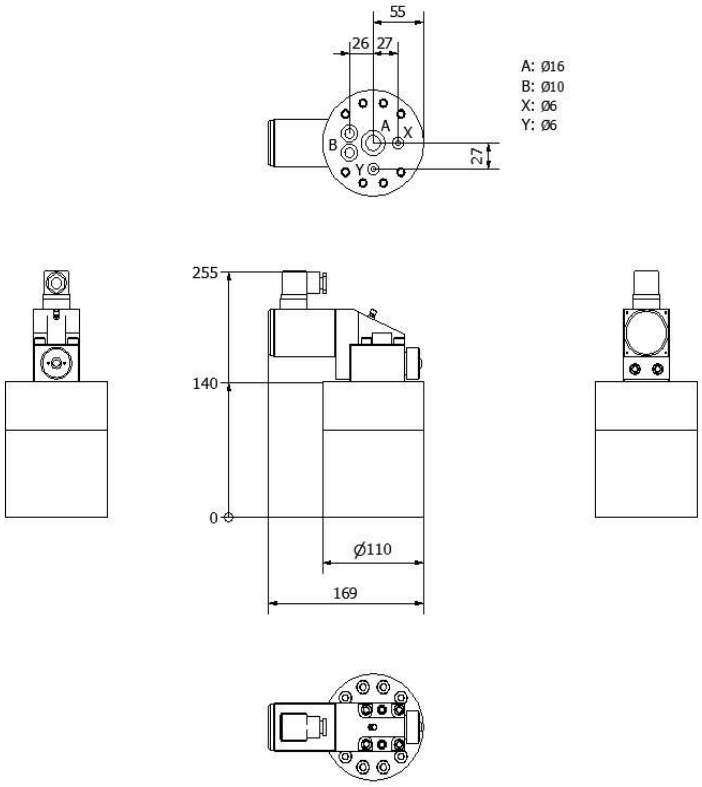


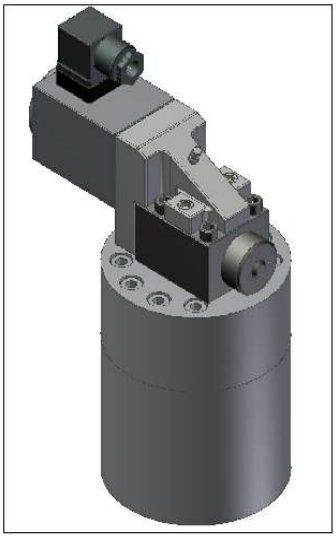




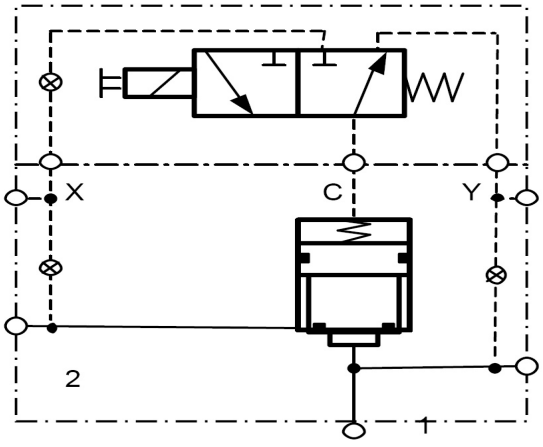
OEM customization

Model : GFC-025-WX-08-6D-H-18-FS-024G-KV4



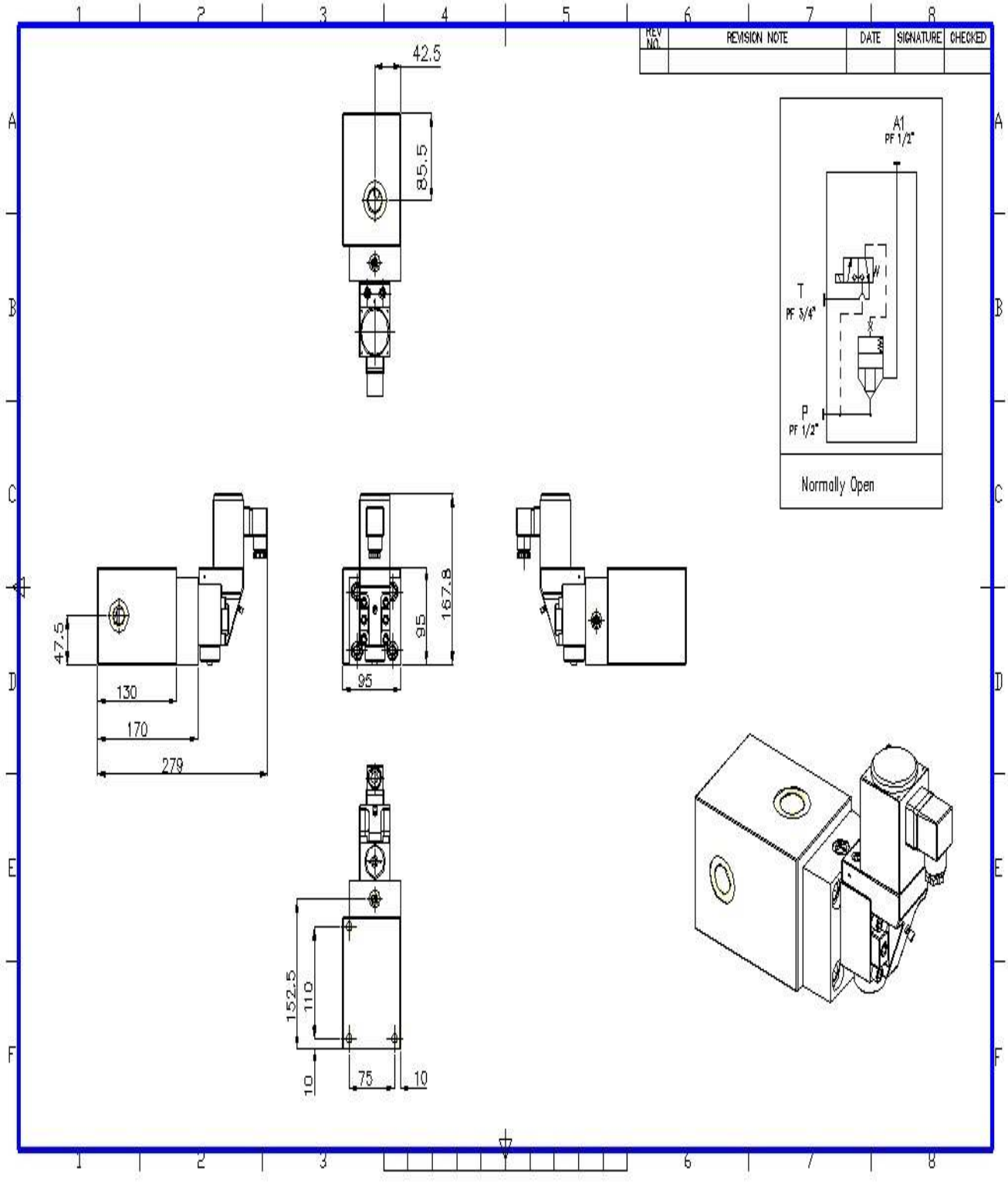


Detailed Symbol



OEM customization

Model : GFC-016-WX-08-6D-H-18-FS-110G-KV5



OEM customization

Model : GFC-016-WX-08-6D-H-17-FS-110G-KV7