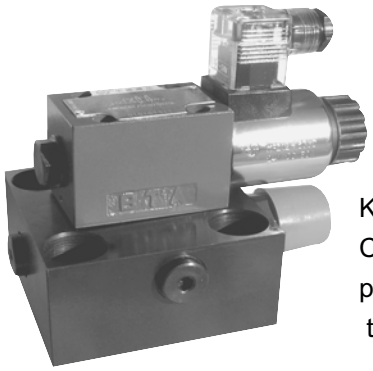
| BEIJING HUADE HYDRAULIC INDUSTRIAL GROUP CO.LTD. | **2-way cartridge valves-pressure functions**<br>**Cartridge valves type LC...**<br>**Control covers type LFA...** | | | RE 81078/12.99 |
|---|---|---|---|---|
| | Size 16 to 100 | up to 40 MPa | up to 7000L/min | Replaces： |



K3786/6
Control cover with manual pressure adjustment,
type LFA ..DBW..

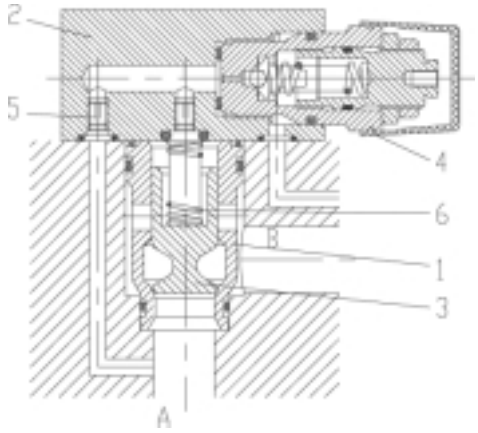


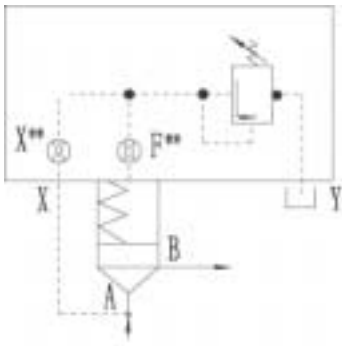
K3787/6
Cartridge valve type LC .. DB

## Function ,section,symbols

The 2-way cartridge valves for pressure control functions are pilot operated poppet or spool valves.The main component designed as a cartridge valve (1) is inserted in a cavity bore standardised to DIN 24342 and is sealed by control cover (2).
The pilot valve (4) for either manual or electrical proportional pressure control is integrated into the control cover (2) or mounted onto the control cover as a pilot valve with interface connections to DIN 24 340 .

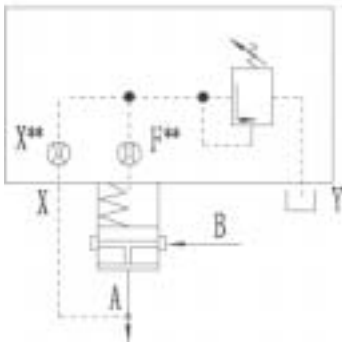
**Pressure relief function**（Pages 32 to 71）
The cartridge valve (1) for the pressure relief function (type LC .DB.. is a poppet valve without an area differential (no effective area at port B). The pressure acting at port A is fed via the pilot oil supply orifice (5) to the spring side (6) of the element. At pressures below the setting of pilot valve (4) the forces on spool (3) are balanced and the spool remains closed due to the spring force. On reaching the set pressure, spool (3) opens and limits the pressure at port A in line with the pressure-flow characteristics.




type LFA.DB...
type LC..DB...

**Pressure reducing function**（Pages 69 to 84）
**a) Normally open:**
The cartridge valve for the pressure reducing function is a spool valve without an area differential (no effective area at port B).The same types of cover are used as pilot valves as are used for the pressure relief functions (type LFA..D...).
The pressure acting at port A is fed to the spring side of the spool via the pilot oil supply orifice. Below the performance limit and pressure set at the pilot valve, the spool is pressure balanced and is held open by the spring force, so that oil is free to flow from port B to port A.
On reaching the set pressure,the spool closes and reduces the pressure at port A in line with the pressure-flow characteristics.

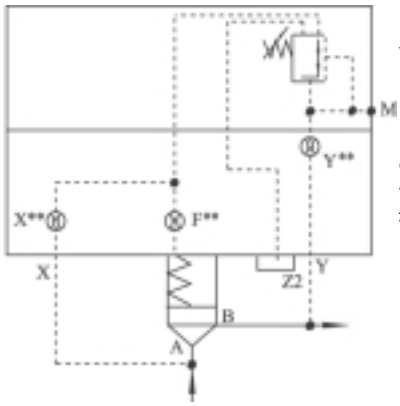



Pressure Reducing Valve
Normally open
eg.
type LFA..DB...
type LC..DR40...

**b) Normally closed:**

For the pressure reducing function with a pressure reducing valve (type LFA..DR...) as the pilot valve are used. The pilot oil is fed from port A via the pilot supply orifice and the open pressure reducing pilot valve to side B.

The main spool opens and allows free flow from port A to port B.On reaching the set pressure,the spool closes and reduces the pressure at port B in line with the pressure-flow characteristics.Possible excess pressures occurring on the secondary side are led away to tank via the third port of the pilot valve. By fitting a directional valve, an addi-tional isolating function can also be attained (type LFA..DRW...).




Pressure reducing valve
Normlly closed

e.g:
Type LFA..DB..
Type LC..DB 40D6XB

**Pressure sequencing function**

Control cover type LFA...DZ...
Control cover type LC...DB...

This function enables a pressure-dependent sequencing of a second system.

The required sequencing pressure is set by the pilot valve which is integrated into the control cover.

The pilot oil supply may be either external (pilot oil port X) or internal(from port A via pilot oil port X or Z2).
The spring chamber of the pilot control is drained at zero pressure via ports Y or Z1 to tank.

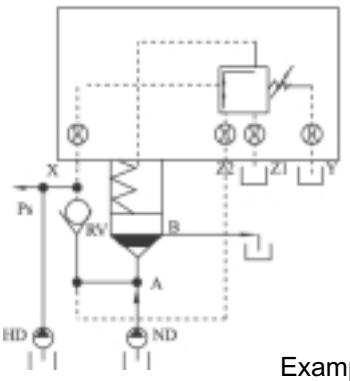
When the pressure set at the pilot control spring is reached, the pilot valve switches and unloads the spring chamber of the main valve to tank. The main spools opens and makes the connection from port A to B possible.

In model LFA..DZW...,the required spool position may be selected by means of an electrically operated pilot valve (not included within the supply of control cover 〕LFA..DZW...) in addition to the normal hydraulic control.

**Typical circuits**

**Example 1:**

In the circuit shown, the system is fed by a high pressure pump and a low pressure pump.The system pressure $p_S$ acts externally from the high pressure side via the pilot oil port X on the pilot valve which, on reaching the set pressure,switches the low pressure side to give zero pressure circulation.The check valve RV (not included within the scope of supply) prevents the high pressure system from flowing into the low pressure system which is now at zero pressure.



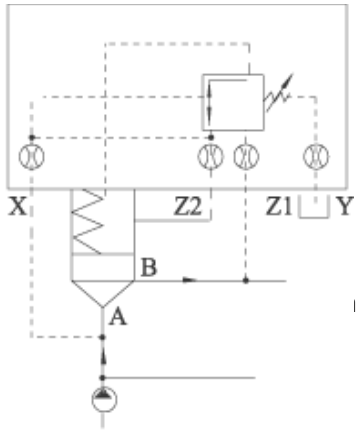

e.g
Type LFA..DZ...6XB/...XY
Type LC..DB20D6XB

Example 1:
Circuit for the pressure dependent unloading of the low pressure system

**Example 2:**

With this circuit, oil is allowed to flow into system 2 when the pressure in system 1 has reached a pre-set value.The pilot oil supply is internal from port A of the main valve.

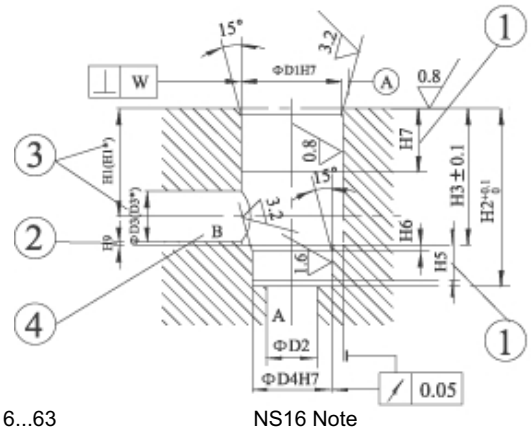
**Example 2:**
(circuit for the pressure dependent sequencing of a 2nd system)




Type LFA..DZ...6XB/...Y
Type LC..DB20D6XB

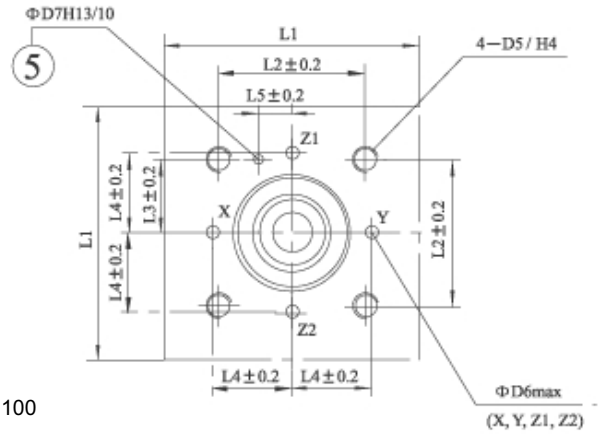
2

## Installation cavity and porting pattern to DIN 24342 (Dimensions in mm)

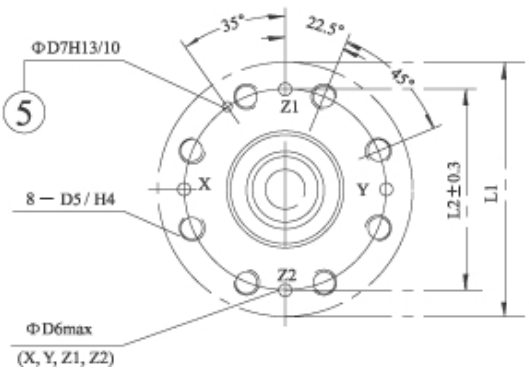



NS16...63

NS16 Note
Length L1(It is 80mm from X to Y via the center of the hole)




NS80,100




| Size | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| øD1 | 32 | 45 | 60 | 75 | 90 | 120 | 145 | 180 |
| øD2 | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| øD3 | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| (øD3)* | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
| øD4 | 25 | 34 | 45 | 55 | 68 | 90 | 110 | 135 |
| øD5 | M8 | M12 | M16 | M20 | M20 | M30 | M24 | M30 |
| øD6[1)] | 4 | 6 | 8 | 10 | 10 | 12 | 16 | 20 |
| øD7 | 4 | 6 | 6 | 6 | 8 | 8 | 10 | 10 |
| H1 | 34 | 44 | 52 | 64 | 72 | 95 | 130 | 155 |
| (H1*) | 29.5 | 40.5 | 48 | 59 | 65.5 | 86.5 | 120 | 142 |
| H2 | 56 | 72 | 85 | 105 | 122 | 155 | 205 | 245 |
| H3 | 43 | 58 | 70 | 87 | 100 | 130 | 175 ± 0.2 | 210 ± 0.2 |
| H4 | 20 | 25 | 35 | 45 | 45 | 65 | 50 | 63 |
| H5 | 11 | 12 | 13 | 15 | 17 | 20 | 25 | 29 |
| H6 | 2 | 2.5 | 2.5 | 3 | 3 | 4 | 5 | 5 |
| H7 | 20 | 30 | 30 | 30 | 35 | 40 | 40 | 50 |
| H8 | 2 | 2.5 | 2.5 | 3 | 4 | 4 | 5 | 5 |
| H9 | 0.5 | 1 | 1.5 | 2.5 | 2.5 | 3 | 4.5 | 4.5 |
| L1 | 65/80 | 85 | 102 | 125 | 140 | 180 | 250 | 300 |
| L2 | 46 | 58 | 70 | 85 | 100 | 125 | 200 | 245 |
| L3 | 23 | 29 | 35 | 42.5 | 50 | 62.5 | - | - |
| L4 | 25 | 33 | 41 | 50 | 58 | 75 | - | - |
| L5 | 10.5 | 16 | 17 | 23 | 30 | 38 | - | - |
| W | 0.05 | 0.05 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |

1)Max. dim.
1 Depth of fit
2 Reference dimension
3 For diameters of port B other than Φ D3 or ( Φ D3*), the distance from the cover mounting surface to the centre of this hole must be calculated.
4 Port B may be moved about the cental axis of port A. Care must however be taken to ensure that the fixing holes and control holes are not damaged.
5 Drilling for location pin

## Pressure relief function

**Ordering details:** pressure relief cartridge valves (without control cover)

| LC | | DB | | | 6X | B | / | * |
|---|---|---|---|---|---|---|---|---|

Further detials in clear text

No code = Mineral oils
V = Phosphate ester

B= Technology of Beijing Huade Hydraulic

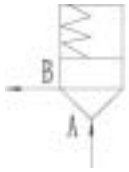
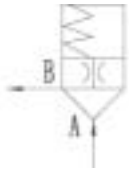
6X= Series 60 to 69 (60 to 69: unchanged installation and connection dimensions)

Nominal size 16 = 16
Nominal size 25 = 25
Nominal size 32 = 32
Nominal size 40 = 40
Nominal size 50 = 50
Nominal size 63 = 63
Nominal size 80 = 80
Nominal size 100 = 100

Cracking pressure approx. 0 MPa (without spring) =00
Cracking pressure approx. 0.2 MPa =20 }**
Cracking pressure approx. 0.4 MPa =40 }**
**Cracking pressure 0.3 MPa only with NS16 for fitting a pilot operated pressure relief valve type DBC . -5X/

E = Poppet valve without orifice (standard)
D = Spool poppet valve without orifice (standard) } Standard
A = Poppet valve with orifice
B = Spool poppet valve with orifice

**Symbols:** cartridge valves (for versions see ordering details)

| Poppet valve<br>LC...DB...E6X | Spool poppet valve with orifice<br>LC...DB...A6X | Spool poppet valve<br>LC...DB...D6X | Spool poppet valve with orifice<br>LC...DB...B6X |
|---|---|---|---|
|  |  |  |  |

**Technical data** (for applications outside these parameters, please consult us!)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Pressure fluid | | Mineral oil for NBR seals or Phosphate ester for FPM seals | | | | | | | |
| Pressure fluid temperature range | ℃ | -20 to +80 | | | | | | | |
| Viscosity range | $mm^2/s$ | 2.8 to 380 | | | | | | | |
| **2-way cartridge valves** | | | | | | | | | |
| Operating pressure at port A and B | | up to 42MPa | | | | | | | |
| Size | | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
| Max. Flow（recommend） | | L/min | | | | | | | |
| Poppet valve cartridge | LC...DB..E 6X/.. LC..DB..A 6X/.. | 250 | 400 | 600 | 1000 | 1600 | 2500 | 4500 | 7000 |
| Spool valve cartridge | LC...DB..D 6X/.. LC..DB..B 6X/.. | 175 | 300 | 450 | 700 | 1400 | 1750 | 3200 | 4900 |
| **Control Cover** | | | | | | | | | |
| Max. operating pressure | | | | | | | | | |

| Type LFA / NS / Port | ..DB.. 16..100 | ..DBW.. | | | ..DBS.. | | ..DBU.. | | ..DBE.. ..DBM.. | ..DBETR.. ..DBEMTR.. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 16 ...32 | | 40...63 | 40...63 | 80,100 | 16..63 | 80,100 | 16...100 | 16...100 |
| ...X | 40.0 | 40.0 | 31.5 | 31.5 | 40 | | 31.5 | | 35.0 | |

| X，Y | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| When controlling pressure | zero pressure （up to 0.2 MPa） | | | | | | | | | | | |
| Static state | 31.5 | 10.0 | 16.0(DC)<br>10.0(AC) | 16.0(DC)<br>10.0(AC) | 16.0 | 10.0 | 5.0 | 16.0(=)<br>10.0(≈) | 16.0 | 10.0 | 31.5 |

| Corresponds to the permissible tank pressure of the pilot valves | DBD... | Poppet valves，NS6 | Spool valves，NS6 | Spool valves，NS6 | Spool valves，NS 10 | Poppet valves，NS6 | Poppet valves，NS6 | Spool valves，NS6 | Spool valves，NS 10 | DBET | DBETR |
|---|---|---|---|---|---|---|---|---|---|---|---|

## General notes on the ordering details for control covers

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| LFA | | | | 6X | B / | A... | B... | | * |

DB max, DB1, DB2

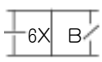
· = available

| Nominal size | | | | | | | | Type | Page | Control type | Series | Note | Pressure rating for nominal sizes | | Fulid | others |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | | | | | | 16...32 | 40...100 | | |
| · | · | · | · | · | · | · | · | DB | 47...49 | | 6X= Series 60 to 69 | Technology of Beijing Huade Hydraulic | 50<br>100<br>200<br>315<br>420 | 025,050<br>100,200<br>315,420 | For ordering details, see pages giving details of the individual cover variations | |
| · | · | · | · | · | · | · | · | DBW | 50...54 | | | | | 025,050<br>100,200<br>315 | | |
| | | | · | · | · | · | · | DBS | 50...54 | | | | | 025,050<br>100,200<br>315,420 | | |
| · | · | · | · | · | · | · | · | DBWD | 55...57 | | | | 50<br>100<br>200<br>315<br>420 | 50<br>100<br>200<br>315<br>420 | | |
| · | · | · | · | · | · | · | · | DBU2A | 58...61 | | | | | | | |
| · | · | · | · | · | · | · | · | DBU2B | | | | | | | | |
| · | · | · | · | · | · | · | · | DBU3D | 62...66 | | | | | | | |
| · | · | · | · | · | · | | | DBE | 67 | | | | | | | |
| · | · | · | · | · | · | | | DBETR | | | | | | | | |
| · | · | · | · | · | · | · | · | DBEM | 68...71 | | | | 050,100<br>200,315<br>420 | 025,050<br>100,200<br>315,420 | | |
| · | · | · | · | · | · | · | · | DBEMTR | | | | | | | | |

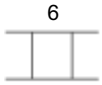
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5




6

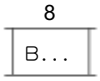


7




Pressure data for DB1, only required for types DBU2 and DBU3D

8




Pressure data for DB2, only required for types DBU3D
Ordering example for type DBU3D
.../315* A B 200 (DB max. /DB1/DB2)
*DB max. always first

The control covers are always fitted with a, optimised on our test rig,standard orifice. Orifice details are therefore not required in the type code. Deviating operating conditions could make it necessary to match the orifice size. The orifices are of the threaded type.

Orifice as shown within the main symbol 

100 = 10.0 MPa
200 = 20.0 MPa
315 = 31.5 MPa
400 = 40.0 MPa
420 = 42.0 MPa

## General notes on the ordering details for control covers

**Note:**

By combining a 2-way cartridge valve with a pilot valve, various valve functions may be implemented.The following components may be considered with porting pattern form A6 (up to NS63) and form A10 (NS 80 to 100) to DIN 24 340.

Valve fixing screws are included within the control cover scope of supply.

**Directional spool valve**

| Directional spool valve | NS | Catalogue sheet no. | Control cover |
|---|---|---|---|
| 3WE6 B9-5XB/... | 6 | | DBW,DBWD |
| 4WE6 D 5XB/... | 6 | | DBW,DBU2$^{A}_{B}$DBU3D |
| 4WE6 M 5XB/... | 6 | | |
| 4WE6 H 5XB/... | 6 | | DBU2A,DBU3D |
| 4WE6 E 5XB/... | 6 | | DBU3D |
| 4WE10 D... | 10 | | DBW,DBU3D,DBU2$^{A}_{B}$ |
| 3WE10 B9... | 10 | | DBW,DBWD |
| 3WE10 A... | 10 | | DBWD |
| 4WE10 M... | 10 | | |
| 4WE10 H... | 10 | | DBU2A,DBU3D |
| 4WE10 E... | 10 | | DBU3D |

**Directional poppet valve**

| Directional poppet valve | NS | Catalogue sheet no. | Control cover |
|---|---|---|---|
| M-3SEW6 C 2XB/... | 6 | | DBW,DBS |
| M-3SEW6 U 2XB/... | 6 | | DBW,DBS |
| M-3SE10 C 2XB/315... | 10 | | DBS |
| M-3SE10 U 2XB/315... | 10 | | DBS |
| M-3SE10 C 2XB/630... | 10 | | DBS.../400 |
| M-3SE10 U 2XB/630... | 10 | | DBS.../400 |

Note:The pilot valve must be ordered separately,other details see relevent catalogue sheet.But valve fixing screws are included in supply.

**Manual adjustment pressure relief cartridge valve**

(Included within the scope of supply，need't to be orderd separately！)

| pressure relief valve, direct operated | NS | Control cover |
|---|---|---|
| DBD.2K 1XB/... | 2 | 16 to 32 |
| DBD.6K 1XB/... | 6 | 40 to 63 |
| DBD.10K 1XB/... | 10 | 80 to 00 |

Proportional pressure relself valve.

| Proportional pressure relief valve | | | | Control cover | |
|---|---|---|---|---|---|
| Type | NS | possible pressure grades (MPa) | Catalogue sheet no. | Type | NS |
| DBET-5XB/...G24-1 | 6 | 5.0<br>10.0<br>20.0<br>31.5<br>35.0 | | DBE***<br>DBEM | 16 to 32 |
| DBET-5XB/...G24 | | | | | 40 |
| DBET-5XB/...YG24-1 | | | | | 50 to 100 |
| DBET-1XB/... | 6 | 2.5<br>8.0<br>18.0<br>31.5<br>35.0 | | DBETR*** | 16 to 40 |
| DBET-1XB/...Y409 | | | | | 50 to 100 |
| DBET-1XB/... | | | | | 16 to 40 |
| DBETR-1XB/...Y409 | | | | | 50 to 100 |

＊＊＊ Control cover of type DBE,DBETR only uesd in Nominal size max. to 63.

1 ＝ G1/4″ threaded port T，special spool

409 ＝ G1/4″ threaded port T.

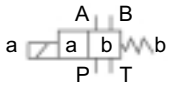
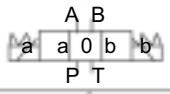
| Instead of type LFA16DB...and L FA16DBW control cover,may chose pressure relief valve in table. | Nominal Size |
|---|---|
| Polit control accoring to sheet RC 25802（not follow DIN port dimension） | 16 |
| DBC.-5X...SO187 | |
| DBWC.-5X/...SO 187（Used in direction valve unloading） | |

**Compression springs Note**

Nominal size and Material no. of Compression springs，

see sheet Page 73

## **Pilot control valves** (selection table)

| | Nom. size 16to 32 | Nom. size 40to 63 | Nom. size 80to 100 | Type | Pilot control valve | Manual pressure setting | | | Symbols |
|---|---|---|---|---|---|---|---|---|---|
| | ● | ● | ● | DB | | Without directional valve | | | |
| | | | |  | | With directional valve | | | 1 |
| | | | | | | Position "a" | Position "b" | | |
| | ● = available | | |  | | Position "a" | Position "o" | Position "b" | |
| Directional valve unloading | ● | ● | | DBW | 3WE6B9-... | open | DB function | | 2,3 |
| | | | | | | | | | |
| | ● | | | | M-3SEW6C... | | | | |
| | ● | ● | | | 4WE6D ... | DB function | open | | |
| | | | | | | | | | |
| | ● | | | | M-3SEW6U... | | | | |
| | | | ● | | 3WE10B9 ... | open | DB function | | 3 |
| | | | ● | | 4WE10D... | DB function | open | | |
| | | | | DBS | | open | DB function | | 4 |
| | | ● | | | M-3SEW6C... | | | | |
| | | | | | | DB function | open | | |
| | | ● | | | M-3SEW6U... | | | | |
| | | | ● | | M-3SE10C./.. | open | DB function | | |
| | | | ● | | M-3SE10U./.. | DB function | open | | |
| Isolating function | ● | ● | | DBWD | 3WE6B9-... | DB function | closed | | 5 |
| | | | ● | | 3WE10B9-... | | | | |
| | ● | ● | | | 3WE6A-... | closed | DB function | | |
| | ● | ● | | | 4WE6M... | | | open | |
| | | | ● | | 3WE10A-... | | | | |
| | | | ● | | 4WE10M... | | | open | |
| 2 pressure stages | ● | ● | | DBU2A | 4WE6H... | DBmax function | open | DB1 Proportional | 6 |
| | | | ● | | 4WE10H... | | | | |
| | ● | ● | | | 4WE6D... | | DB1 function | | |
| | | | ● | | 4WE10D... | | | | |
| | ● | ● | | DBU2B | 4WE6D... | DB1 function | DBmax function | | - |
| | | | ● | | 4WE10D... | | | | |
| 3 pressure stages | ● | ● | | DBU3D | 4WE6H... | DB2 function | open | DB1 Proportional | 7 |
| | | | ● | | 4WE10H... | | | | |
| | ● | ● | | | 4WE6E... | | DBmax function | | |
| | | | ● | | 4WE10E... | | | | |
| | ● | ● | | | 4WE6D... | | DB1 function | | |
| | | | ● | | 4WE10D... | | | | |
| | | | | | | Proportional pressure setting | | | |
| Proportional valves | ● | ● | | DBE | DBET-5XB/... | Without max. pressure safety limitation | | | 8 |
| | ● | ● | | DBETR | DBETR-1XB/... | | | | |
| | ● | ● | ● | DBEM | DBET-5XB/... | With max. pressure safety limitation | | | 9 |
| | ● | ● | ● | DBEMTR | DBETR-1XB/... | | | | |

Open = bypass circuit

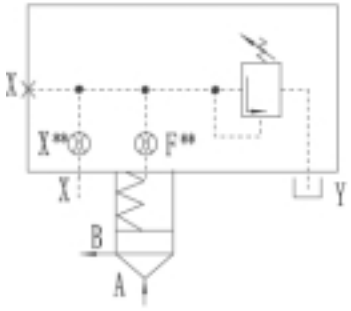
Closed = cartridge valve is hydraulically blocked

DB function = pressure relief function

## Symbol overview (basic symbols), pressure relief function

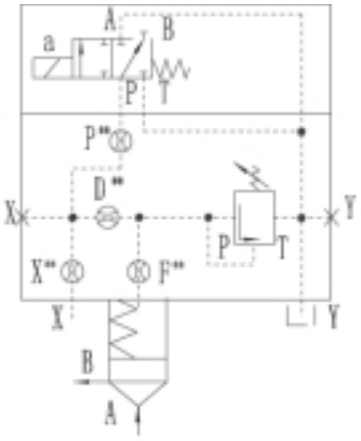
Valid symboles are shown in the following type descriptions!

① LFA...DBW.-/.. NS 16 to 100



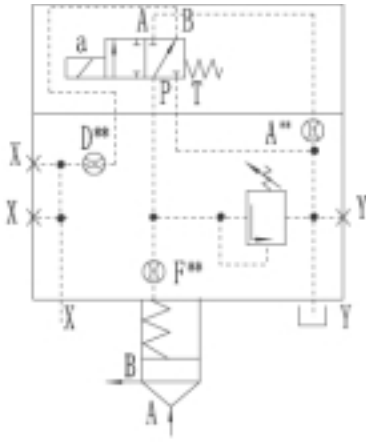
see pages 47 to 49

② LFA...DBW.-/.. NS 16 to 32



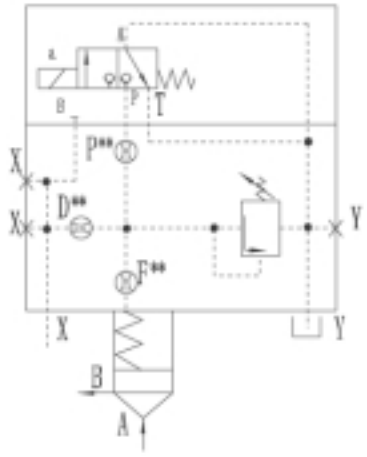
see pages 50 to 51

③ LFA...DB.-/.. NS 10 to 100



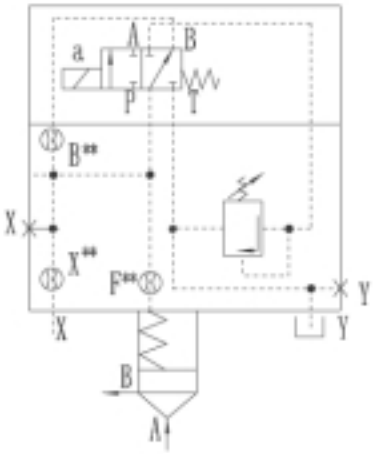
see pages 50 to 54

④ LFA...DBS.-/..NS 40 to 100



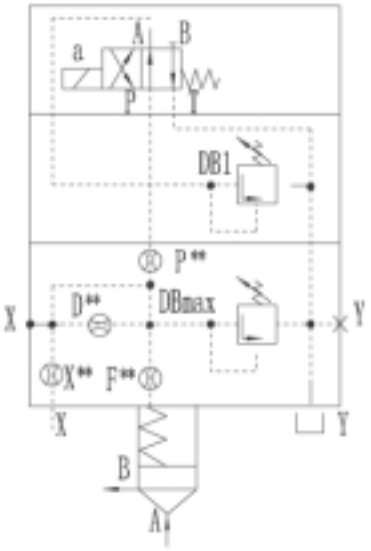
see pages 50 to 54

⑤ LFA...DBWD.-/..NS 16 to 100



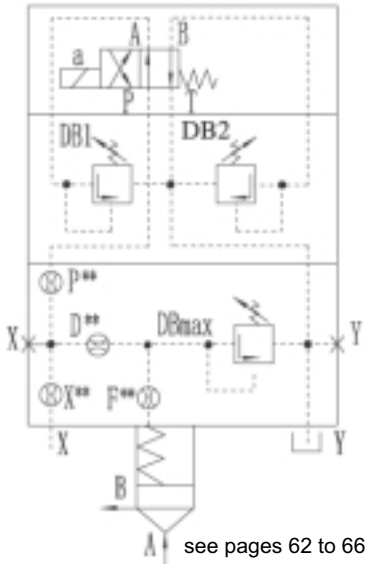
see pages 55 to 57

⑥ LFA...DBU 2A.-/..NS 16 to 100



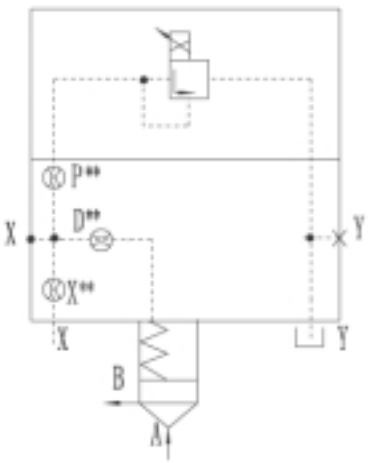
see pages 58 to 61

⑦ LFA...DBU 3D.-/..NS 16 to 100



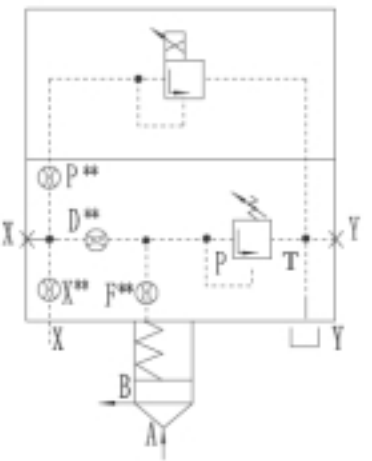
see pages 62 to 66

⑧ LFA...DBE(TR).-/..NS 16 to 63



see page 67

⑨ LFA...DBEM(TR).-/..NS 16 to 100

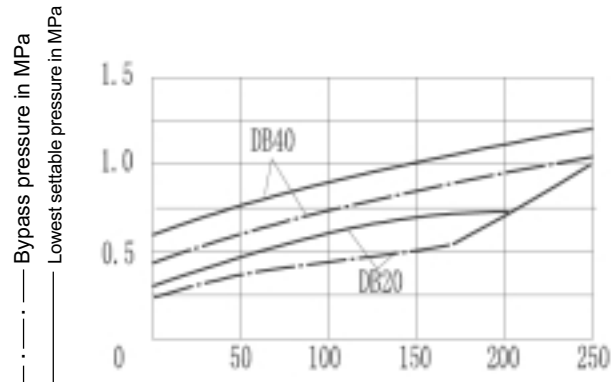


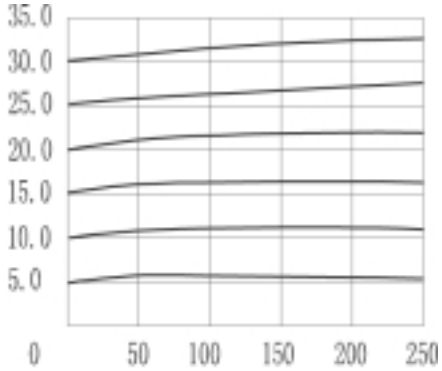
see pages 68 to 71

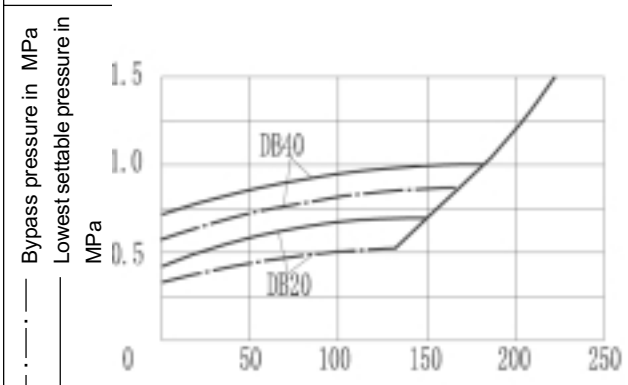
**Characteristic curves:** (measured at v =41mm $^2$ /s and t = 50 ° C)

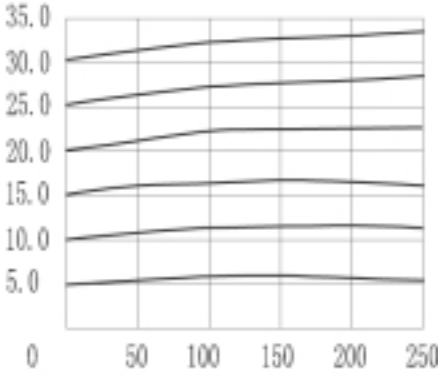
NS 16 The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased to the pressure being applied at port B.

Manual pressure adjustment, type LFA16 $^{DB}_{DBW}$...6XB/...

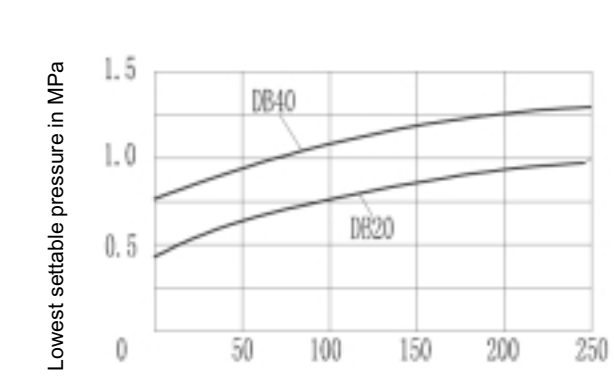


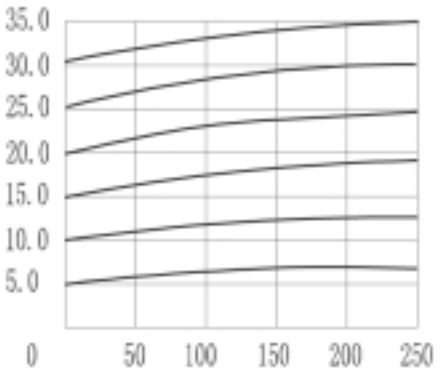



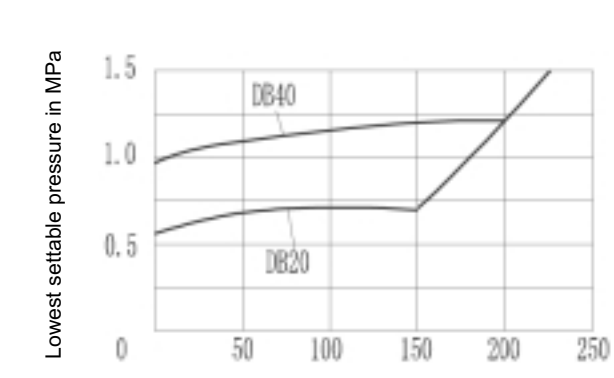



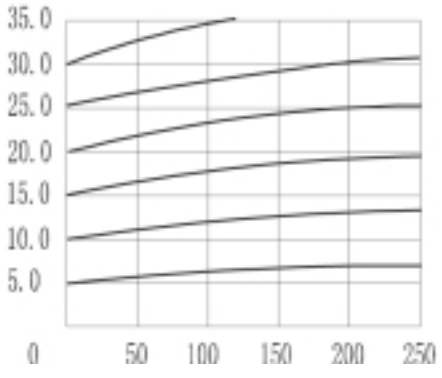




Electrical proportional pressure adjustment, type LFA16DBE...6XB/...



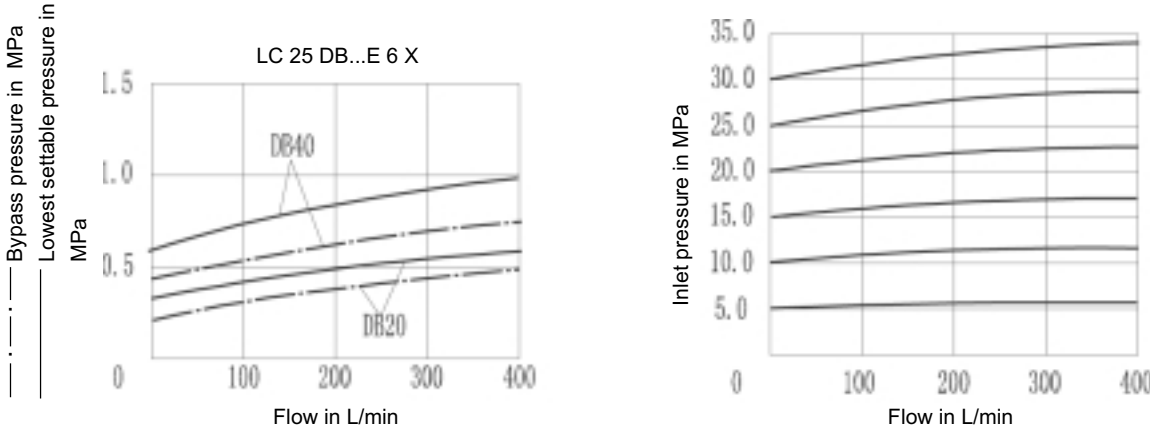



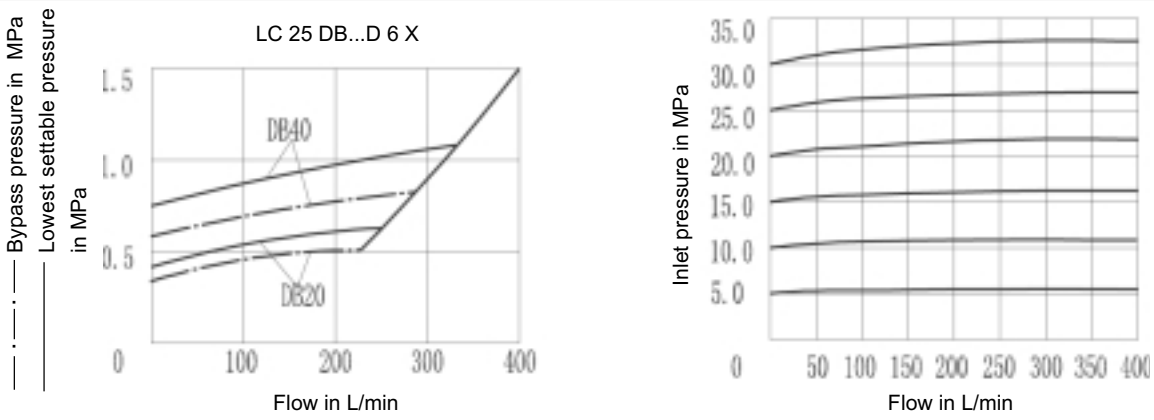
**Characteristic curves**: (measured at v =41mm ² /s and t = 50 ° C)

NS 25

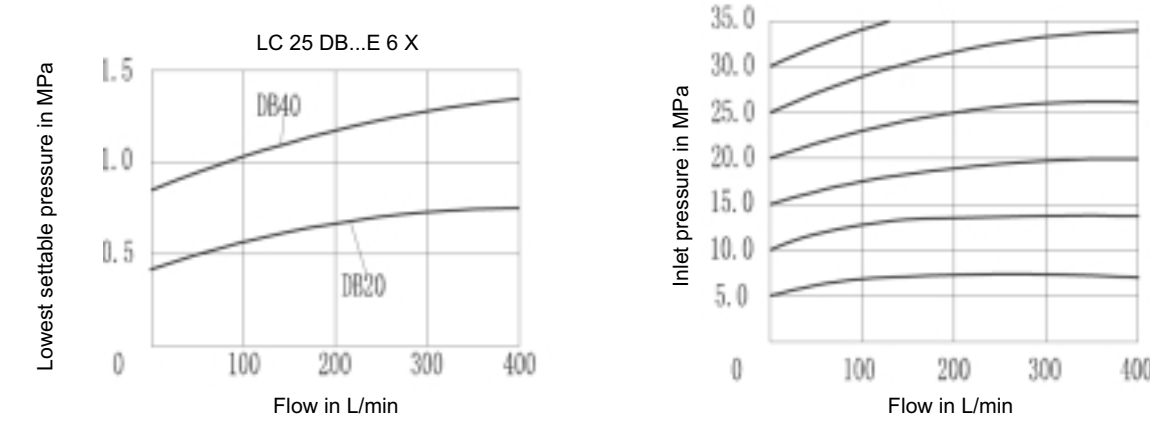
The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased to the pressure being applied at port B.

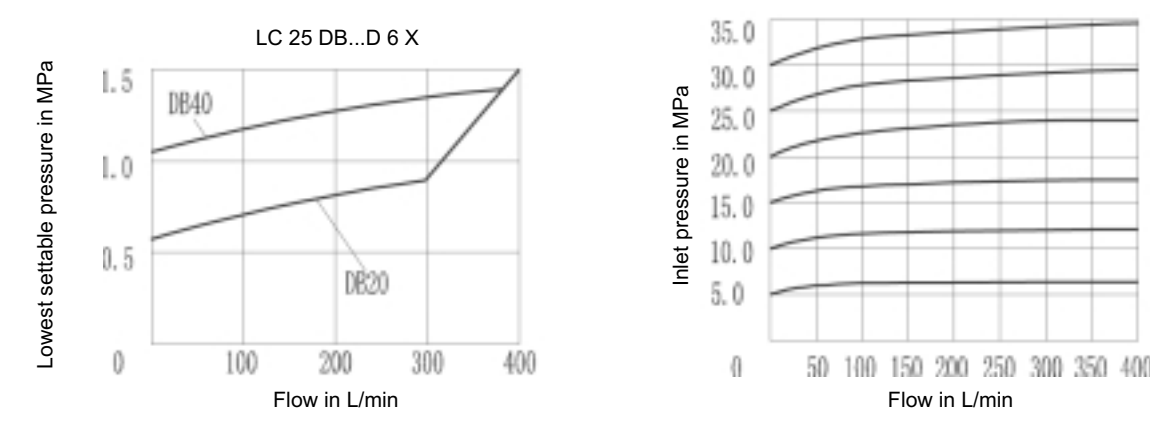
Manual pressure adjustment,LFA 25 DB DBW...6XB/...




Electrical proportional pressure adjustment, type LFA25DBE...6XB/...



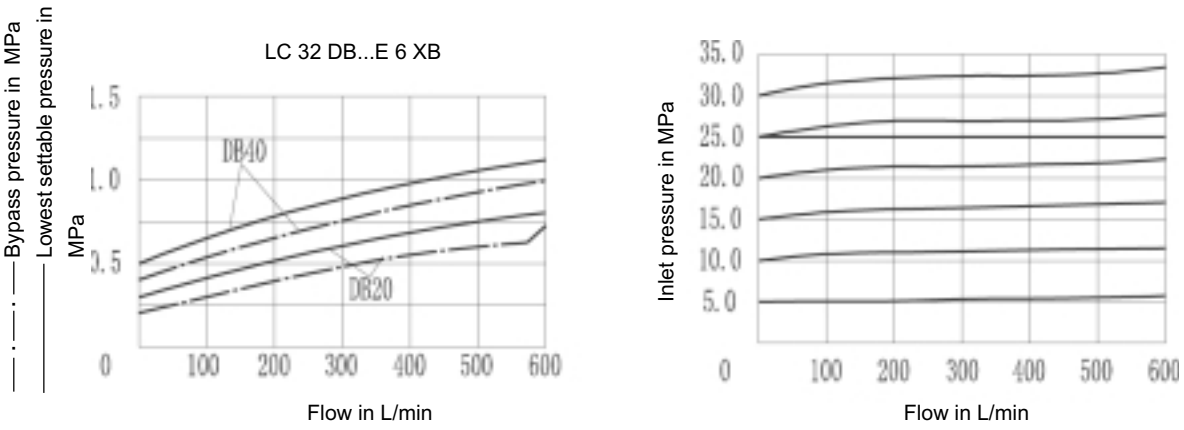



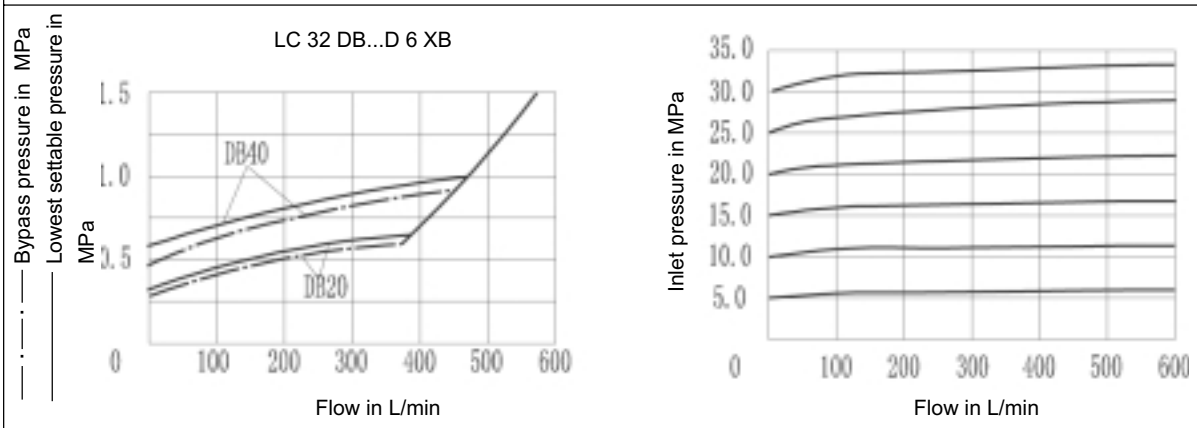
**Characteristic curves:** (measured at v =41mm $^2$ /s and t = 50 ° C)

NS 32

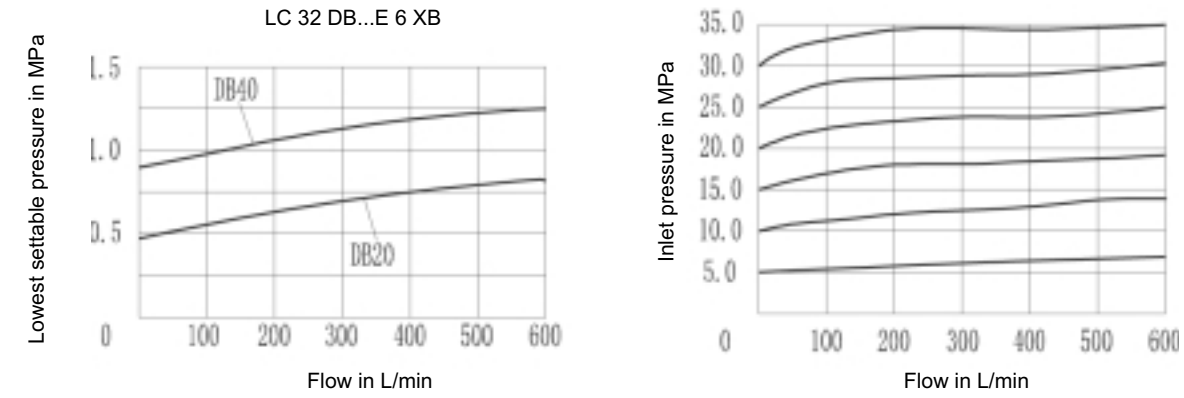
The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased to the pressure being applied at port B.

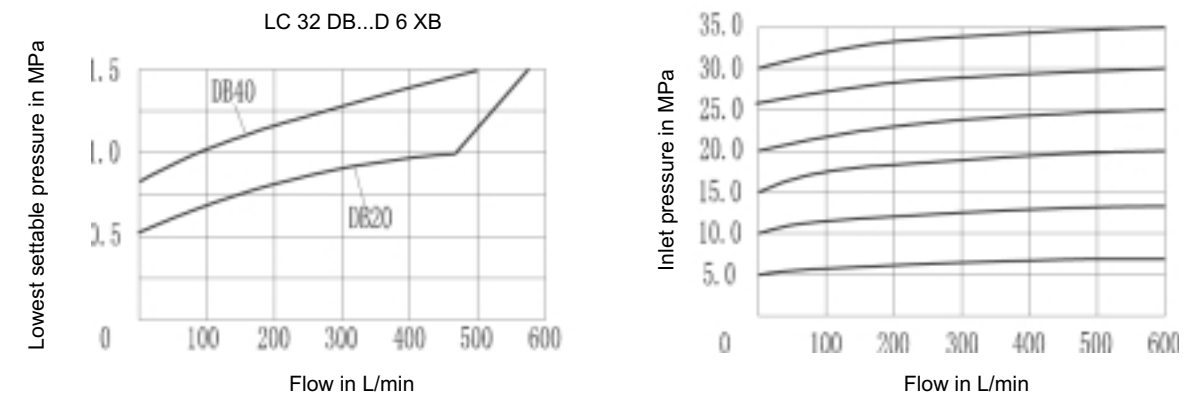
Manual pressure adjustment, typeLFA 32 DB DBW...6XB/...




Electrical proportional pressure adjustment, type LFA16DBE...6XB/...



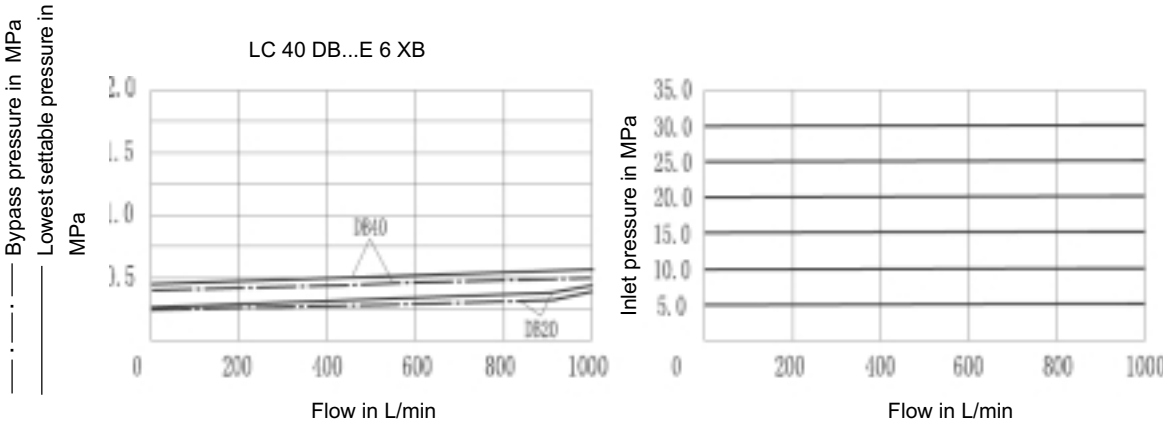
**Characteristic curves**: (measured at v =41mm $^2$ /s and t = 50 ° C)

NS 40

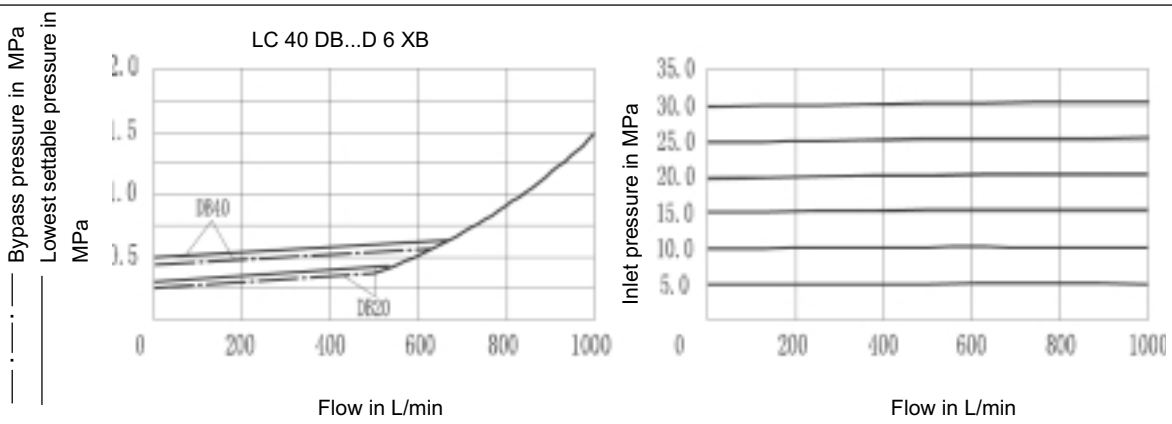
The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased to the pressure being applied at port B.

Manual pressure adjustment, typeLFA 40 $^{DB}_{DBW}$...6XB/...

LC 40 DB...E 6 XB

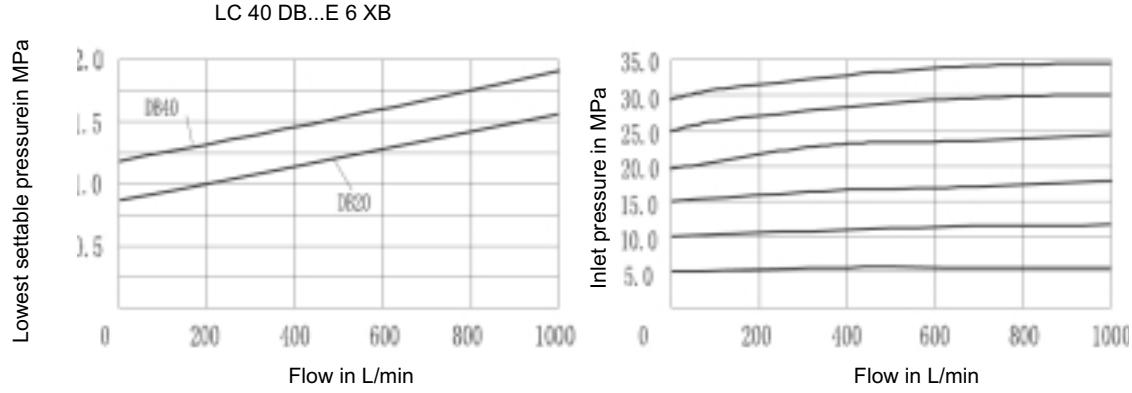



LC 40 DB...D 6 XB

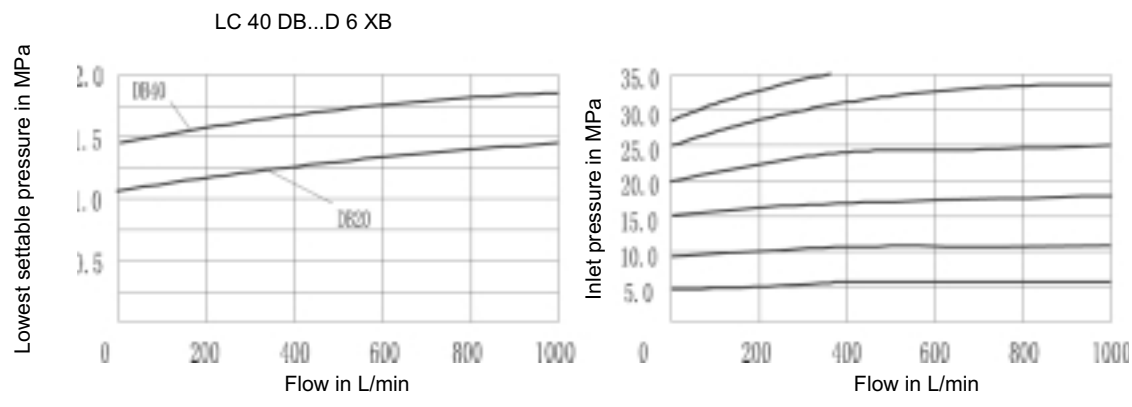



Electrical proportional pressure adjustment, type LFA40DBE...6XB/...

LC 40 DB...E 6 XB




LC 40 DB...D 6 XB

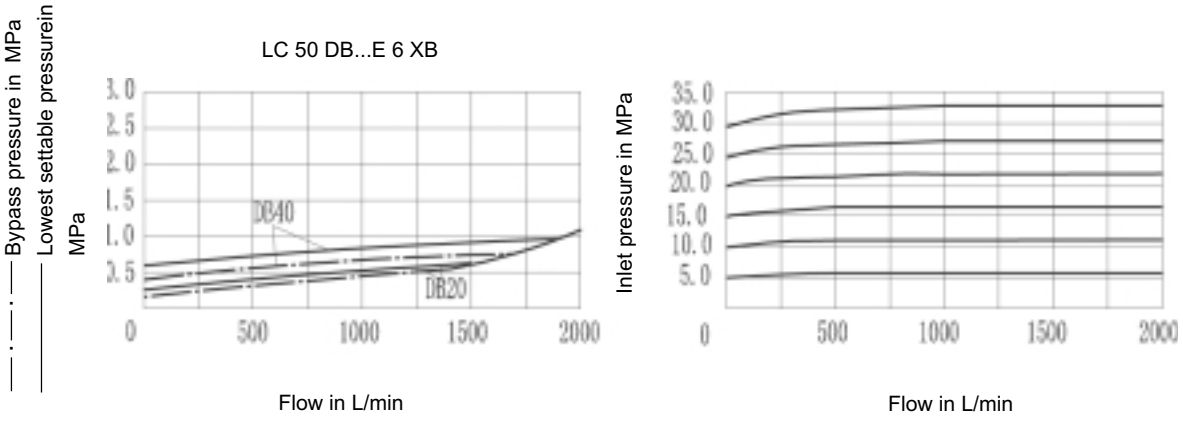


**Characteristic curves:** (measured at v =41mm ² /s and t = 50 ° C)

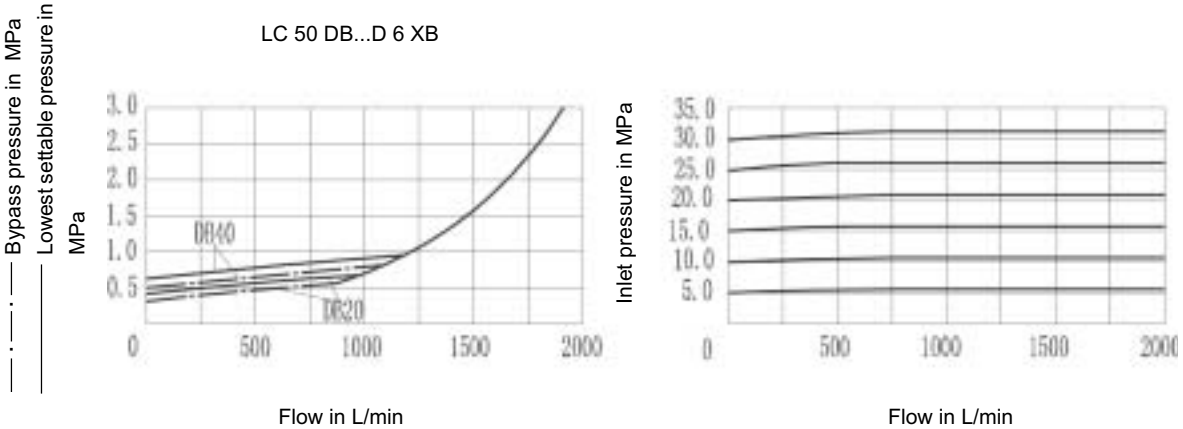
NS 50 The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased to the pressure being applied at port B.

Manual pressure adjustment, typeLFA 50 DB DBW ...6XB/...

LC 50 DB...E 6 XB

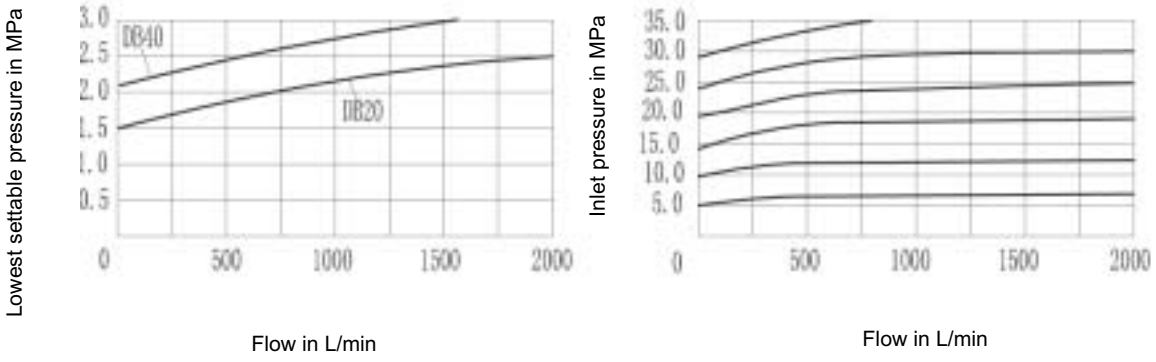



LC 50 DB...D 6 XB

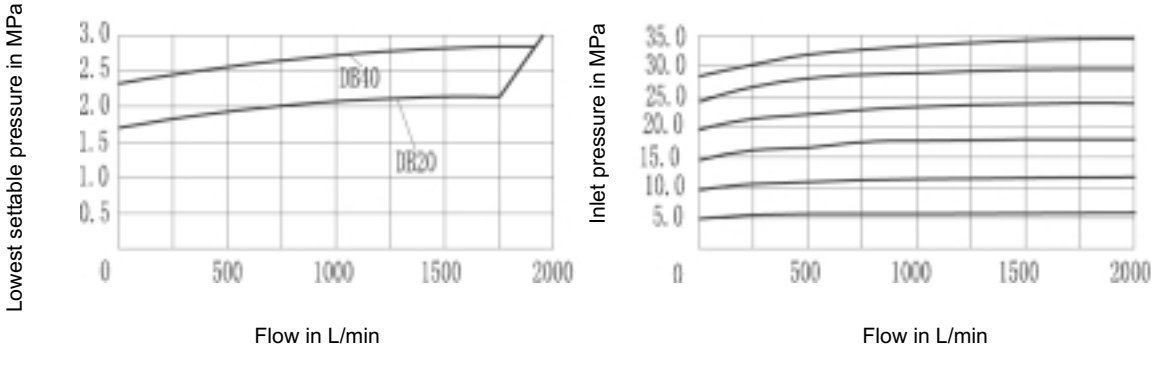



Electrical proportional pressure adjustment, type LFA50DBE...6XB/...

LC 50 DB...E 6 XB




LC 50 DB...D 6 XB



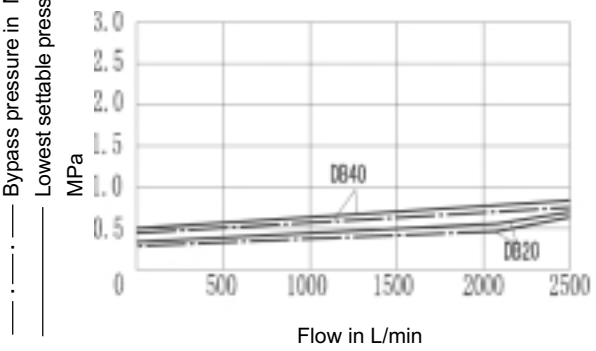
**Characteristic curves**: (measured at v =41mm²/s and t = 50 ° C)

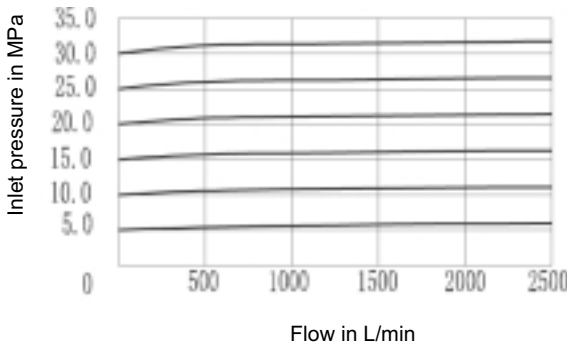
NS 63

The characteristic curves were measured with an external pilot oil drain at zero pressure. With an internal pilot oil drain the inlet pressure is increased to the pressure being applied at port B.

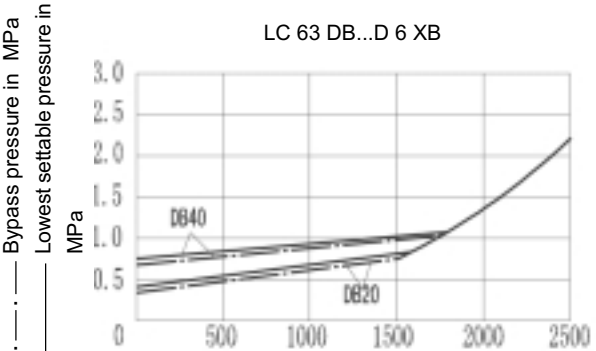
Manual pressure adjustment, typeLFA 63 DB DBW ...6XB/...

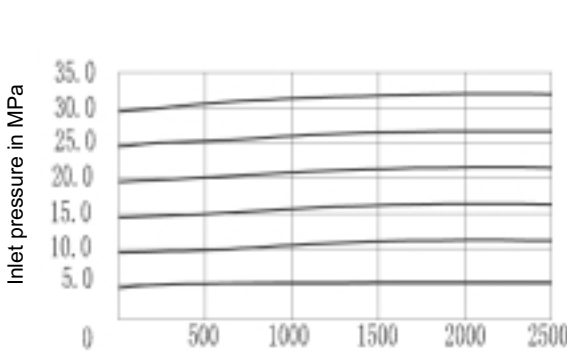
LC 63 DB...E 6 XB



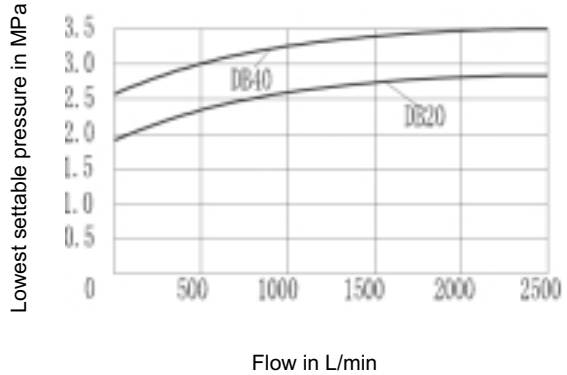

LC 63 DB...D 6 XB

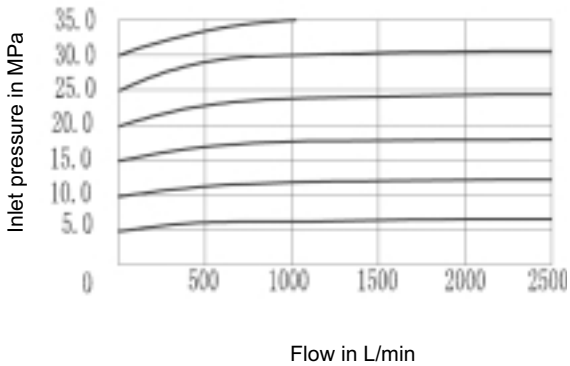


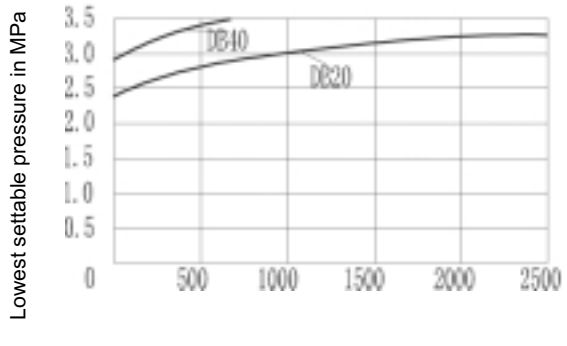

Electrical proportional pressure adjustment, type LFA63DBE...6XB/...

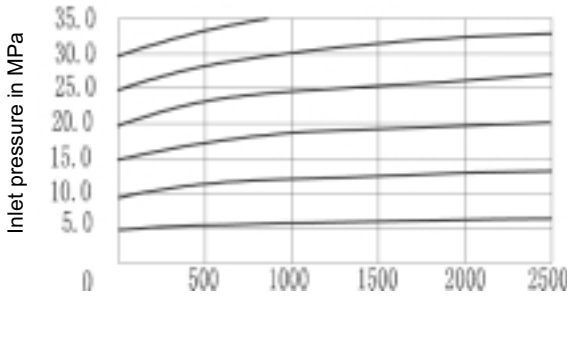
LC 63 DB...E 6 XB




LC 63 DB...D 6 XB



## O-rings dimensions for ports X, Y (included within the scope of supply)

| NS | Dimensions (mm) | Material no. | |
|---|---|---|---|
| | | NBR | FPM |
| 16 | 7.65 × 1.78 | 004 491 | 006 585 |
| 25 | 9.25 × 1.78 | 007 111 | 009 097 |
| 32 | 10.82 × 1.78 | 008 937 | 008 941 |
| 40,50 | 12.37 × 2.62 | 004 489 | 008 949 |
| 63 | 18.72 × 2.62 | 009 245 | 002 045 |
| 80 | 26.58 × 3.53 | 004 490 | 008 944 |
| 100 | 34.52 × 3.53 | 009 354 | 009 191 |

## Seal kits for control cover type LFA..

Seal kits for cartridge valves typeLC...DB../（NS 16 to 100）

| Seal kit for | Material no. | |
|---|---|---|
| | NBR | FPM |
| LC16DB..6XB/.. | 314352 | 314353 |
| LC25DB..6XB/.. | 314354 | 314355 |
| LC32DB..6XB/.. | 314356 | 314357 |
| LC40DB..6XB/.. | 314055 | 314064 |

| Seal kit for | Ordering code | |
|---|---|---|
| | NBR | FPM |
| LC50DB..6XB/.. | 314056 | 314065 |
| LC63DB..6XB/.. | 314057 | 314066 |
| LC80DB..6XB/.. | 314058 | 314067 |
| LC100DB..6XB/.. | 314059 | 314068 |

Seal kits for control cover typeLF... (NS 16 t0 100)

| Material no. / Seal kit for | Ordering no. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 16 | | 25 | | 32 | | 40 | |
| | NBR | FPM | NBR | FPM | NBR | FPM | NBR | FPM |
| ..DB..;..DBW..;..DBS.. ..DBWD..;DBWEM(TR).. | 313955 | 313956 | 313957 | 313958 | 313802 | 313803 | 313722 | 313723 |
| ..DB..U2..;..DBU3.. | 313709 | 313710 | 313711 | 313712 | 313713 | 313714 | 313715 | 313716 |
| DBE(TR) | 313701 | 313702 | 313703 | 313704 | 313705 | 313706 | 313707 | 313708 |

| Material no. / Seal kit for | Ordering no. | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 50 | | 63 | | 80 | | 100 | |
| | NBR | FPM | NBR | FPM | NBR | FPM | NBR | FPM |
| ..DB..;..DBW..;..DBS.. ..DBWD..;DBWEM(TR).. | 313724 | 313725 | 313726 | 313727 | 310533 | | | |
| ..DB..U2..;..DBU3.. | 313717 | 313718 | 313719 | 313720 | | | | |
| DBE(TR) | 313897 | 313898 | 313899 | 313700 | | | | |
| DBEM(TR) | 313893 | 313894 | 313895 | 313896 | 311930 | | | |

## Fixing screws (included within the scope of supply)

| NS | Qty | Dimensions | Tightening torque in Nm |
|---|---|---|---|
| 16 | 4 | M8 × 45 | 32 |
| 25 | 4 | M12 × 50 | 110 |
| 32 | 4 | M16 × 60 | 270 |

| NS | Qty | Dimensions | Tightening torque in Nm |
|---|---|---|---|
| 40 | 4 | M20 × 70 | 520 |
| 50 | 4 | M30 × 80 | 520 |
| 63 | 4 | M30 × 100 | 1800 |

| NS | Qty | Dimensions | Tightening torque in Nm |
|---|---|---|---|
| 80 | 8 | M24×120 | 900 |
| 100 | 8 | M30×120 | 1800 |

## Orifice thread size

| | |
|---|---|
| D-orifices for type ..DBE.. NS 25 to 63 | M8 x 1 tapered |
| Orifices for NS 80, 100 | M8 x 1 tapered or G 1/4″ |
| Other built-in orifices | M6 tapered |

## Compression springs Note

Nominal size and Material no. of Compression springs,
see sheet Page 73

## Control cover with manual pressure adjustment

NS 16 to 100

| 1 | 2 | 3 | 4 | 5 | 6 | 9 | 10 |
|---|---|---|---|---|---|---|---|
| LFA | | DB | | 6X | B | | * |

Further details in clear text

No code = Mineral oils
V = Phosphate ester

Nominal size 16 = 16
Nominal size 25 = 25
Nominal size 32 = 32
Nominal size 40 = 40
Nominal size 50 = 50
Nominal size 63 = 63
Nominal size 80 = 80
Nominal size 100 = 100

**Pressure ratings**

| NS 16, 25 ,32 | NS 40, 50, 63, 80, 100 |
|---|---|
| 050 = 5.0 MPa | 025 = 2.5 MPa |
| 100 = 10.0MPa | 050 = 5.0 MPa |
| 200 = 20.0 MPa | 100 = 10.0 MPa |
| 315 = 31.5 MPa | 200 = 20.0 MPa |
| 420 = 42.0 MPa | 315 = 31.5 MPa |
| | 400 = 40.0 MPa |

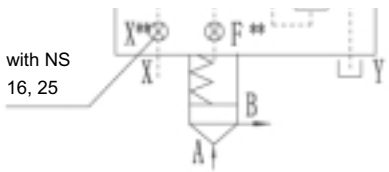
**Adjuster type**

Rotary knob = 1
Hexagon with protective cap = 2
Lockable rotary knob with scale = 3
(H-lock to automotive industry standards)
Rotary knot with scale not lockable = 4

B = Technology of Beijing Huade Hydraulic

with NS 32

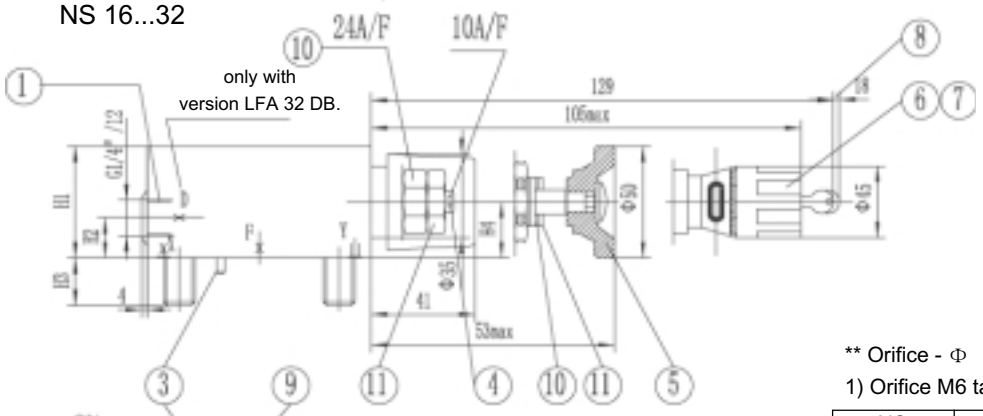
6X= Series 60 to 69 (60 to 69: unchanged installation and connection dimensions)

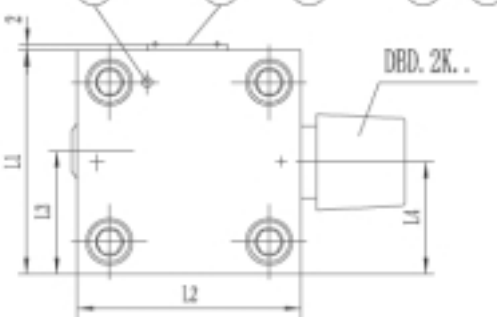



LFA..DB.-7X/..
NS 16, 25, 32

with NS
16, 25

NS 16...32



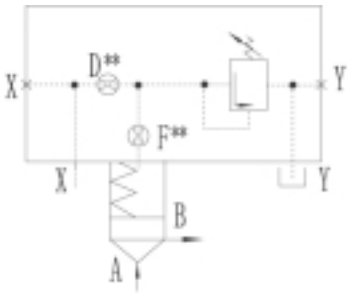




1 Port X optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space require to remove the key
9 Nameplate
10 Lock nut
11 Setting nut for max. pressure

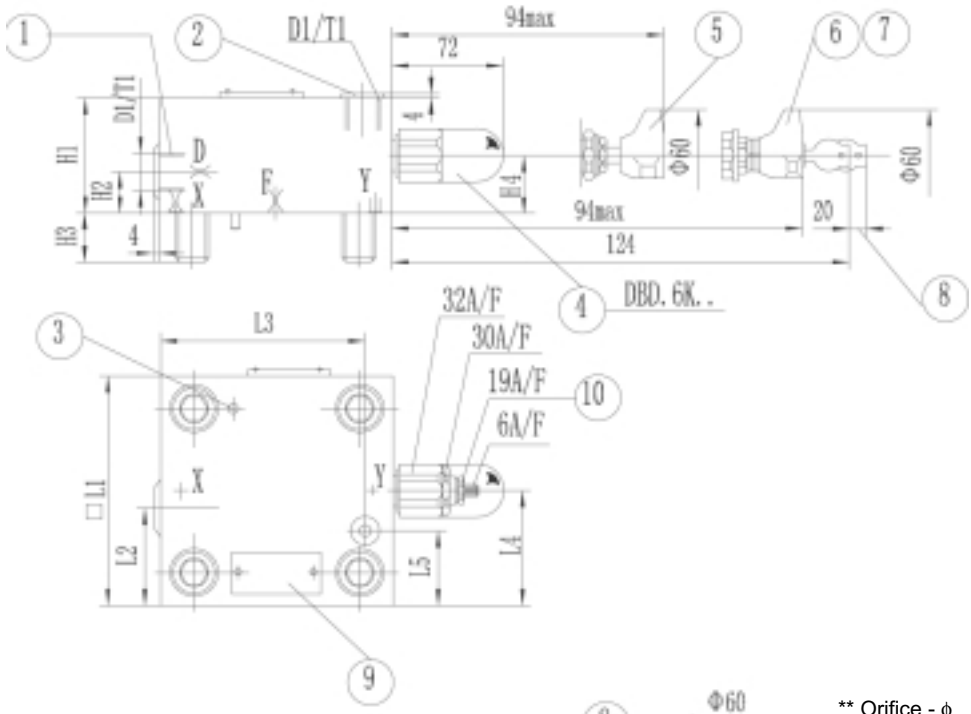
** Orifice - Φ
1) Orifice M6 tapered

| NS | 16 | 25 | 32 |
|---|---|---|---|
| X** | 0.8 | 0.8 | - |
| F** | 1.0 | 1.0 | 1.2 |
| D** | - | - | 0.8 |
| H1 | 40 | 40 | 50 |
| H2 | 17 | 19 | 26 |
| H3 | 15 | 24 | 28 |
| H4 | 19 | 19 | 26 |
| L1 | 65 | 85 | 100 |
| L2 | 80 | 85 | 100 |
| L3 | 36.5 | 49 | 56.5 |
| L4 | 32.5 | 45.5 | 53 |

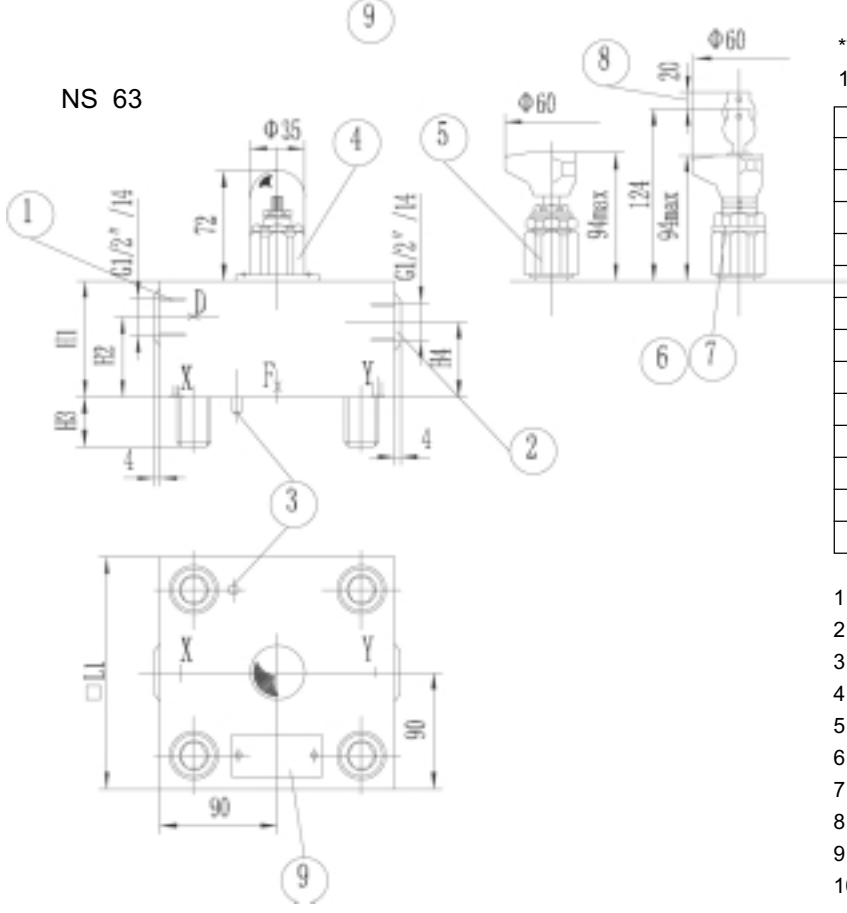
LFA..DB.-../...
NS 40，50，63




NS 40，50




NS 63

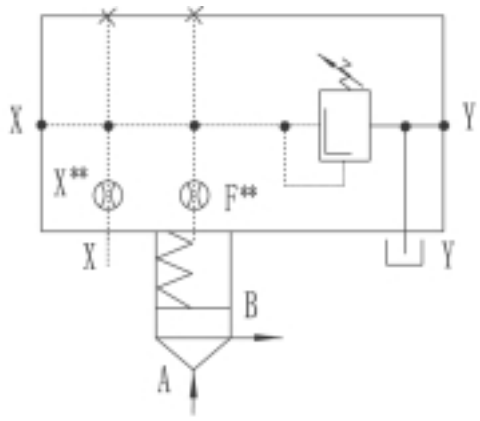



** Orifice - ϕ
1) Orifice M6 tapered

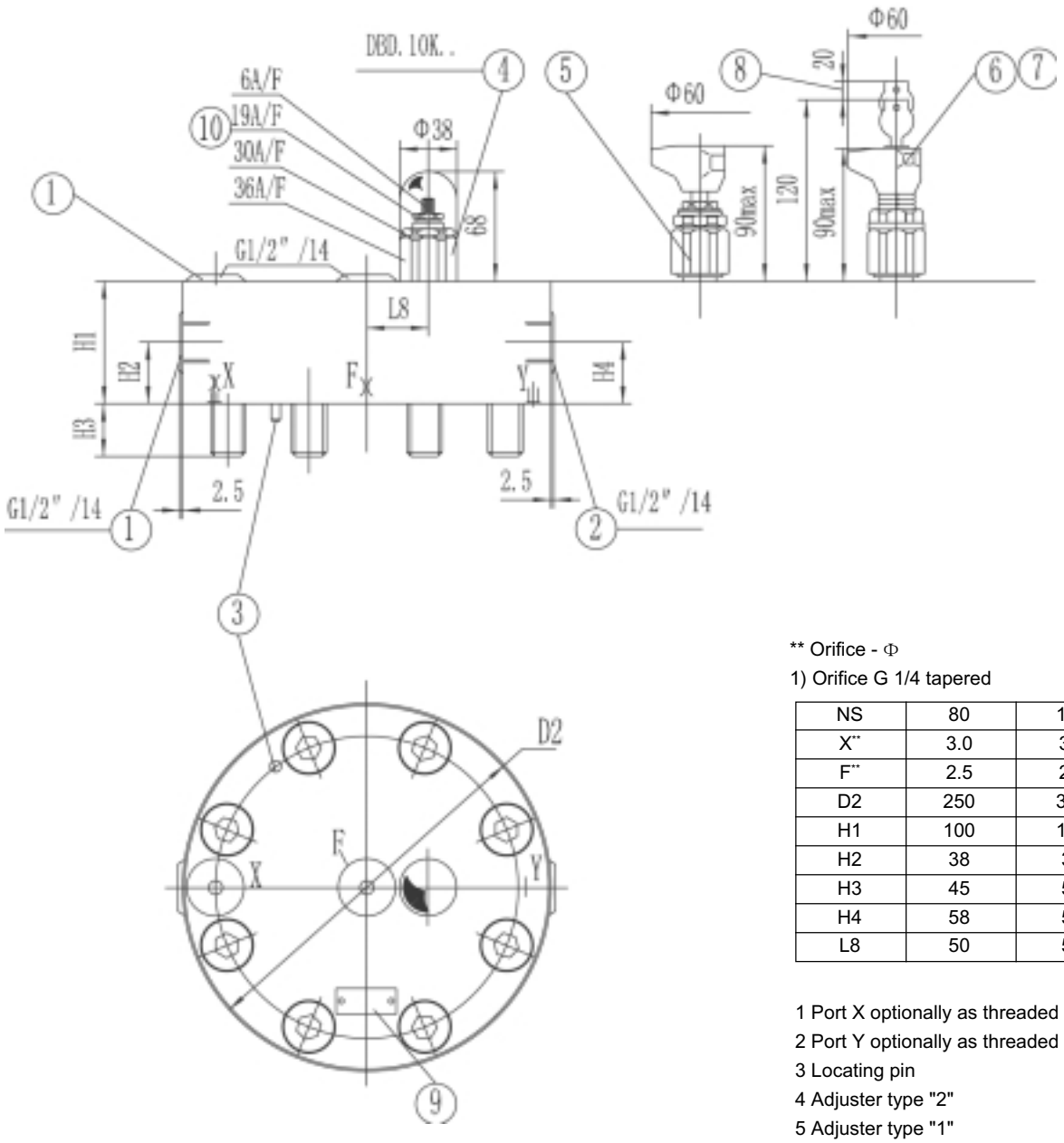
| NS | 40 | 50 | 63 |
|---|---|---|---|
| F** | 1.2 | 1.2 | 1.5 |
| D** | 1.0 | 1.2 | 1.5 |
| D1 | G1/4″ | G1/2″ | - |
| H1 | 60 | 68 | 82 |
| H2 | 28 | 19.5 | 30 |
| H3 | 32 | 34 | 50 |
| H4 | 27 | 35 | 45.5 |
| □L1 | 125 | 140 | 180 |
| L2 | 69 | 80 | - |
| L3 | 89 | 105 | - |
| L4 | 76 | 84 | - |
| L5 | 60 | 70 | - |
| T1 | 12 | 14 | - |

1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

LFA..DB.-../...
NS 80，100




NS 80，100




** Orifice - Φ

1) Orifice G 1/4 tapered

| NS | 80 | 100 |
|---|---|---|
| X** | 3.0 | 3.0 |
| F** | 2.5 | 2.5 |
| D2 | 250 | 300 |
| H1 | 100 | 100 |
| H2 | 38 | 38 |
| H3 | 45 | 51 |
| H4 | 58 | 58 |
| L8 | 50 | 50 |

1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

## Control cover with manual pressure adjustment, for electrical unloading

NS 16 to100

| 1 | 2 | 3 | 4 | 5 | 6 | 9 | 10 |
|---|---|---|---|---|---|---|---|
| LFA | | DB | | 6X | B | | * |

Further details in clear text

NS 16 =16 NS 50 =50
NS 25 =25 NS 63 =63
NS 32 =32 NS 80 =80
NS 40 =40 NS 100 =100

No code = Mineral oils
V = Phosphate ester

**Pressure ratings**
(take max. perm. pressure of pilot valve into account)

| size 16, 25, 32 | size 40, 50, 63, 80, 100 |
|---|---|
| 050=5.0MPa | 025=2.5MPa |
| 100=10.0MPa | 050=5.0MPa |
| 200=20.0MPa | 100=10.0MPa |
| 315=31.5MPa | 200=20.0MPa |
| 420=42.0MPa | 315=31.5MPa |
| | 400=40.0MPa |

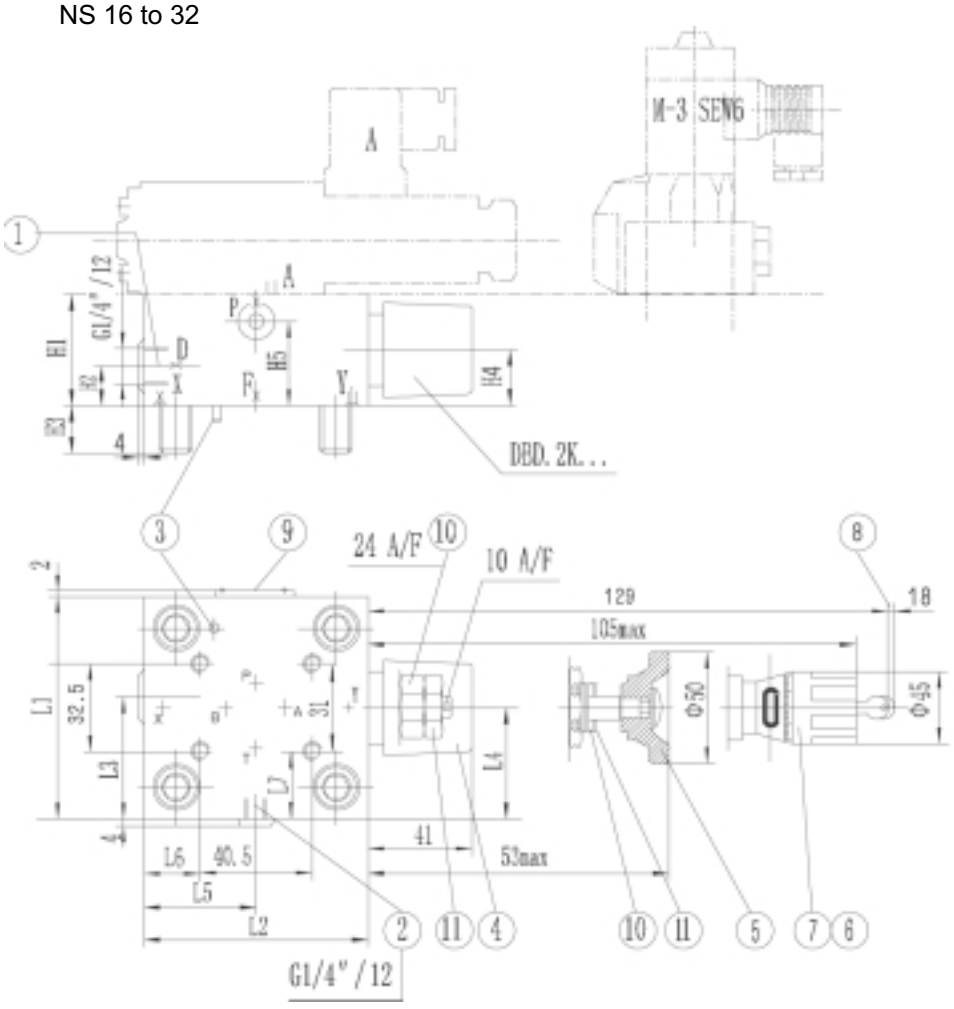
Control cover type
For mounting a directional spool
or directional poppet valve (NS 16, 25, 32) =DBW
For mounting a directional poppet valve
(for NS 40, 50,63, 80, 100) =DBS

B = Technology of Beijing Huade Hydraulic

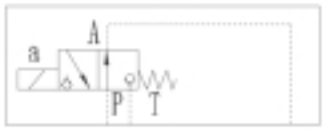
**Adjuster type**
Rotary knot = 1
Hexagon with protective cap = 2
Lockable rotary knob with scale = 3
(H-lock to automotive industry standards)
Rotary knot with scale not lockable = 4

6X = Series 60 to 69(60 to 69 unchanged installation and connection dimentions)

NS 16 to 32



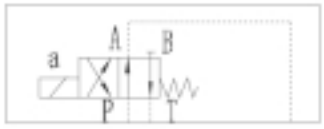

M-3 SEW 6 U 2XB/..



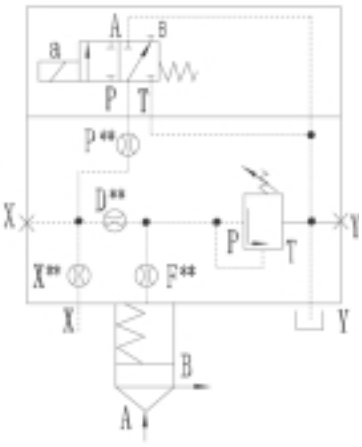
M-3 SEW 6 C 2XB/..



4 WE 6 D 5XB/..



3 WE 6 B9-5XB/..



LFA..DBW.-../..
size 16, 25, 32

Parts and dimensions see page 48

**Control cover with manual pressure adjustment, for electrical unloading (Dimensions in mm)**

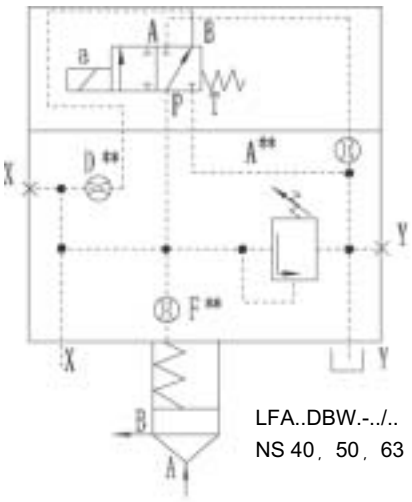
1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut
11 Setting nut for max. pressure

** Orifice-ø

| NS | X** | F** | D** | P** | H1 | H2 | H3 | H4 | H5 | L1 | L2 | L3 | L4 | L5 | L6 | L7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 0.8 | 1.0 | 0.8 | 1.0 | 40 | 17 | 15 | 19 | 28 | 65 | 80 | 36.5 | 32.5 | 35 | 7 | 17 |
| 25 | 0.8 | 1.0 | 0.8 | 1.0 | 40 | 19 | 24 | 19 | 28 | 85 | 85 | 49 | 45.5 | 36 | 8 | 27 |
| 32 | 0.8 | 1.2 | 1.0 | 1.0 | 50 | 26 | 28 | 26 | 37 | 100 | 100 | 56.5 | 53 | 57 | 30 | 34.5 |

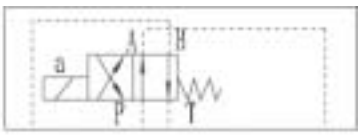
NS 40，50，63

3 WE 6 B9-5XB/..

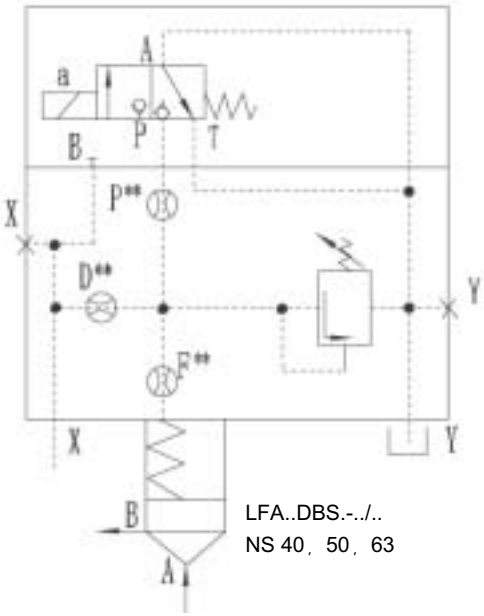



LFA..DBW.-../..
NS 40，50，63

4WE 6 D5XB/..

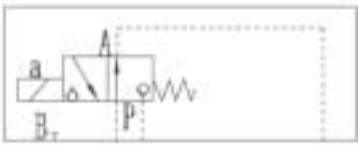



M-3 SEW 6 C 2XB/..

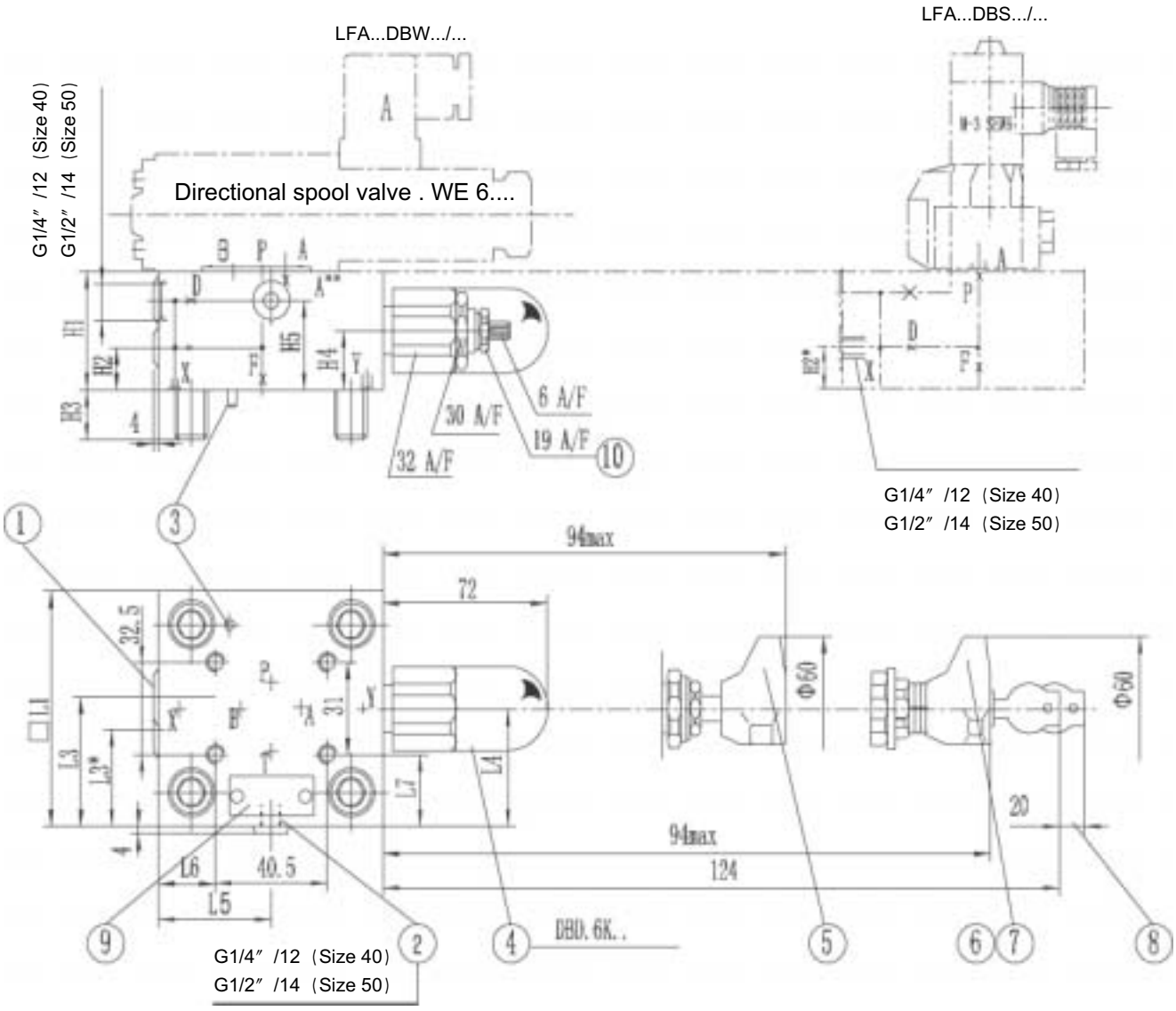



LFA..DBS.-../..
NS 40，50，63

M-3 SEW 6 U 2XB/..



NS 40，50



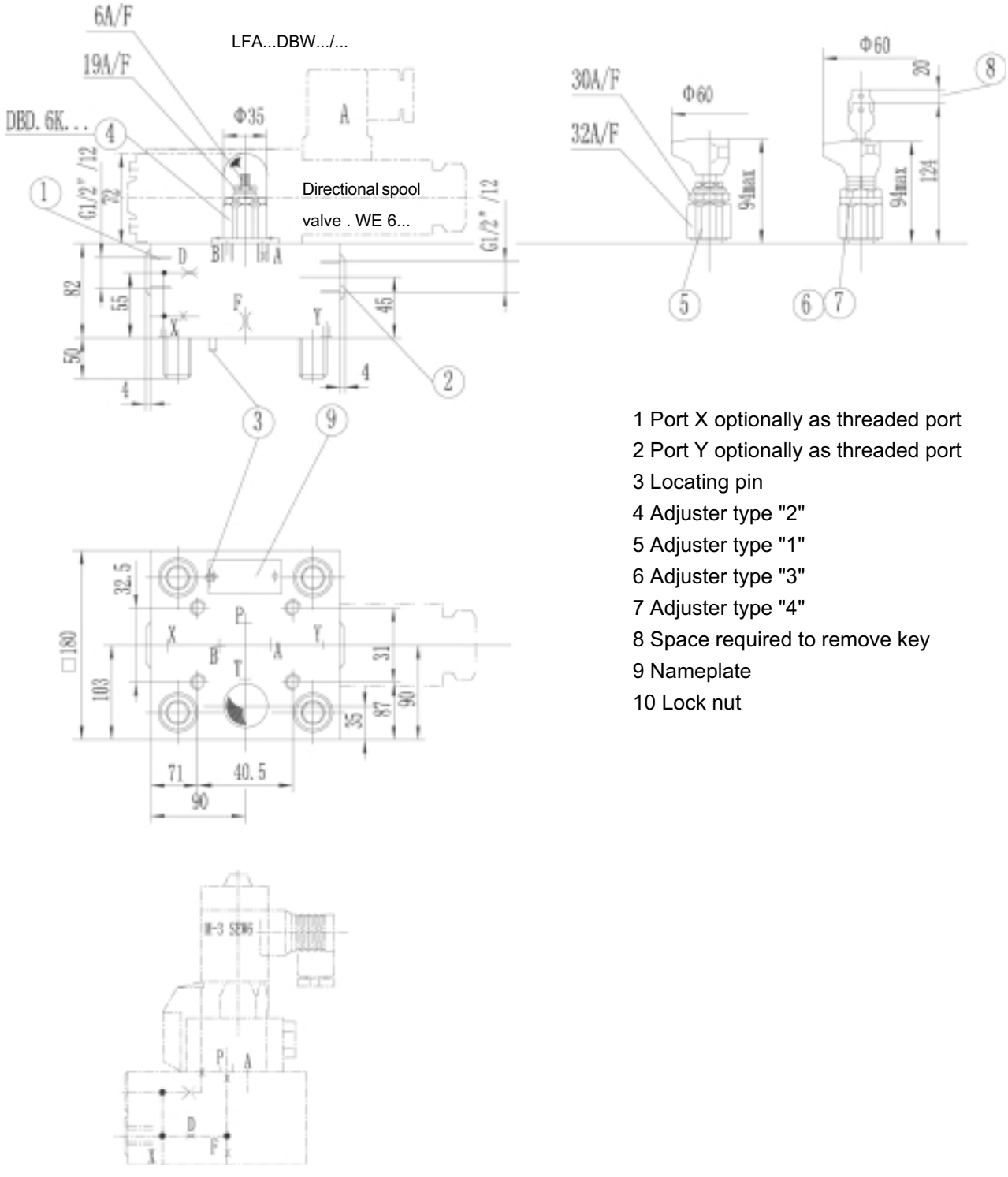

1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

*LFA...DBS control cover dimensions ** Orifice-ϕ

| NS | X** | F** | D** | P** | H1 | H2 | H2* | H3 | H4 | H5 | L1 | L2 | L3 | L4 | L5 | L6 | L7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 0.8 | 1.2 | 1.0 | 1.2 | 60 | 46 | 17 | 32 | 27 | 40 | 125 | 62.5 | 69 | 76 | 68 | 43.5 | 47 |
| 50 | 0.8 | 1.2 | 1.2 | 1.5 | 68 | 51 | 19.5 | 34 | 35 | 50 | 140 | 67.5 | 80 | 84 | 74.5 | 51 | 54.5 |

**Control cover with manual pressure adjustment, for electrical unloading** **(Dimensions in mm)**

NS 63




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

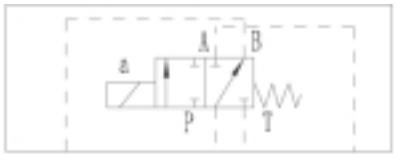
** Orifice-ϕ

| NS | A** | F** | D** | P** |
|---|---|---|---|---|
| 63 | 1.0 | 1.5 | 1.5 | 1.8 |

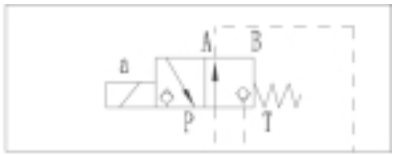
**Control cover with manual pressure adjustment, for electrical unloading (Dimensions in mm)**

NS 80,100

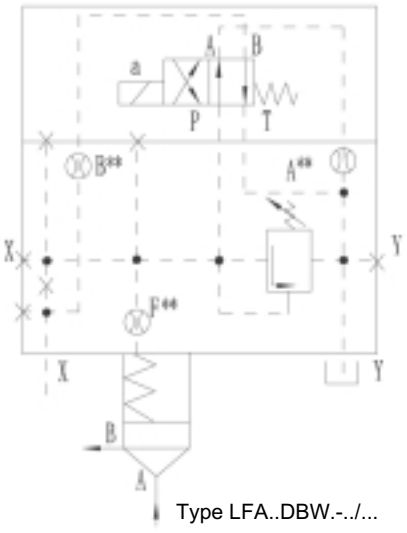
3 WE 10 B9...




M-3SE 10 U2XB/...

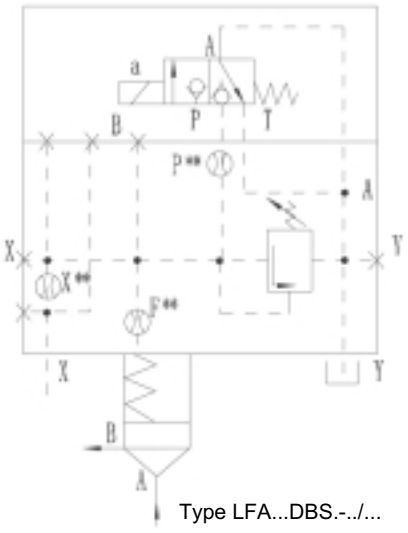



4 WE 10 D...



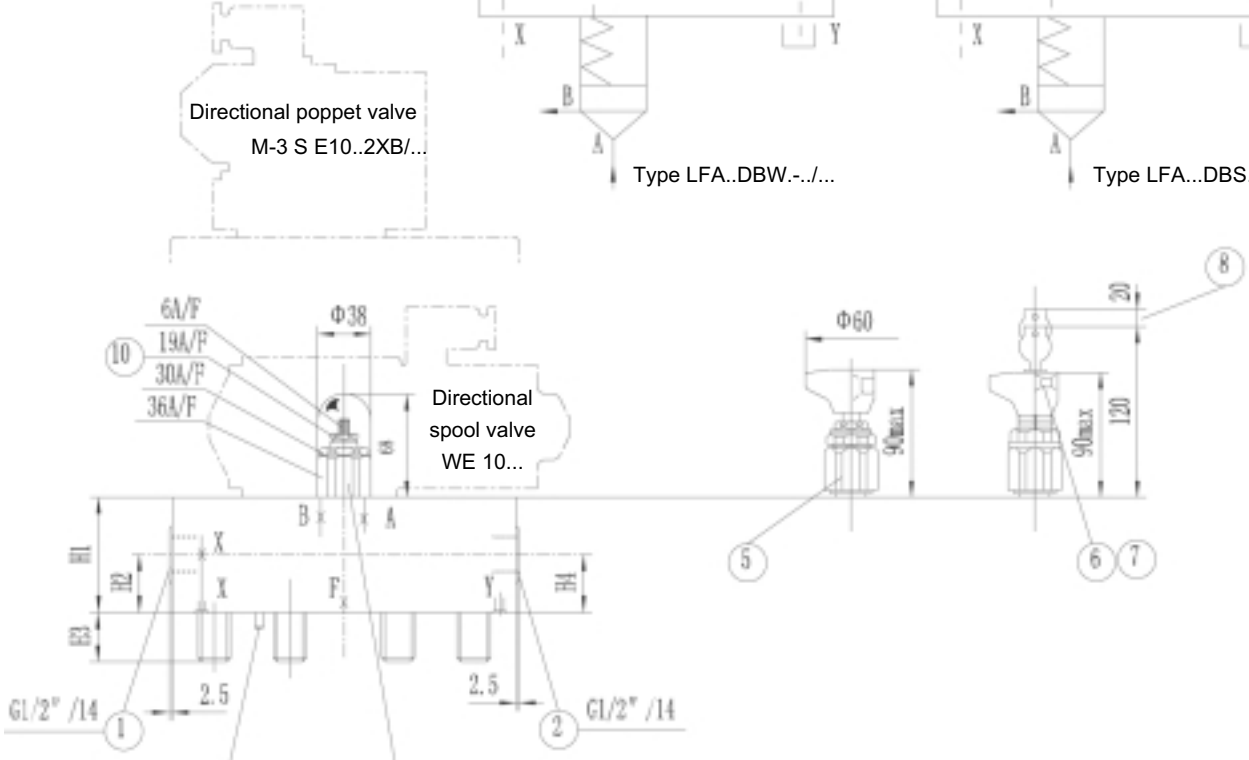

Type LFA..DBW.-../...

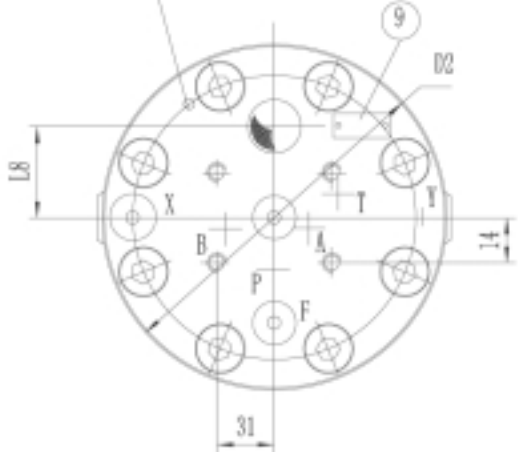
M-3SE 10 C2XB/...




Type LFA...DBS.-../...

Directional poppet valve
M-3 S E10..2XB/...




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

** Orifice-ø

| NS | 80 | 100 |
|---|---|---|
| A** | 1.2 | 1.5 |
| B** | 3.0 | 3.0 |
| X** | 3.0 | 3.0 |
| F** | 2.5 | 2.5 |
| P** | 3.5 | 3.5 |
| D2 | 250 | 300 |
| H1 | 100 | 100 |
| H2 | 30 | 30 |
| H3 | 45 | 51 |
| H4 | 52 | 52 |
| L8 | 75 | 85 |

## Control cover with manual pressure adjustment, for isolation functions (Dimensions in mm)

NS 16 to 100

| 1 | 2 | 3 | 4 | 5 | 6 | 9 | 10 |
|---|---|---|---|---|---|---|---|
| LFA | | DBWD | | 6X | B | | * |

Further details in clear text

NS 16 =16 NS 50 =50
NS 25 =25 NS 63 =63
NS 32 =32 NS 80 =80
NS 40 =40 NS 100=100

No code = Mineral oils
V = Phosphate ester

**Adjuster type**

| | |
|---|---|
| Rotary knob | = 1 |
| Hexagon with protective cap | = 2 |
| Lockable rotary knob with scale | = 3 |
| (H-lock to automotive industry standards) | |
| Rotary knob with scale not lockable | = 4 |

Series 60 to 69 = 6X(60 to 69 unchanged installation and connection dimentions)

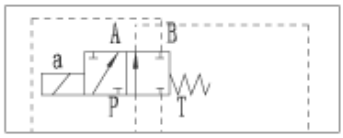
Technology of Beijing Huade Hydraulic = B

**Pressure ratings**

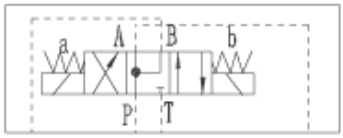
(take max. perm. pressure of pilot valve into account)

| NS 16，25，32 | NS 40，50，63，80，100 |
|---|---|
| 050=5.0MPa | 025=2.5MPa |
| 100=10.0MPa | 050=5.0MPa |
| 200=20.0MPa | 100=10.0MPa |
| 315=31.5MPa | 200=20.0MPa |
| 420=42.0MPa | 315=31.5MPa |
| | 400=40.0MPa |

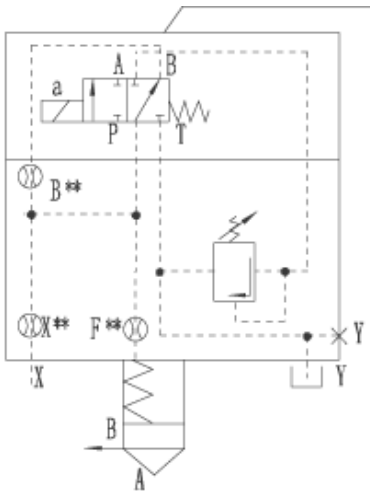
3 WE 6 A5XB/....



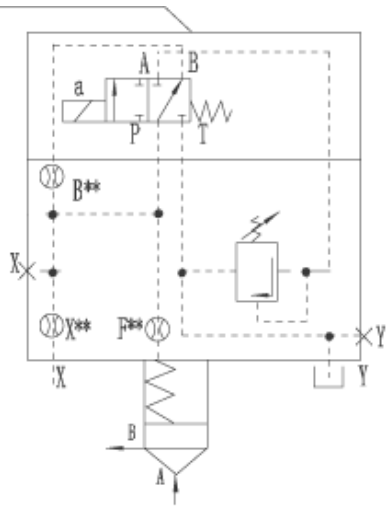
4WE 6 M5XB/



3WE 6 B9-5XB/...

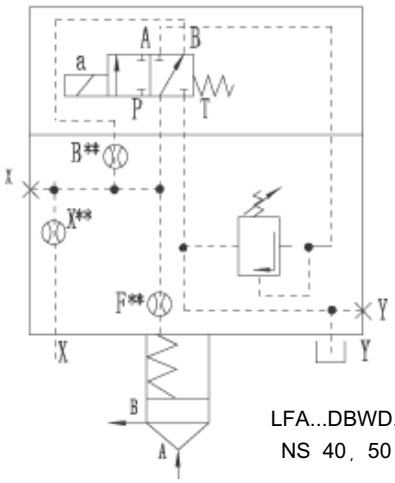


LFA...DBWD.-...
NS 16



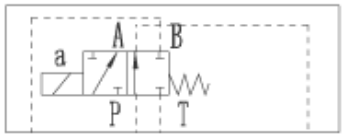
LFA...DBWD.-...
NS 25,32

3WE 6 B9-5XB/...



LFA...DBWD.-.../...
NS 40，50，63

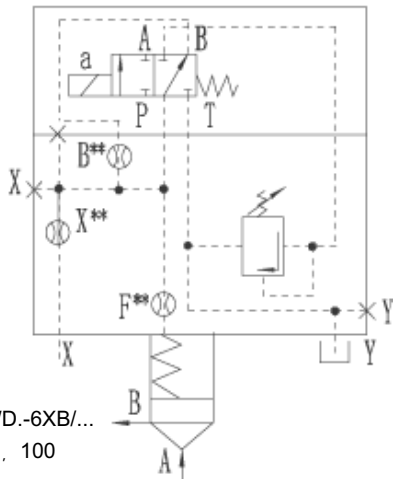
3 WE 10 A...



4 WE 10M....

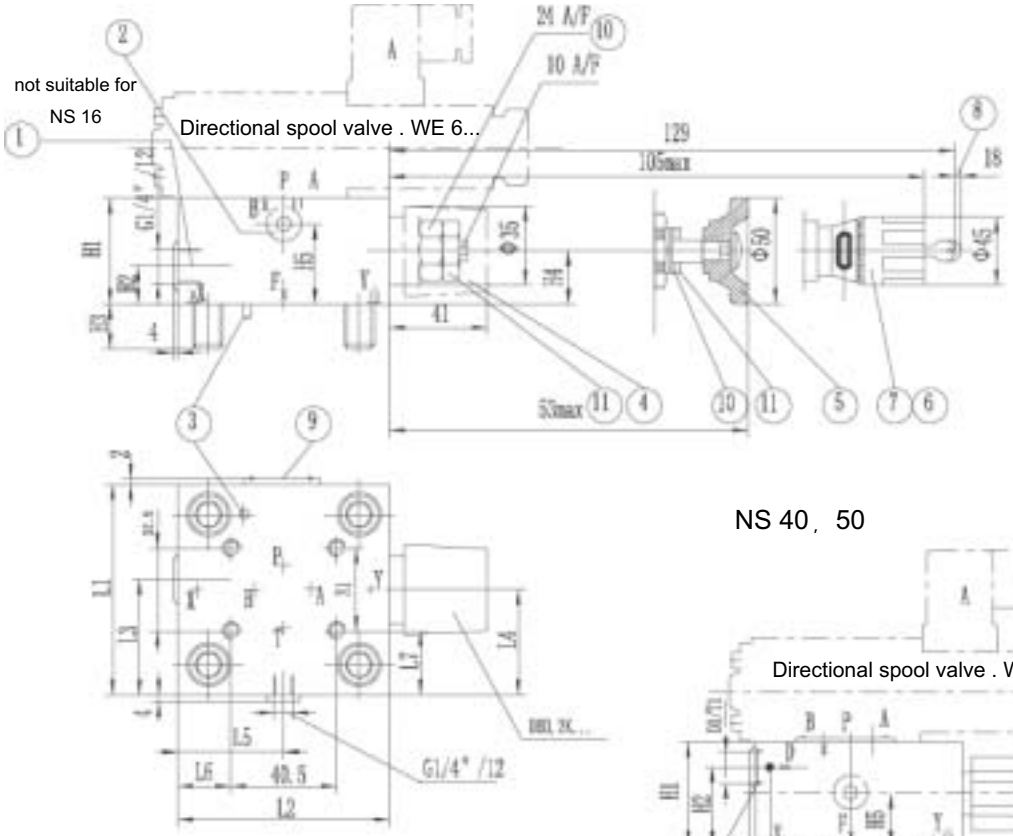


3 WE 10 B9...

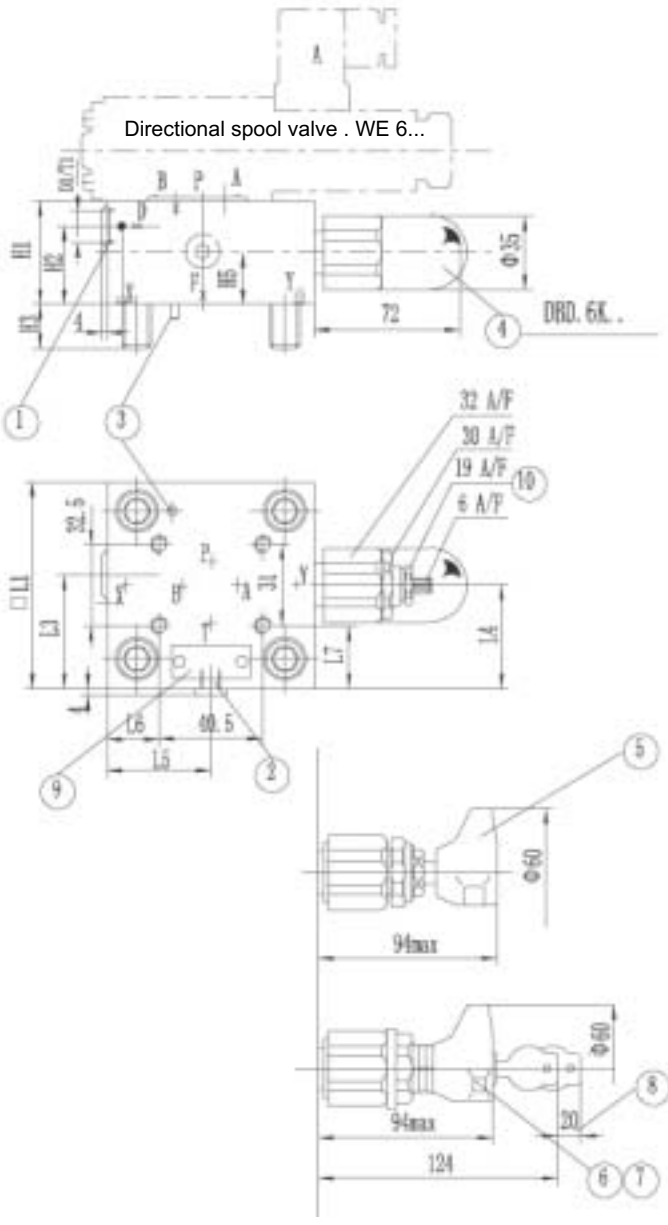


LFA...DBWD.-6XB/...
NS 80，100

NS 16 to 32




NS 40，50




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut
11 Setting nut for max. pressure

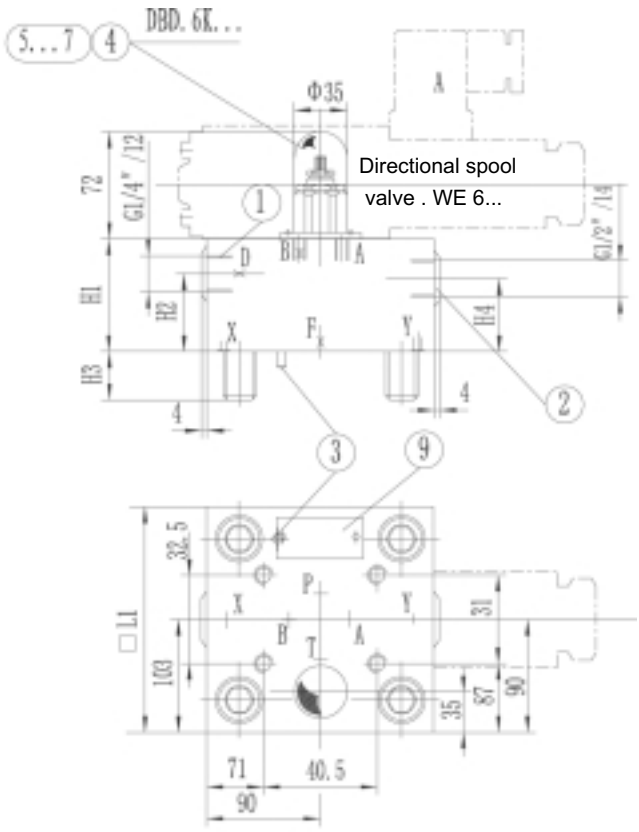
Dimensions see page 54

## Control cover with manual pressure adjustment , for isolation functions (Dimensions in mm)

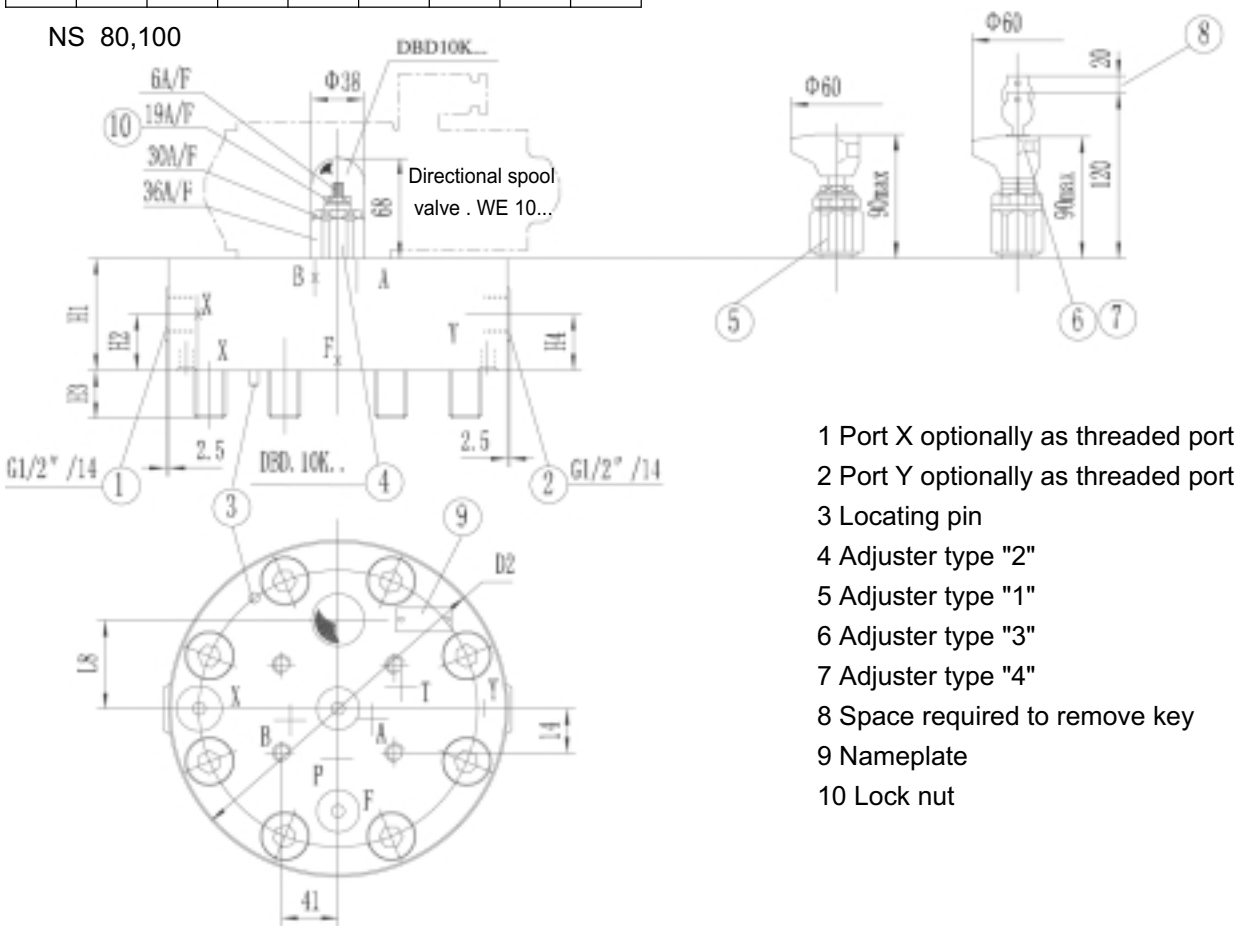
** Orifice-ϕ

| NS | 16 | 25 | 32 | 40 | 50 | 63 | 80 | 100 |
|---|---|---|---|---|---|---|---|---|
| B** | 1.0 | 1.0 | 1.0 | 1.2 | 1.5 | 1.8 | 3.5 | 3.5 |
| X** | 0.8 | 0.8 | 0.8 | - | - | - | 3.0 | 3.0 |
| F** | 1.0 | 1.0 | 1.2 | 1.2 | 1.2 | 1.5 | 2.5 | 2.5 |
| D** | - | - | - | 1.0 | 1.2 | 1.5 | - | - |
| D1 | - | - | - | G1/4″ | G1/2″ | - | - | - |
| D2 | - | - | - | - | - | - | 250 | 300 |
| H1 | 40 | 40 | 50 | 60 | 68 | 82 | 100 | 100 |
| H2 | - | 19 | 26 | 46 | 50 | 55 | 67 | 67 |
| H3 | 15 | 24 | 28 | 32 | 34 | 50 | 45 | 51 |
| H4 | 19 | 19 | 26 | 27 | 35 | 45 | 58 | 58 |
| H5 | 28 | 28 | 37 | 16 | 20 | - | - | - |
| L1 | 65 | 85 | 100 | – | – | – | – | – |
| □L1 | - | - | - | 125 | 140 | 180 | - | - |
| L2 | 80 | 85 | 100 | - | - | - | - | - |
| L3 | - | 49 | 56.5 | 62.5 | 70 | - | - | - |
| L4 | 32.5 | 45.5 | 53 | 76 | 84 | - | - | - |
| L5 | 35 | 36 | 57 | 68 | 75 | - | - | - |
| L6 | 7 | 8 | 30 | 43.5 | 51 | - | - | - |
| L7 | 17 | 27 | 34.5 | 47 | 54.5 | - | - | - |
| L8 | - | - | - | - | - | - | 75 | 85 |
| T1 | - | - | - | 12 | 14 | - | - | - |

NS 63




NS 80,100




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

## Control cover with 2 manual pressure adjustments, electrically selectable

NS 16 to 100

| 1 | 2 | 3 | 4 | 5 | 6 | 9 | 10 |
|---|---|---|---|---|---|---|---|
| LFA | | | | 6X | B / | A | * |

NS 16 =16 NS 50 =50
NS 25 =25 NS 63 =63
NS 32 =32 NS 80 =80
NS 40 =40 NS 100=100

**Control cover type**

De-energised - DB1 (4 WE.. D) } = DBU2A
De-energised - open (4 WE.. H) }
De-energised - DB max. (4 WE.. D) = DBU2B
(see symbols)

**Adjuster type**

Rotary knob = 1
Hexagon with protective cap = 2
Lockable rotary knob with scale = 3
(H-lock to automotive industry standards)
Rotary knot with scale not lockable = 4

$DB_{max}$ $DB_1$

Further details in clear text

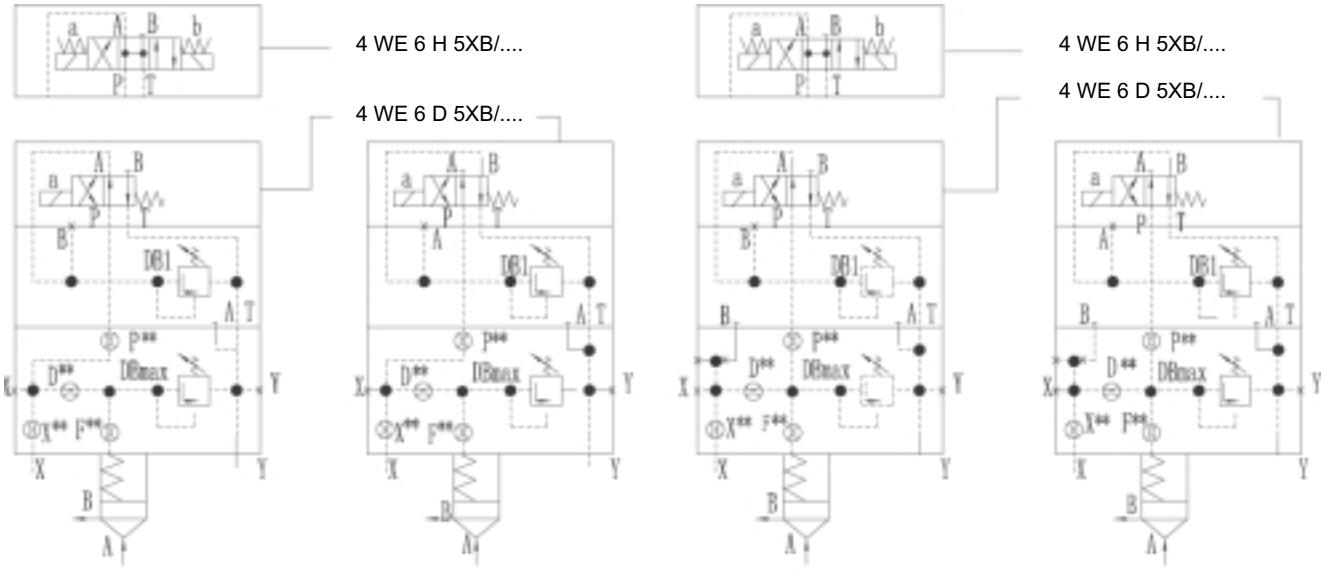
No code = Mineral oils
V = Phosphate ester

Pressure ratings
(take max. perm. pressure of pilot valve into account)

| Size 16, 25, 32 | Size 40, 50, 63, 80, 100 |
|---|---|
| 050=5.0MPa | 025=2.5MPa |
| 100=10.0MPa | 050=5.0MPa |
| 200=20.0MPa | 100=10.0MPa |
| 315=31.5MPa | 200=20.0MPa |
| 420=42.0MPa | 315=31.5MPa |
| | 400=40.0MPa |

B = Technology of Beijing Huade Hydraulic

6X = Series 60 to 69 (60 to 69 unchanged installation and connection dimentions)




LFA..DBU 2A.-../... Size 16 to 32

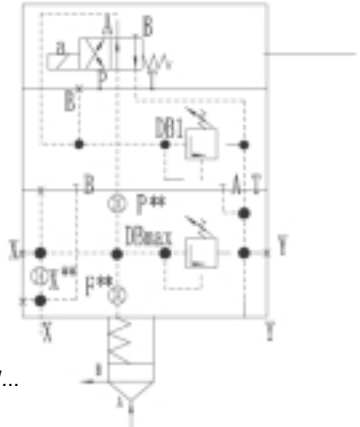
LFA..DBU 2B.-../... Size 16 to 32

LFA..DBU 2A.-../... Size 40 to 63

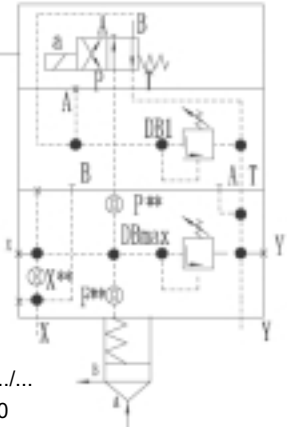
LFA..DBU 2B.-../... Size 40 to 63



4 WE 10H../....



4 WE 10D../....

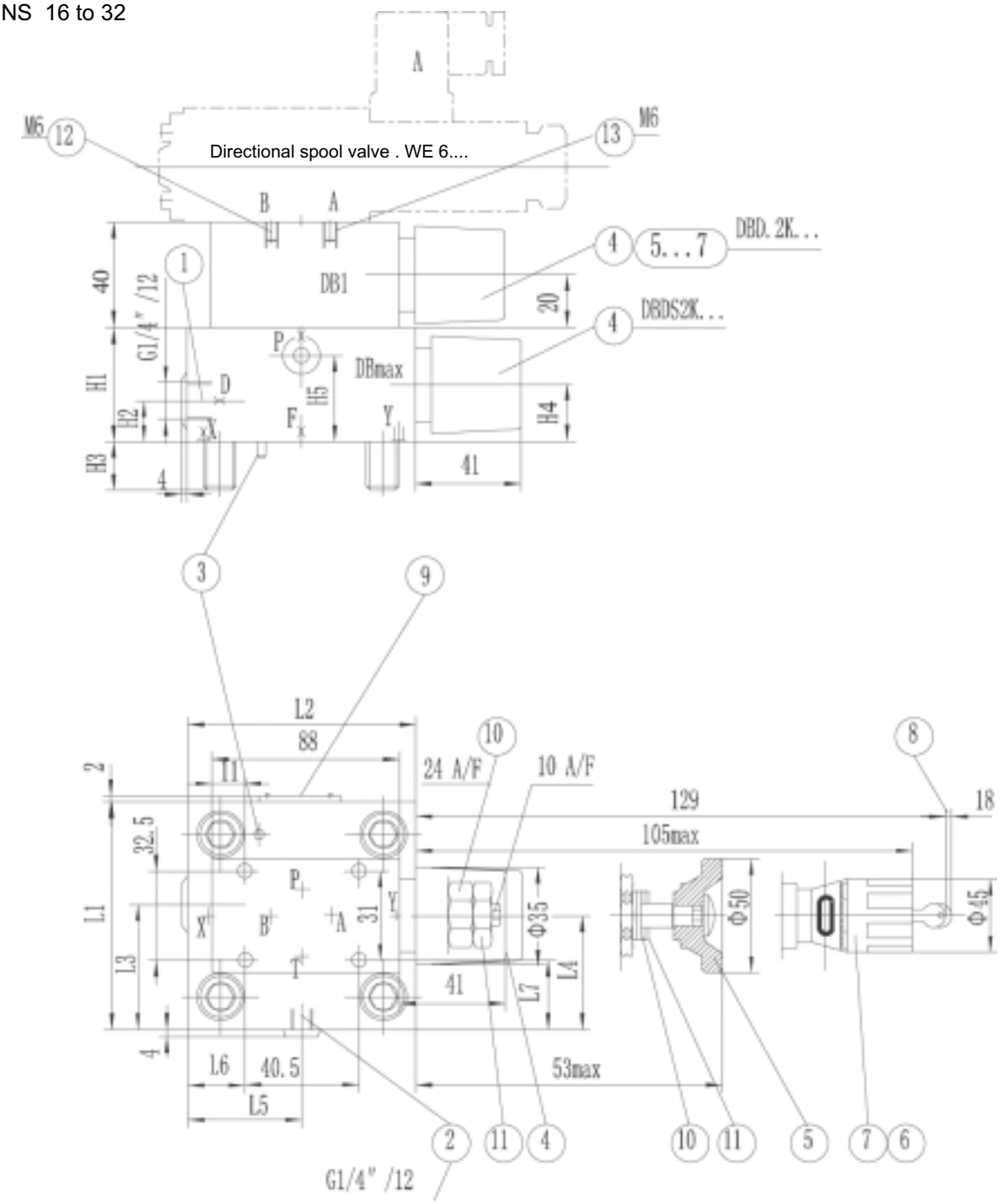


LFA..DBU 2A.-../... Size 80, 100

LFA..DBU 2A.-../... Size 80, 100

**Control cover with 2 manual pressure adjustment, electrical selectable (Dimensions in mm)**

NS 16 to 32



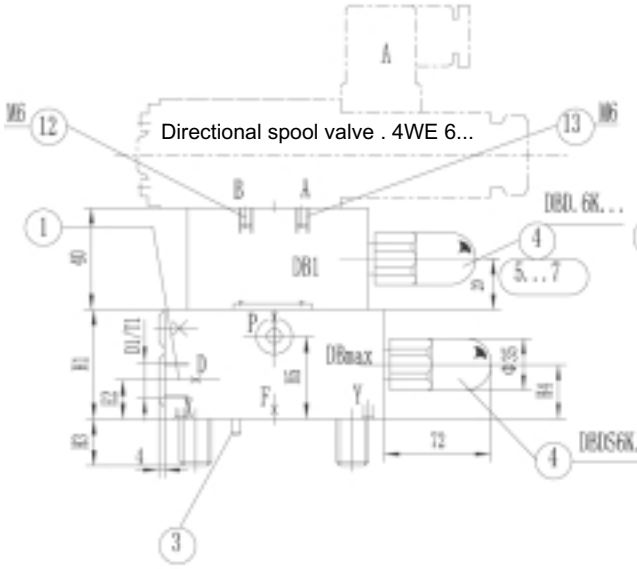

** Orifice-ϕ

| NS | X** | F** | D** | P** | H1 | H2 | H3 | H4 | H5 | L1 | L2 | L3 | L4 | L5 | L6 | L7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 0.8 | 1.0 | 0.8 | 1.0 | 40 | 17 | 15 | 19 | 28 | 65 | 80 | 36.5 | 32.5 | 35 | 7 | 17 |
| 25 | 0.8 | 1.0 | 0.8 | 1.0 | 40 | 19 | 24 | 19 | 28 | 85 | 85 | 49 | 45.5 | 36 | 8 | 27 |
| 32 | 0.8 | 1.2 | 1.0 | 1.0 | 50 | 26 | 28 | 26 | 37 | 100 | 100 | 56.5 | 53 | 57 | 30 | 34.5 |

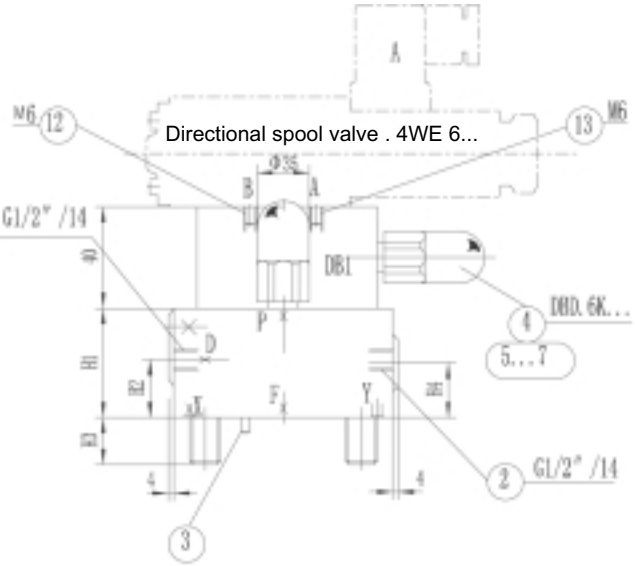
1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut
11 Setting nut for max. pressure
12 Plug M6 tapered for ..DBU 2A..
13 Plug M6 tapered for ..DBU 2B..

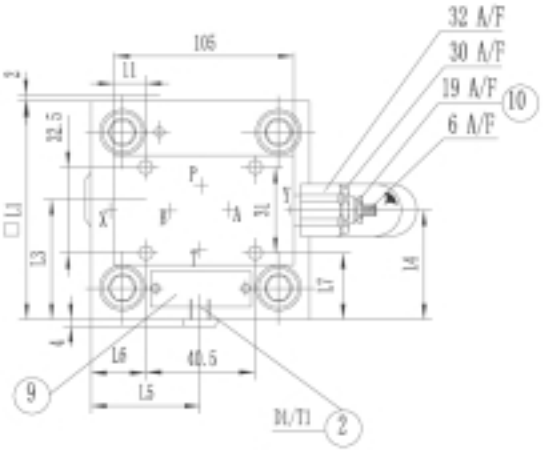
**Control cover with 2 manual pressure adjustments, electrically selectable** **(Dimensions in mm)**

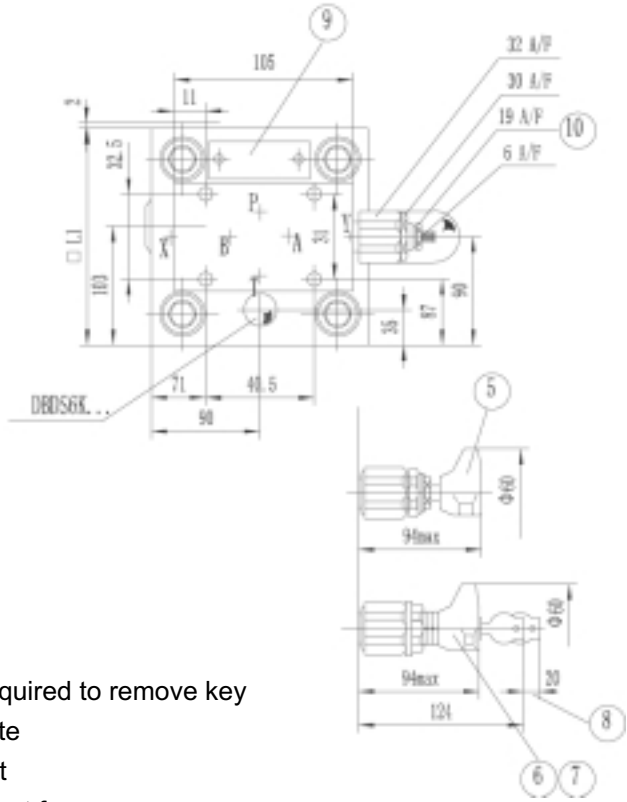
NS 40，50




NS 63



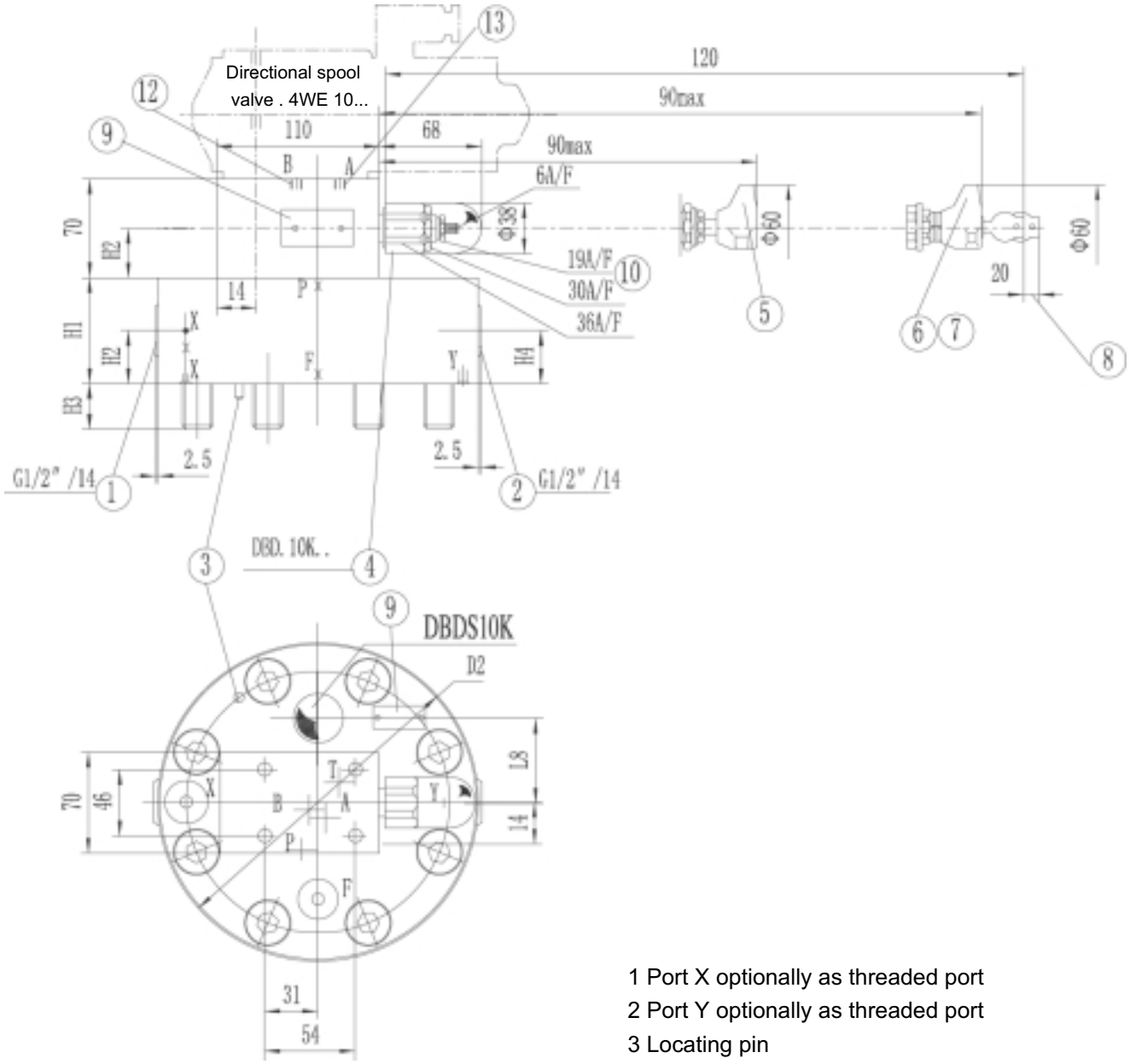

1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut
11 Setting nut for max. pressure
12 Plug M6 tapered for ..DBU 2A..
13 Plug M6 tapered for ..DBU 2B..

** Orifice-ϕ

| NS | F** | D** | P** | D1 | H1 | H2 | H3 | H4 | H5 | □L1 | L3 | L4 | L5 | L6 | L7 | T1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 1.2 | 1.0 | 1.2 | G1/4″ | 60 | 17 | 32 | 27 | 40 | 125 | 69 | 76 | 68 | 43.5 | 47 | 12 |
| 50 | 1.2 | 1.2 | 1.5 | G1/2″ | 68 | 19.5 | 34 | 35 | 50 | 140 | 80 | 84 | 74.5 | 51 | 54.5 | 14 |
| 63 | 1.5 | 1.5 | 1.8 | - | 82 | 55 | 50 | 45 | - | 180 | - | - | - | - | - | - |

**Control cover with manual pressure adjustment** **(Dimensions in mm)**

NS 80，100




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut
12 Plug M6 tapered for ..DBU 2A..
13 Plug M6 tapered for ..DBU 2B..

** Orifice-ϕ

| NS | X** | F** | P** | D2 | H1 | H2 | H3 | H4 | L8 |
|---|---|---|---|---|---|---|---|---|---|
| 80 | 3.0 | 2.5 | 3.5 | 250 | 100 | 30 | 45 | 52 | 75 |
| 100 | 3.0 | 2.5 | 3.5 | 300 | 100 | 30 | 51 | 52 | 85 |

## Control cover with 3 manual pressure adjustments, electrically selectable

NS 16 to 100

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| LFA | | DBU3D | | 6X | B | | A... | B... | | * |

DB max

DB1

DB2

Further details in clear text

NS 16 =16 NS 50 =50
NS 25 =25 NS 63 =63
NS 32 =32 NS 80 =80
NS 40 =40 NS 100 =100

No code = Mineral oils
V = Phosphate ester

**Adjuster type**(detail only for DB1 or DB2)*
Rotary knob = 1
Hexagon with protective cap = 2
Lockable rotary knob with scale = 3
(H-lock to automotive industry standards)
Rotary knot with scale not lockable = 4

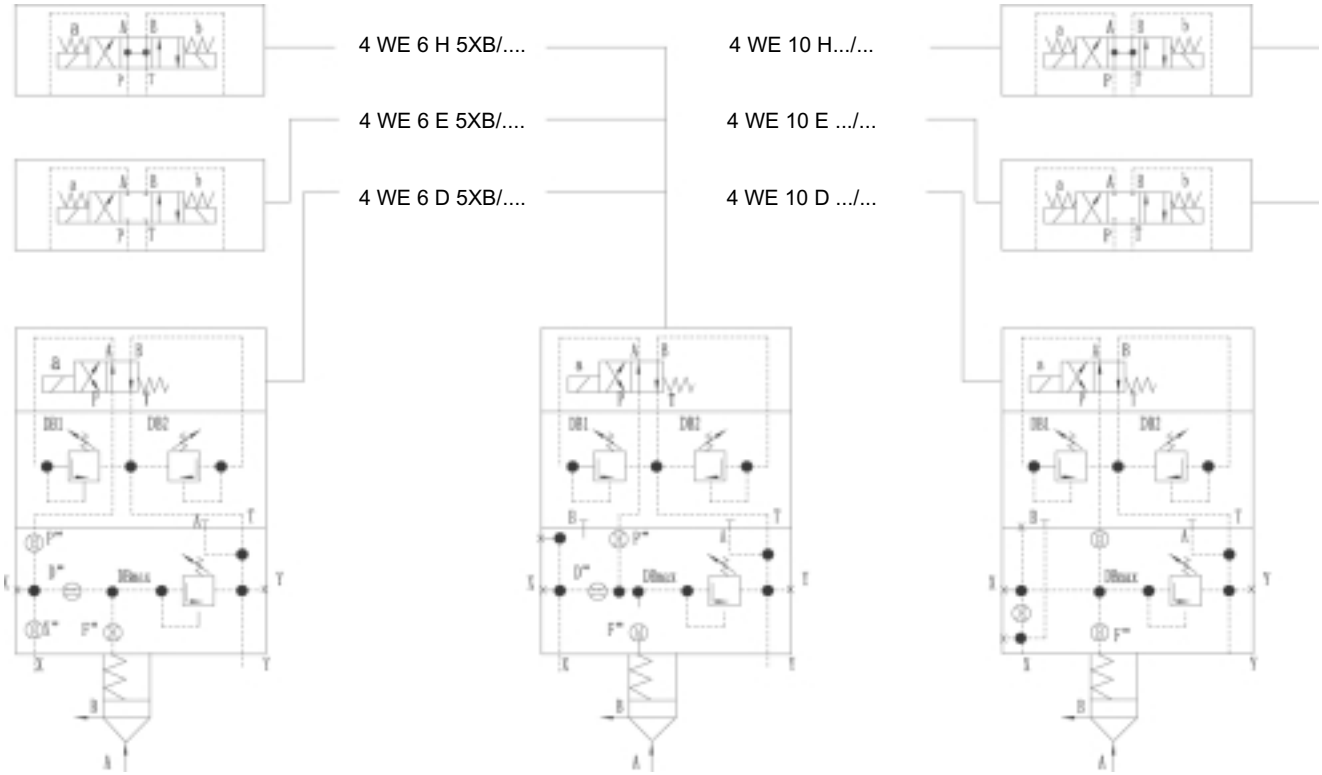
Pressure ratings
(take max. perm. pressure of pilot valveinto account)

| NS 16，25，32 | NS 40，50，63，80，100 |
|---|---|
| 050=5.0MPa | 025=2.5MPa |
| 100=10.0MPa | 050=5.0MPa |
| 200=20.0MPa | 100=10.0MPa |
| 315=31.5MPa | 200=20.0MPa |
| 420=42.0MPa | 315=31.5MPa |
| | 400=40.0MPa |

Series 60 to 69 = 6X
(60 to 69 unchanged installation and connection dimentions)

Technology of Beijing Huade Hydraulic = B

*) For DB1 and DB2 select the same adjuster type



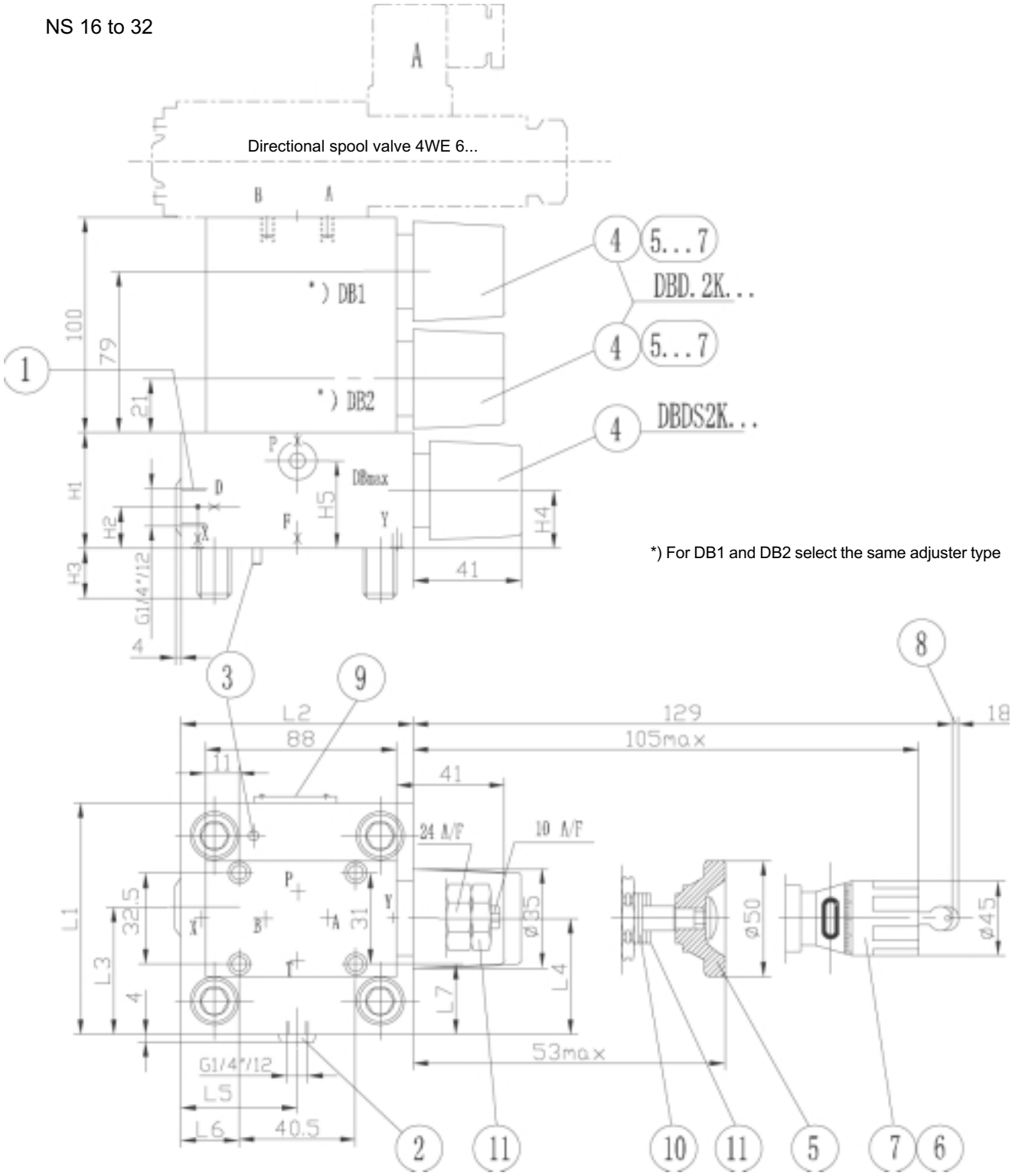

LFA..DBU 3D.-../...
Size 16，25，32

LFA..DBU 3D.-../...
Size 40，50，63

LFA..DBU 3D.-../...
Size 80，100

**Control cover with 3 manual pressure adjustments, electrically selectable** **(Dimensions in mm)**

NS 16 to 32



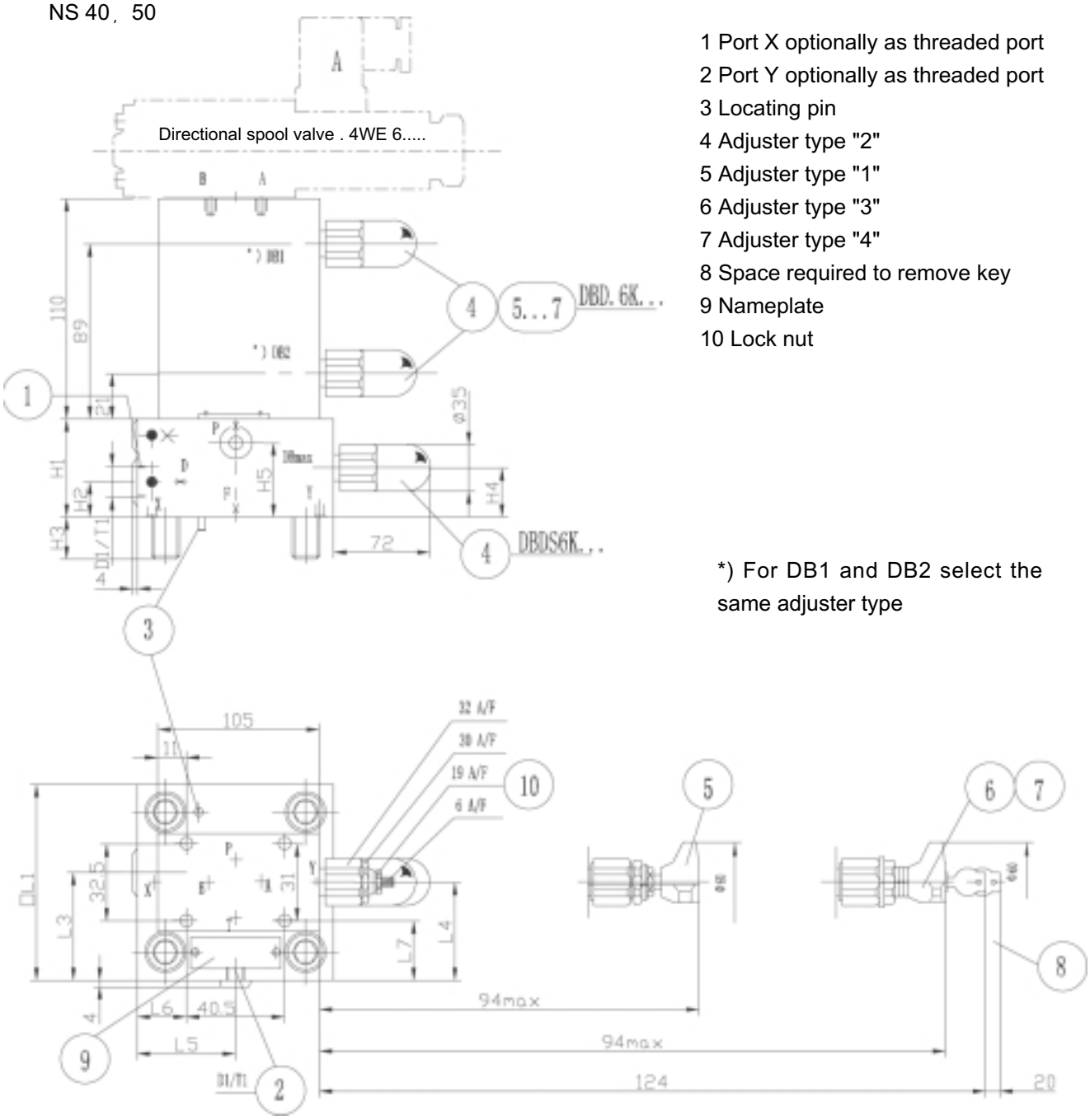

1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut
11 Setting nut for max. pressure

** Orifice-ϕ

| NS | X** | F** | D** | P** | H1 | H2 | H3 | H4 | H5 | L1 | L2 | L3 | L4 | L5 | L6 | L7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 0.8 | 1.0 | 0.8 | 1.0 | 40 | 17 | 15 | 19 | 28 | 65 | 80 | 36.5 | 32.5 | 35 | 7 | 17 |
| 25 | 0.8 | 1.0 | 0.8 | 1.0 | 40 | 19 | 24 | 19 | 28 | 85 | 85 | 49 | 45.5 | 36 | 8 | 27 |
| 32 | 0.8 | 1.2 | 1.0 | 1.0 | 50 | 26 | 28 | 26 | 37 | 100 | 100 | 56.5 | 53 | 57 | 30 | 34.5 |

## Control cover with 3 manual pressure adjustments, electrically selectable

NS 40，50




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

*) For DB1 and DB2 select the same adjuster type

** Orifice-ϕ

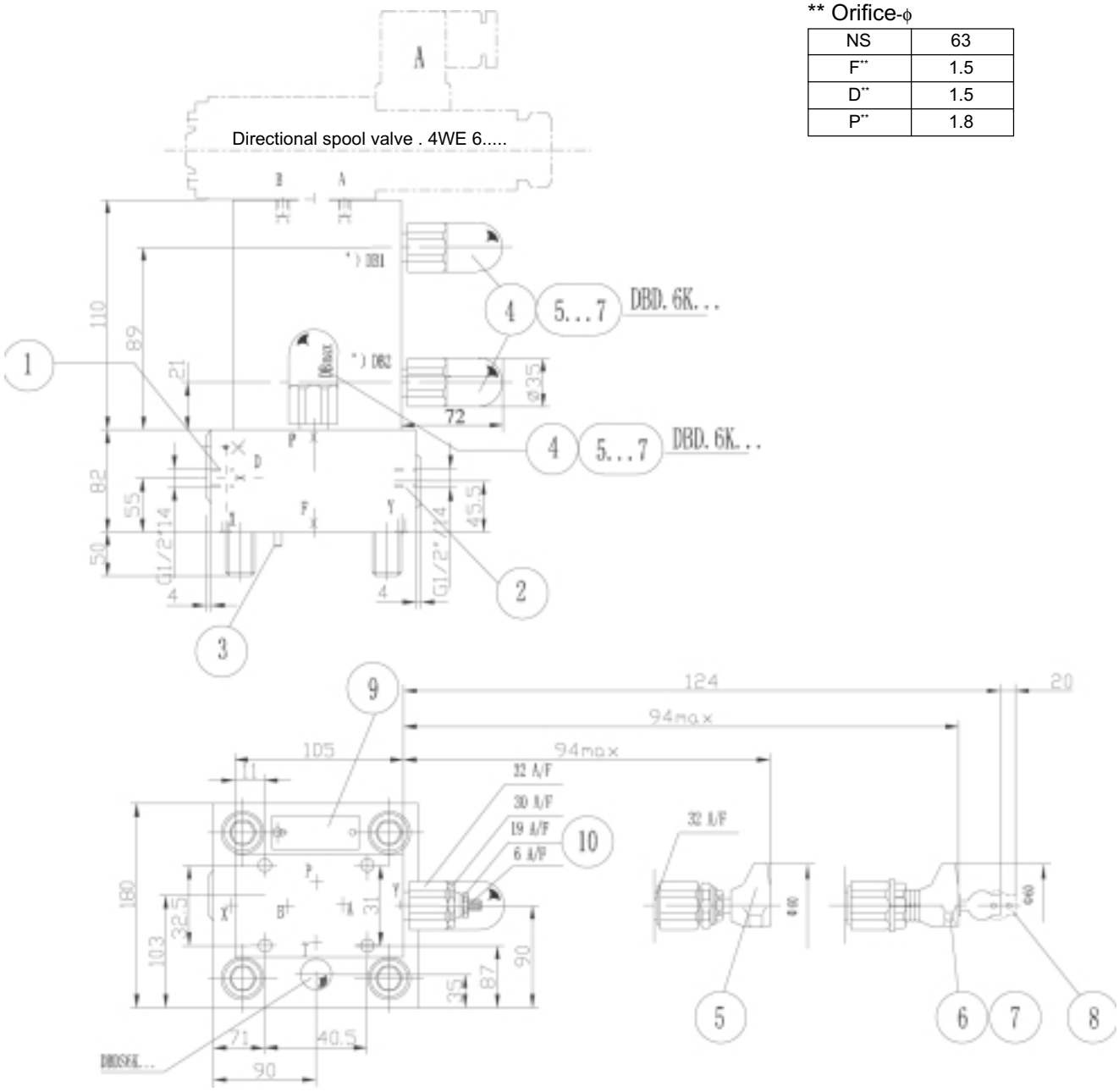
| NS | F** | D** | P** | D1 | H1 | H2 | H3 | H4 | H5 | □L1 | L3 | L4 | L5 | L6 | L7 | T1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | 1.2 | 1.0 | 1.2 | G1/4″ | 60 | 17 | 32 | 27 | 40 | 125 | 69 | 76 | 68 | 43.5 | 47 | 12 |
| 50 | 1.2 | 1.2 | 1.5 | G1/2″ | 68 | 19.5 | 34 | 35 | 50 | 140 | 80 | 84 | 74.5 | 51 | 54.5 | 14 |

**Control cover with 3 manual pressure adjustments, electrically selectable** **(Dimensions in mm)**

NS 63

** Orifice-ϕ

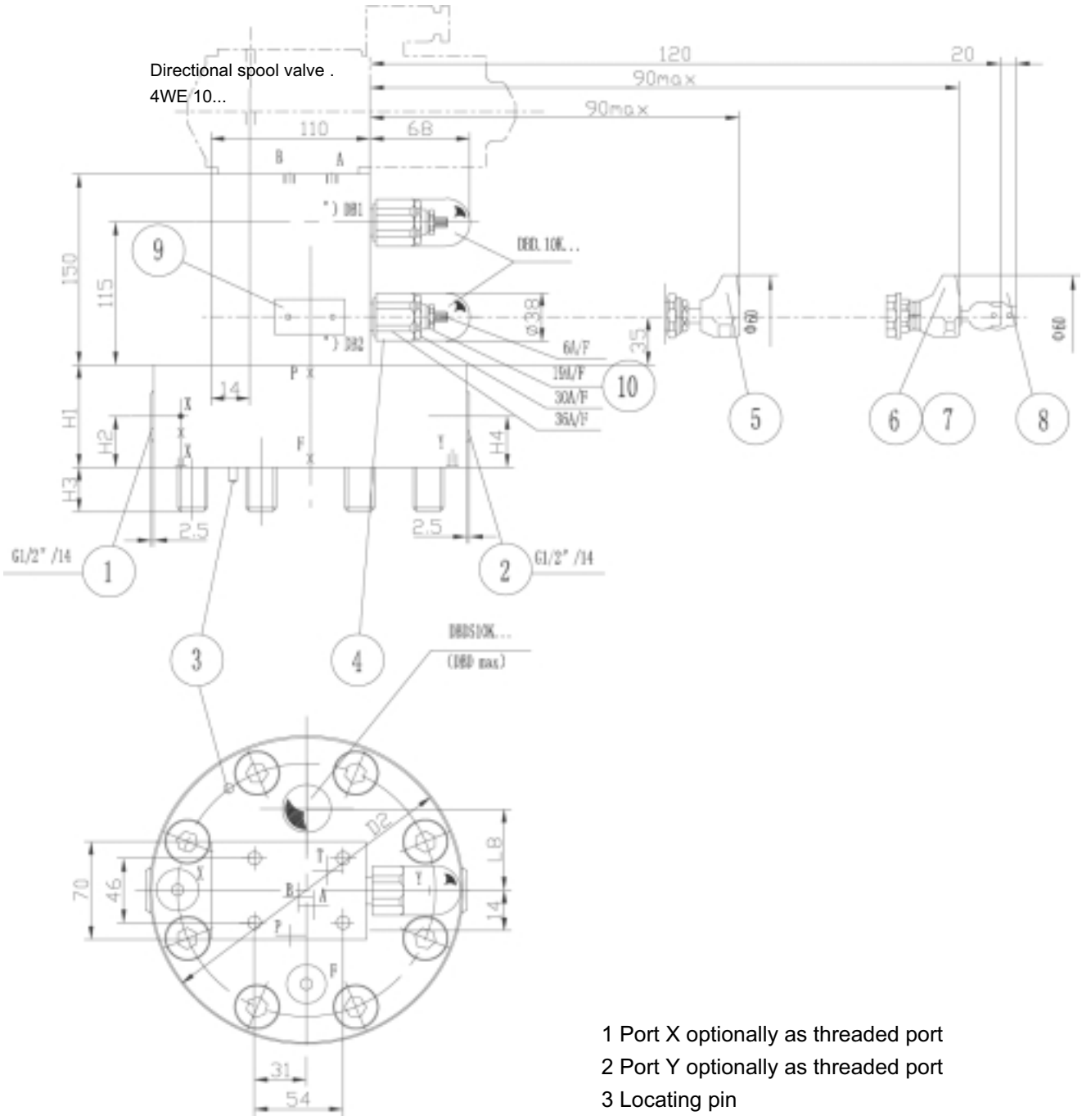
| NS | 63 |
|---|---|
| F** | 1.5 |
| D** | 1.5 |
| P** | 1.8 |




*) For DB1 and DB2 select the same adjuster type

1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

NS 80，100




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
5 Adjuster type "1"
6 Adjuster type "3"
7 Adjuster type "4"
8 Space required to remove key
9 Nameplate
10 Lock nut

** Orifice-ϕ

| NS | X** | F** | P** | D2 | H1 | H2 | H3 | H4 | L8 |
|---|---|---|---|---|---|---|---|---|---|
| 80 | 3.0 | 2.5 | 3.5 | 250 | 100 | 30 | 45 | 52 | 75 |
| 100 | 3.0 | 2.5 | 3.5 | 300 | 100 | 30 | 51 | 52 | 85 |

*) For DB1 and DB2 select the same adjuster type

## Control cover for electrical-proportional pressure adjustment, without maximum pressure limitation

NS16 to 63

| 1 | 2 | 3 | 5 | 9 | 10 |
|---|---|---|---|---|---|
| LFA | | 6X | B | | * |

NS 16 =16 NS 40 =40
NS 25 =25 NS 50 =50
NS 32 =32 NS 63 =63

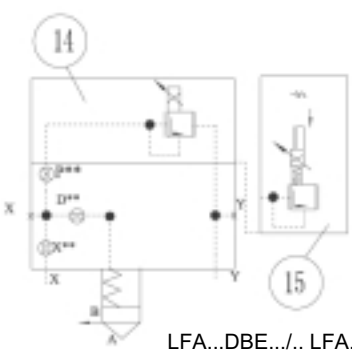
For mounting a proportional pressure relief valve
without electrical feedback = DBE
with electrical feedback = DBETR

Further details in clear text

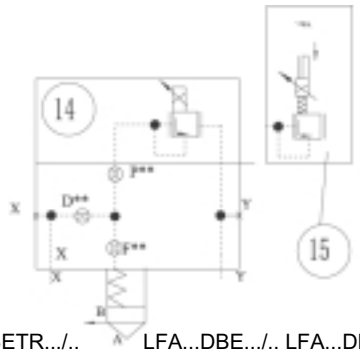
No code = Mineral oils
V = Phosphate ester

B = Technology of Beijing Huade Hydraulic

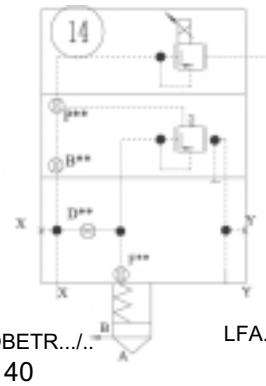
6X= Series 60 to 69
(60 to 69 unchanged installation and connection dimentions)




LFA...DBE.../.. LFA...DBETR.../..
NS 16



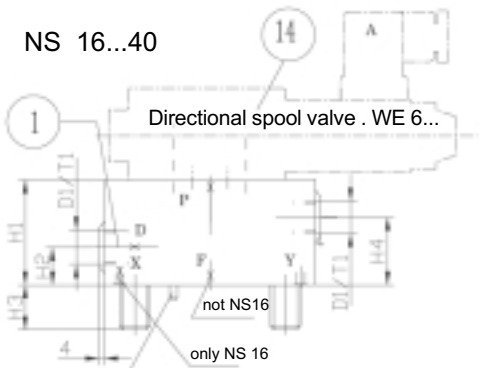

LFA...DBE.../.. LFA...DBETR.../..
NS 25，32，40



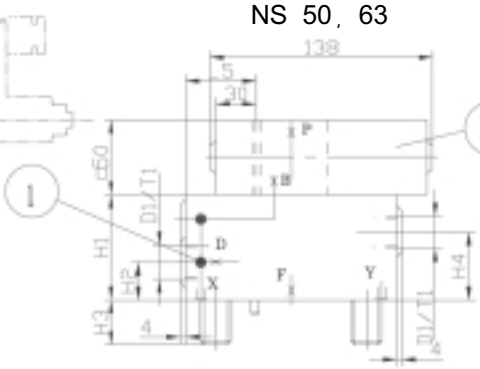

zero pressure

LFA...DBE.../.. LFA...DBETR.../..
NS 50，63

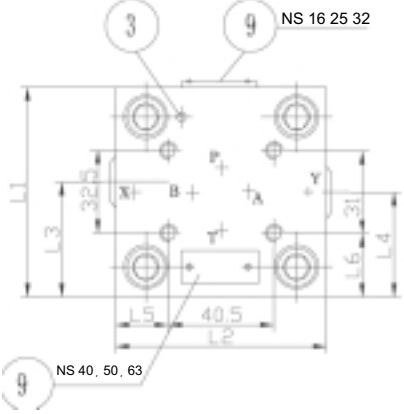
NS 16...40




NS 50，63




Return to tank at zero pressure




** Orifice-ϕ

| NS | 16 | 25 | 32 | 40 | 50 | 63 |
|---|---|---|---|---|---|---|
| B** | - | - | - | - | 0.8 | 0.8 |
| D** | 0.8 | 0.8 | 0.8 | 1.0 | 2.0 | 2.0 |
| X** | 0.8 | - | - | - | - | - |
| F** | - | 0.8 | 1.0 | 1.2 | 1.2 | 1.5 |
| P** | 1.0 | 1.0 | 1.0 | 1.5 | 1.0 | 1.0 |
| D1 | G1/4″ | G1/4″ | G1/4″ | G1/2″ | G1/2″ | G1/2″ |
| H1 | 40 | 40 | 50 | 60 | 68 | 82 |
| H2 | 17 | 19 | 26 | 30 | 32 | 30 |
| H3 | 15 | 24 | 28 | 32 | 34 | 50 |
| H4 | 20 | 19 | 26 | 30 | 32 | 40 |
| L1 | 65 | 85 | 100 | 125 | 140 | 180 |
| L2 | 80 | 85 | 100 | 125 | 140 | 180 |
| L3 | 36.5 | 49 | 56.5 | 72 | 80 | 100 |
| L4 | 23.5 | 36 | 43.5 | 53 | 50 | 80 |
| L5 | 7 | 22.5 | 30 | 43.5 | 51 | 71 |
| L6 | 17 | 27 | 34.5 | 47 | 54.5 | 74.5 |
| T1 | 12 | 12 | 12 | 14 | 14 | 14 |

1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
9 Nameplate
14 Proportional pressure relief valve type DBET-5XB/...see page 35
15 Proportional pressure relief valve with feedback type DBETR-1XB/...(see page 35)
16 Pressure relief valve NS 6 (is included within the scope of supply)

## Control cover for electrical-proportional pressure adjustment, with maximum pressure limitation

NS 16 to 100

| 1 | 2 | 3 | 5 | 6 | 9 | 10 |
|---|---|---|---|---|---|---|
| LFA | | | 6X | B | | * |

Further details in clear text

No code = Mineral oils
V = Phosphate ester

NS 16=16 NS 50 =50
NS 25=25 NS 63 =63
NS 32=32 NS 80 =80
NS 40=40 NS 100=100

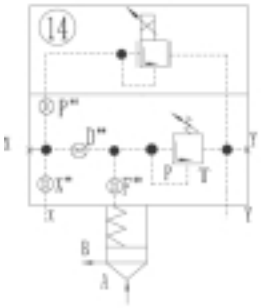
For mounting a proportional pressure relief valve
without electrical feedback = DBE
with electrical feedback = DBETR

Series 60 to 69 = 6X
(60 to 69 unchanged installation and connection dimentions)

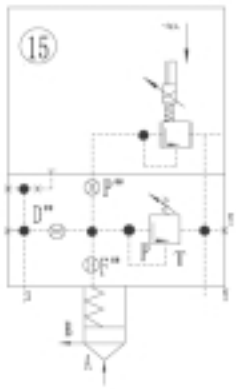
Technology of Beijing Huade Hydraulic = B

Pressure ratings
(take max. perm. pressure of pilot valve into account)

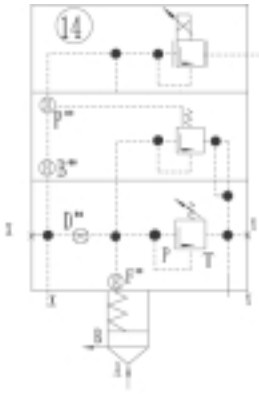
| NS 16，25，32 | NS 40，50，63，80，100 |
|---|---|
| 050=5.0MPa | 025=2.5MPa |
| 100=10.0MPa | 050=5.0MPa |
| 200=20.0MPa | 100=10.0MPa |
| 315=31.5MPa | 200=20.0MPa |
| 420=42.0MPa | 315=31.5MPa |
| | 400=40.0MPa |



LFA...DBEM.../..
LFA...DBEMTR.../..
NS 16，25，32

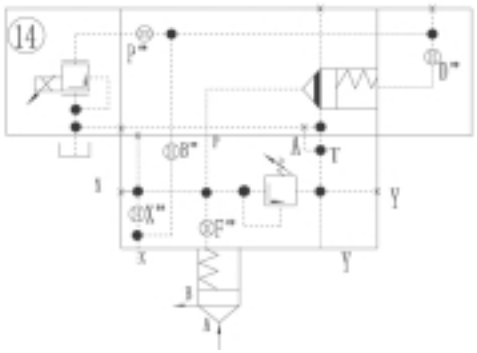


LFA...DBEM.../..
LFA...DBEMTR.../..
NS 40



zero pressure

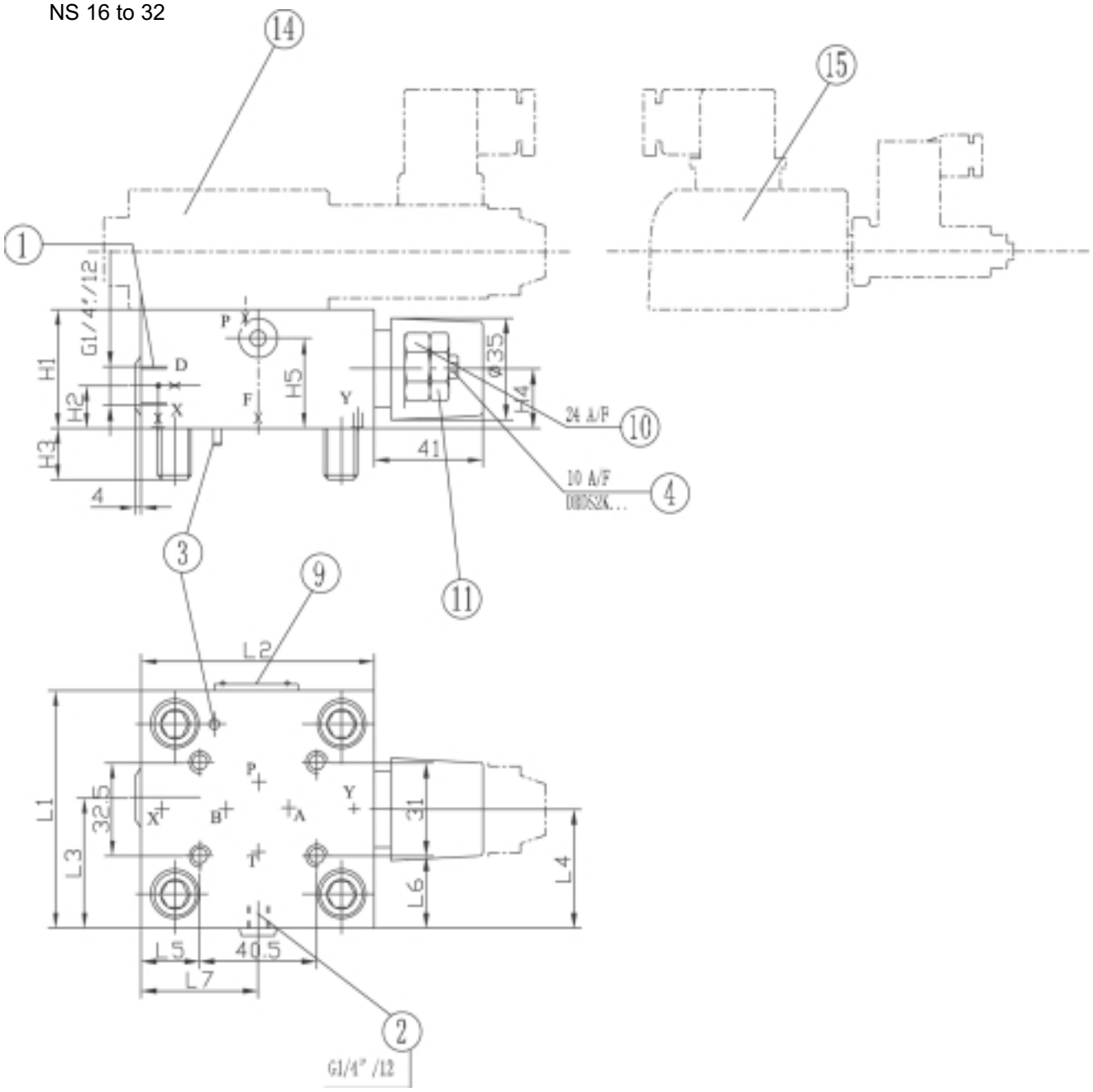
LFA...DBEM.../..
LFA...DBEMTR.../..
NS 50，63



LFA...DBEM.../..
LFA...DBEMTR.../..
NS 80,100

**Control cover with 3 manual pressure adjustments, electrically selectable** **(Dimensions in mm)**

NS 16 to 32




[1])G 1/4 threaded port T,
special poppet
Ports T and Y - zero pressure

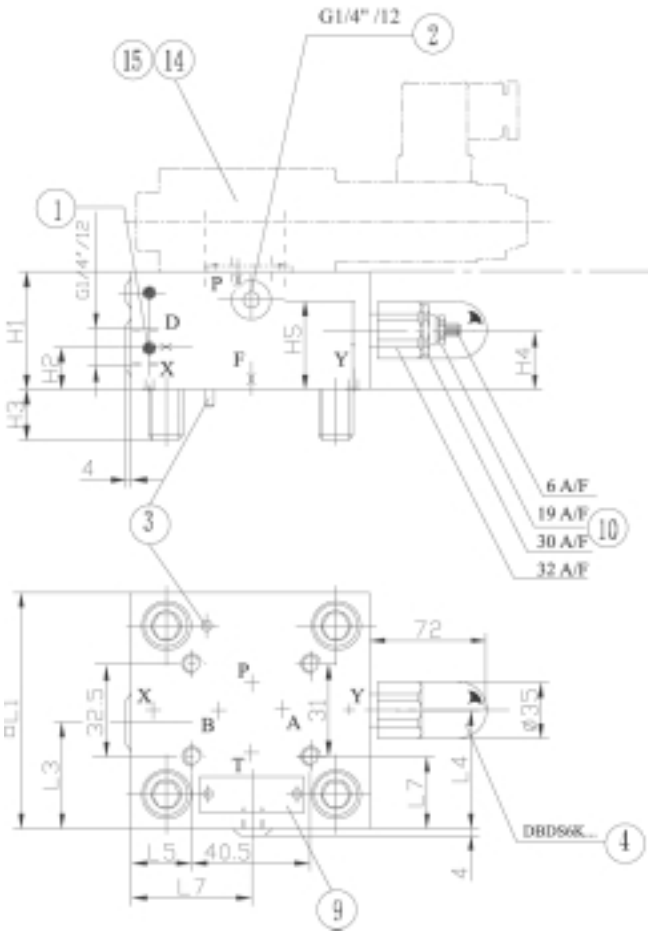
1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
9 Nameplate
10 Lock nut
11 The Max.settable pressure
14 Proportional pressure relief valve
type DBET-5XB/...see page 34
15 Proportional pressure relief valve with feed-back
type DBETR-1XB/...(see page 34)

** Orifice-ϕ

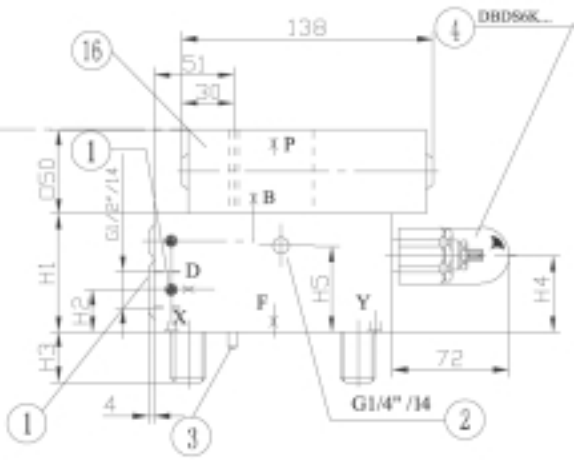
| NS | X** | F** | D** | P** | H1 | H2 | H3 | H4 | H5 | L1 | L2 | L3 | L4 | L5 | L6 | L7 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 0.8 | 1.0 | 0.8 | 1.0 | 40 | 17 | 15 | 19 | 28 | 65 | 80 | 36.5 | 32.5 | 7 | 17 | 35 |
| 25 | 0.8 | 1.0 | 0.8 | 1.0 | 40 | 19 | 24 | 19 | 28 | 85 | 85 | 49 | 45.5 | 8 | 27 | 36 |
| 32 | 0.8 | 1.2 | 1.0 | 1.0 | 50 | 26 | 28 | 26 | 37 | 100 | 100 | 56.5 | 53 | 30 | 34.5 | 57 |

**Control cover for electrical-proportional pressure adjustment, with maximum pressure limitation**

NS 40




NS 50




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
9 Nameplate
10 Lock nut
14 Proportional pressure relief valve
type DBET-5XB/G24 (NS 40)
type DBET-5XB/Y G24-1 [1] (NS 50)
(see page 34)
15 Proportional pressure relief valve with feed-back
type DBETR-1XB/...(see page 34)
type DBETR-1XB/...409 [2] (NS 50)
16 Pressure relief valve NS 6
(is included within the scope of supply)

[1] G 1/4″ threaded port T,
special poppet

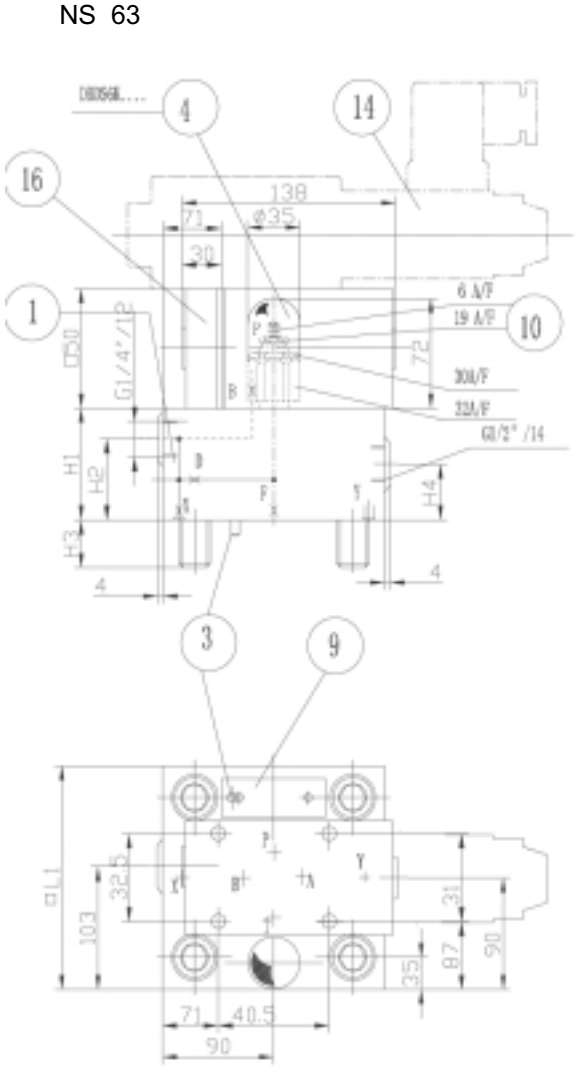
[2] 409 = G 1/4″ threaded port T,

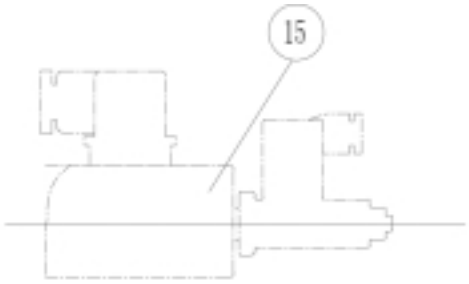
** Orifice-ϕ

| NS | 40 | 50 |
|---|---|---|
| B** | - | 0.8 |
| F** | 1.2 | 1.2 |
| D** | 1.0 | 2.0 |
| P** | 1.5 | 1.0 |
| H1 | 60 | 68 |
| H2 | 20 | 19.5 |
| H3 | 32 | 34 |
| H4 | 27 | 35 |
| H5 | 40 | 50 |
| □L1 | 125 | 140 |
| L3 | 68 | 90 |
| L4 | 76 | 84 |
| L5 | 43.5 | 51 |
| L6 | 47 | 54.5 |
| L7 | 68 | 74.5 |

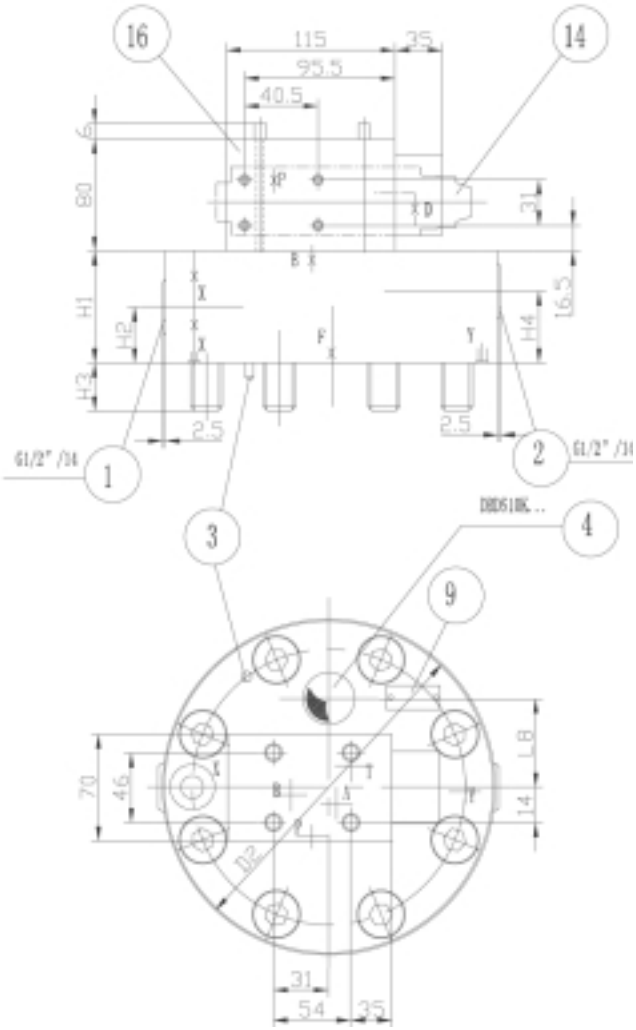
**Control cover with 3 manual pressure adjustments, electrically selectable** **(Dimensions in mm)**

NS 63




NS 80,100




1 Port X optionally as threaded port
2 Port Y optionally as threaded port
3 Locating pin
4 Adjuster type "2"
9 Nameplate
10 Lock nut
14 Proportional pressure relief valve
type DBET-5XB/G24 (NS 40)
type DBET-5XB/Y G24-1 3) (NS 50)
(see page 34)
15 Proportional pressure relief valve with feed-back
type DBETR-1XB/...(NS 40)(see page 34)
type DBETR-1XB/...409 2) (NS 50)
16 Pressure relief valve NS 6
(included within the scope of supply)

** Orifice-ø

| NS | B** | X** | F** | D** | P** | H1 | H2 | H3 | H4 | D2 | □L1 | L8 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 63 | 0.8 | - | 1.5 | 2.0 | 1.0 | 82 | 55 | 50 | 45 | - | 180 | - |
| 80 | 0.8 | 3.0 | 2.5 | 0.8 | 1.0 | 100 | 30 | 45 | 52 | 250 | - | 75 |
| 100 | 0.8 | 3.5 | 3.0 | 0.8 | 1.0 | 100 | 30 | 51 | 52 | 300 | - | 85 |

1) G 1/4″ threaded port T, special poppet
2) 409 = G 1/4″ threaded port T