

ACCOMPANYING DOCUMENTS

CA49305QAF173E, Rev.C

CONTENT:

- USER MANUAL Valve Series D66xK: CA49305-001, Rev.K
- Declaration of Conformity: QAF173E, Rev.T

USER MANUAL

PILOT-OPERATED SERVO AND PROPORTIONAL VALVES
WITH INTEGRATED ANALOG ELECTRONICS
FOR AREAS WITH POTENTIALLY EXPLOSIVE GAS ATMOSPHERES

SERIES D66xK

CA49305-001, Rev. K, September 2022

ERRATA

For User Manual CA49305-001, Rev. J, March 2018

Page 3: Correction of the examination certificate number:

DNV 22 ATEX 64264X (in place of PRESAFE 17ATEX11755X)

IECEx DNV 22.0090X (in place of IECEx PRE 17.0082X)

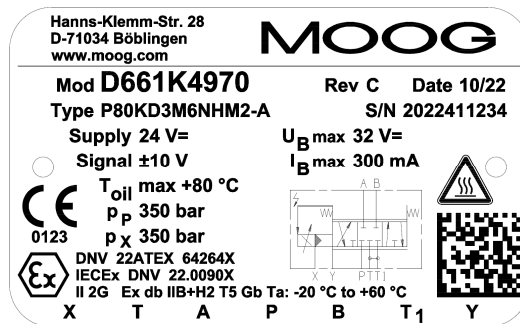
Page 8: Correction of the examination certificate number on the nameplate:

DNV 22 ATEX 64264X (in place of PRESAFE 17ATEX11755X)

IECEx DNV 22.0090X (in place of IECEx PRE 17.0082X)

Correction of the explosion protection marking on the nameplate:

II 2G Ex db IIB+H₂ T5 Gb Ta: +60°C (in place of II 2G Ex d IIB+H₂ T5 Gb Ta: +60°C)



The nameplate on page 8 is obsolete and shall not be considered.

USER MANUAL FOR

PILOT-OPERATED SERVO AND PROPORTIONAL VALVES D66xK SERIES



CA49305-001, Rev. J, March 2018

SERVO AND PROPORTIONAL VALVES
WITH INTEGRATED ANALOG ELECTRONICS
FOR AREAS WITH POTENTIALLY EXPLOSIVE GAS ATMOSPHERES

TABLE OF CONTENTS

SAFETY INSTRUCTIONS.....3

WARRANTY AND LIABILITY5

DESIGN AND FUNCTION.....6

TECHNICAL DATA8

INSTALLATION..... 17

ELECTRONICS INFORMATION..... 18

SETTING UP.....20

MALFUNCTIONS - ROOTS AND TROUBLESHOOTING21

MAINTENANCE.....22

TRANSPORTATION AND STORAGE..... 24

DISPOSAL25

TOOLS AND AUXILIARIES.....26

SPARE PARTS AND ACCESSORIES.....27

ORDERING INFORMATION29

CONTACT 31



This catalog is for users with technical knowledge. To ensure all necessary characteristics for function and safety of the system, the user has to check the suitability of the products described herein. The products described in this document are subject to change without notice. In case of doubt, please contact Moog.

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For the most current information, visit www.moog.com/industrial or contact your local Moog office.

SAFETY INSTRUCTIONS

Warnings and symbols



Refers to special orders and prohibitions to prevent damage.



Refers to special orders and prohibitions to prevent injury or property damage.

Intended operation

The valves D661K, D662K, D663K, D664K and D665K are combined in the D66xK type series. The valves are electrical equipment for hazardous areas, protection type “d” (“d” flameproof enclosure according to EN 60079-1 and IEC 60079-1).



Its use in potentially explosive atmospheres is permitted only in accordance with the following information:

Series D66xK	
Identification	II 2G Ex db IIB+H2 T5 Gb Ta: -20°C to +60°C
Temperature range	Ambient -20 to +60°C
	Fluid -20 to +80°C
Approval	PRESAFE 17ATEX11755X, C€0123. IECEX PRE 17.0082X
Special condition to use	Flameproof joints are not intended to repair

The valves are servo and proportional valves intended for position, velocity, pressure and force control in hydraulic control systems. They may be used as control elements for volume flow control or rather pressure control in hydraulic control systems that operate with mineral oil based (others on request) fluids.

Using the valves for purposes other than those mentioned above is considered contrary to the intended use. The manufacturer/ supplier shall not be responsible for any damages that may result thereby. The user bears the entire risk of such misuse.

Correct application also involves observing the operating instruction and complying with the inspection and maintenance directives.

Organizational measures

We recommend to include this operating instruction into the maintenance plan of the machine/plant.

In addition to the operating instruction, also observe all other generally applicable legal and other mandatory regulations relevant to accident prevention and environmental protection. Instruct the operator accordingly.

All safety and danger instructions of the machine/ plant manufacturer have to be complied. Here underlie “General rules and safety requirements for systems and their components” according to ISO 4413 and “General requirements on equipment for potentially explosive atmospheres” according to EN 60079-0 and IEC 60079-0.

Selection and qualification of personnel

Danger of personal injury and damage to property!

Working with and on the valves without the required basic mechanical, hydraulic, and electrical knowledge may cause injuries or parts may be damaged.



- Only properly qualified and authorized users may work with and on the valves.

Structural modifications and working on the valves

Danger of explosion!

To guarantee safe operation in hazardous areas the following has to be considered:



- Structural modifications and repair work on valves and accessories of the series D66xK may only be made by Moog GmbH or by a service center authorized by MOOG GmbH. **Intervention by third parties will invalidate the ex certification!**
- Minimum length of 3 m for connecting cable must not be undercut!
- **Sparks due to electrostatic discharge can cause an explosion!** The additional painting of our explosion-proof valves by third parties is a structural change. In case of additional painting, due to the possible accumulation of electrostatic charges, the corresponding provisions of the EN 60079-0 and IEC 60079-0 standard must be adhered to.
- With the exception of filter replacement the explosion-proof valves D66xK series may not be opened by unauthorized persons. **Unauthorized opening will invalidate the ex certification! Return failed valve to Moog!**

SAFETY INSTRUCTIONS

Notes for certain operational phases



Danger of personal injury and damage to property!

- Take the necessary precautions to ensure that the valve is used only when in a safe and reliable state.
- Check the valve at least once per working shift for obvious damage and defects as e. g. leakage or damaged cables. Report any changes to the responsible group/ person immediately! If necessary, stop the machine immediately and secure it!
- Before working on the valves or the machine, always shut down and switch off the machine and de-energize and depressurize the machine.
- In the event of malfunction, stop the machine/plant immediately and secure it! Have any defects rectified immediately!
- If the machine/plant is completely shut down for maintenance and repair work at the valve, it must be secured against inadvertent start up by:
 - Locking the principal control elements and removing the key
 - Attaching a warning sign to the main switch
- Before removing the valve depressurize all system sections to be opened, pressure lines and accumulators of the hydraulic system in accordance with the specific instructions for the plant!
- If the hoisting devices are not attached properly for transportation of the valve, the valve may fall down. This may result in personal injuries and serious damage to property. For series D663K and D664K, screw the ring bolt completely into the threaded hole (size M8) at the valve's end cap and attach the hoisting devices to the ring bolt.

Safety measures

Risk of injury!

To prevent injuries or other damaging influences on health, suitable protective measures must be taken if necessary prior to and when carrying out any work on the valves or the machine, such as mounting or removing, electrical or hydraulic connection, troubleshooting or servicing, and when handling the valves, accessories, tools or hydraulic fluids.

- Work on electrohydraulic equipment must be carried out only by personnel having special knowledge and experience in electrohydraulic controls!
- Check all lines, hoses and fittings of the plant regularly for leaks and obvious damage! Repair damage immediately! Splashed oil may cause injury and fire.
- Falling objects, such as e.g., valves, tools or accessories, may result in personal injuries and damage to property. Wear suitable safety equipment, such as e.g., safety shoes or helmet!
- Valves and hydraulic lines can become very hot during operation. Contact may result in burns. Wear suitable safety equipment, such as e.g., work gloves!
- Depending on the application, significant levels of noise may be generated when the valves are operated. If necessary, the manufacturer and operator of the machine must take appropriate sound insulation measures or stipulate that suitable safety equipment, e.g., ear protection, be worn.
- When handling oil, grease and other chemical substances, observe safety regulations valid for each product and wear suitable safety equipment, such as e.g., work gloves!
- The connectors, mating connectors and connection cables may be used exclusively for the connection of the valve. Misuse, such as e.g., use as foot hold or transport fixture, can cause damage and thus may result in personal injuries as well as further damage to property.



WARRANTY AND LIABILITY

Our General Terms and Conditions of Sale and Payment always apply. These are made available to the buyer at the latest on conclusion of the contract.

Among other things, warranty and liability claims for personal injury and damage to property are excluded if they are caused by one or more of the following:

- Work with and on the valves carried out by or the valves handled by non-qualified personnel
- Non-intended operation
- Handling not in accordance with safety requirements
- Omission of the occupational safety and health measures required for the particular application
- Failure to observe this user manual or the product-related hardware and software documentation relevant to the particular application
- Failure to observe the safety standards of the manufacturer and the operator of the machine relevant to the application concerned
- Failure to observe the latest versions of the national and international regulations, standards, and guidelines relevant to the application concerned (for example, the EU Machinery Directive, the regulations of the trade association and of TÜV or VDE) and governing the configuration, construction, and operation of the machine with all its installed components
- Omission of suitable safety devices for limiting the pressure at the hydraulic ports
- Failure to comply with the preconditions for satisfying the EMC protection requirements
- Use of the valves in a state that is not technically faultless or not operationally safe
- Unauthorized or improperly performed structural modifications, repairs or maintenance
- Failure to adhere to the inspection and maintenance instructions of the manufacturer and the operator of machine
- Failure to adhere to all the technical data relating to the storage, transportation, installation, removal, connection, start-up, configuration, operation, cleaning, maintenance or elimination of any faults, in particular the ambient conditions and the data pertaining to the hydraulic fluid used
- Improper storage, transportation, installation, removal, connection, start-up, configuration, operation, cleaning, maintenance, elimination of any faults or disposal
- Use of unsuitable or defective accessories or of unsuitable or defective spare parts
- Catastrophes caused by foreign objects or force majeure

DESIGN AND FUNCTION

Valves of the D66xK series are pilot-operated servo and proportional valves with electrical return of the spool position and a Jetpipe pilot valve insensitive to dirt.

Servo and proportional valves

In servo valves, the control spool runs in a bushing, which is fitted into the body of the valve.

In proportional valves, the control spool runs directly in the valve body.

Way function

The D66xK series valves are throttle valves for 2-, 3- and 4-way applications. 5-way applications are possible with the D661K proportional valve.

Pilot stage

All explosion-proof servo and proportional valves are equipped with a D061K Jetpipe pilot valve.

The Jetpipe pilot valve essentially comprises a torque motor with a coil and armature, a Jetpipe and a receiver.

A current through the coil results in the anchor with the Jetpipe being extended. The extended fluid jet, which is bundled via the specific nozzle shape, impinges more on one of the two receiver bores than on the other one. In this way, a pressure difference is generated in the control areas of the main stage. The resultant useful volume flow displaces the control spool of the main stage. The return to the tank is implemented via the ring area under the jet.

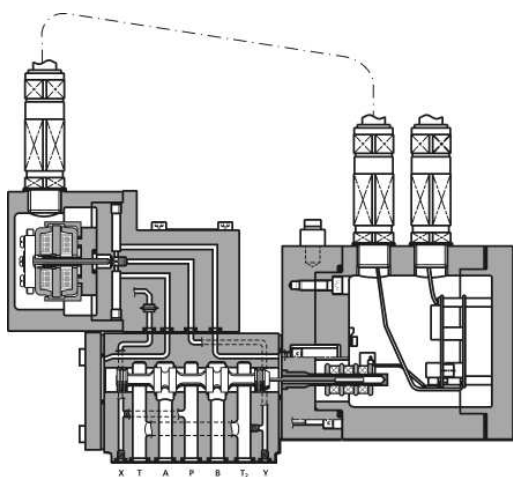
Operating principle of the multiple stage valve

The position control loop for the main stage with position transducer and pilot valve is closed by the integrated electronics.

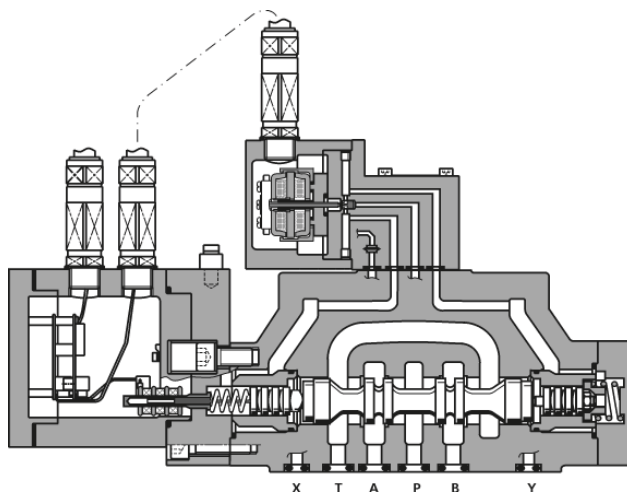
An electrical control signal (flow rate command value = spool command value) is applied to the integrated position controller which drives the current through the coil of the pilot valve.

The position transducer which is excited via an oscillator measures the position of the spool (actual value, position voltage). This signal is then demodulated and fed back to the controller where it is compared with the command signal. The controller drives the torque motor until the error between command signal and feedback signal is zero. Thus the position of the spool is proportional to the electric command signal.

Proportional valve D661K series



Proportional valve D662K series



DESIGN AND FUNCTION

D66xK proportional valves in a fail-safe version

For applications with proportional control valves where certain safety regulations are applicable, a defined metering spool position is needed in order to avoid potential damage.

Therefore fail-safe versions are offered as an option for the proportional valves.

After external triggering this fail-safe function causes a defined metering spool position.

Mechanical fail-safe version

The safe position of the spool will be obtained after cutoff the pilot pressure X for external pilot connection or after cutoff the operating pressure supply for internal pilot connection.

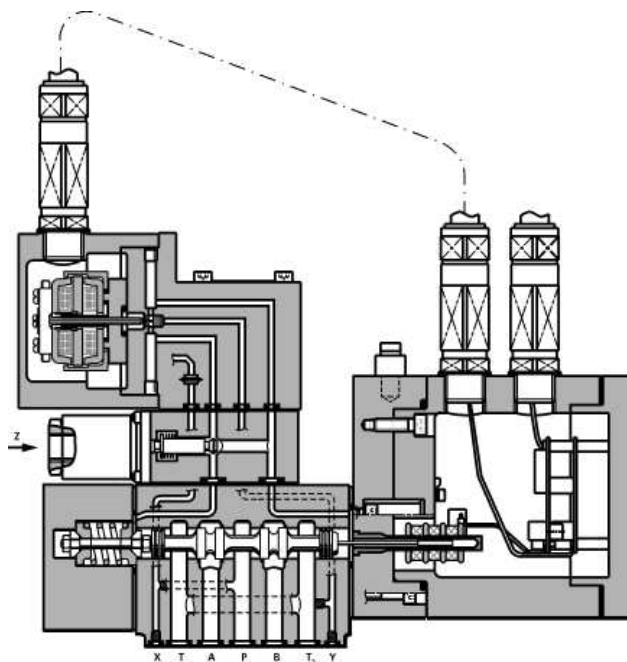
Further details see chapter "Ordering information".

Hydraulically operated fail-safe version

In order to move into the safe position, for two-stage proportional valves the control areas of the spool are shortcircuited via a 2/2-way valve, for three-stage valves via a 4/2-way valve.

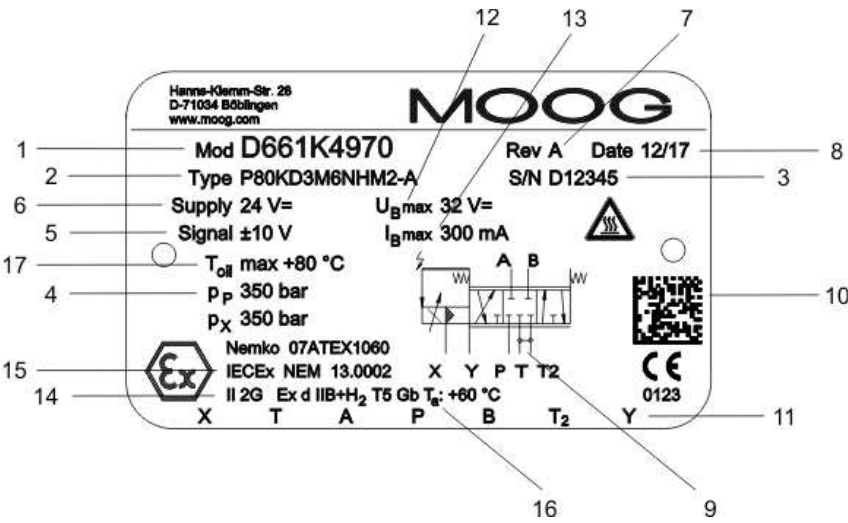
The spool in fail-safe version **K** goes into the middle position after switching off pressure **Z** of the way valve. When the supply voltage of the valve electronics drops, but if the way valve is further supplied and the control pressure is available, the spool moves to a defined end position in version **H**.

Proportional valve D661K series with hydraulic fail-safe valve



TECHNICAL DATA

Nameplate



Item.	Designation
1	Model number
2	Type designation
3	Serial number
4	Maximum operating pressure
5	Signal type for analog command inputs
6	Power supply
7	Version identification
8	Date of manufacture in MM/YY
9	Hydraulic symbol
10	Data matrix code
11	Designation of ports
12	Maximum power supply
13	Maximum current consumption
14	Identification
15	Certification
16	Ambient temperature
17	Fluid temperature

TECHNICAL DATA

Servo valve D661K

Model	D661K	
Mounting pattern According to ISO, with additional 2nd T-port	ISO 4401-05-05-0-05	
Valve version	4-way 2-stage with bushing spool assembly	
Pilot stage Jetpipe	Standard	
Pilot connection optional internal or external	X and Y	
Mass	5.7 kg	
Rated flow Q_N ($\pm 10\%$) at $\Delta p_N = 35$ bar per land	20/90 l/min	120/160/200 l/min
Maximum operating pressure p_{max} Main stage Ports P with X external, A, B Ports T, T ₂ with Y internal Ports T, T ₂ with Y external Pilot stage Regular version with built-in dropping orifice (upon request)	350 bar 20% of pilot pressure, maximum 100 bar 350 bar 210 bar 350 bar	
Response time ¹⁾ for 0 to 100 % stroke	14 ms	18 ms
Threshold ¹⁾	< 0.1%	< 0.1%
Hysteresis ¹⁾	< 0.5%	< 0.5%
Null shift with $\Delta T = 55$ K	< 1.5%	< 1.0%
Null leakage flow ¹⁾ total maximum (- critical lap)	3/4.5 l/min	4.5 l/min
Pilot leakage flow ¹⁾ Pilot stage only	1.7 l/min	1.7 l/min
Pilot flow ¹⁾ maximum for 100 % step input	1.7 l/min	1.7 l/min
Temperature range (ambient and fluid)	See chapter "Intended operation"	
Operating fluid ²⁾ Viscosity recommended Viscosity permissible	Mineral oil based hydraulic fluid according to DIN 51524, part 1 to 3, other fluids upon request 15 to 45 mm ² /s 5 to 400 mm ² /s	
Class of cleanliness according to ISO 4406 for normal operation for longer life ³⁾	19/16/13 17/14/11	

¹⁾ AT 210 bar pilot or operating pressure, fluid viscosity 32 mm²/s and fluid temperature of +40°C

²⁾ The cleanliness of the hydraulic fluid greatly influences the functional safety and the wear and tear of the valve. In order to avoid malfunctions and increased wear and tear, we recommend filtrating the hydraulic fluid accordingly

³⁾ For long life wear protection of metering lands

Note: For additional technical information see catalog of D66x series.

TECHNICAL DATA

Proportional valve D661K

Model	D661K	
Mounting pattern According to ISO, with additional 2nd T-port	ISO 4401-05-05-0-05	
Valve version	4-way, 2x2-way, 5-way 2-stage, standard spool	
Pilot stage D061K Jetpipe	Standard	High Flow
Pilot connection optional internal or external	X and Y	
Mass	5.6 kg	5.6 kg
Rated flow Q_N ($\pm 10\%$) at $\Delta p_N = 35$ bar per land	30/60/80/2 x 80 l/min	30/60/80/2 x 80 l/min
Maximum operating pressure p_{max} Main stage Ports P, A, B Port T with Y internal Port T with Y external Pilot stage Regular version with built-in dropping orifice (upon request)	350 bar 20% of pilot pressure, maximum 100 bar 350 bar 210 bar 350 bar	
Response time ¹⁾ for 0 to 100 % stroke	28 ms	18 ms
Threshold ¹⁾	< 0.1%	< 0.1%
Hysteresis ¹⁾	< 0.5%	< 0.5%
Null shift with $\Delta T = 55$ K	< 1.0%	< 1.0%
Null leakage flow ¹⁾ total maximum (- critical lap)	3.5 l/min	4.4 l/min
Pilot leakage flow ¹⁾ Pilot stage only	1.7 l/min	2.6 l/min
Pilot flow ¹⁾ maximum for 100 % step input	1.7 l/min	2.6 l/min
Temperature range (ambient and fluid)	See chapter "Intended operation"	
Operating fluid ²⁾ Viscosity recommended Viscosity permissible	Mineral oil based hydraulic fluid according to DIN 51524, part 1 to 3, other fluids upon request 15 mm ² /s to 45 mm ² /s 5 mm ² /s to 400 mm ² /s	
Class of cleanliness according to ISO 4406 for normal operation for longer life ³⁾	19/16/13 17/14/11	

¹⁾ AT 210 bar pilot or operating pressure, fluid viscosity 32 mm²/s and fluid temperature of +40°C

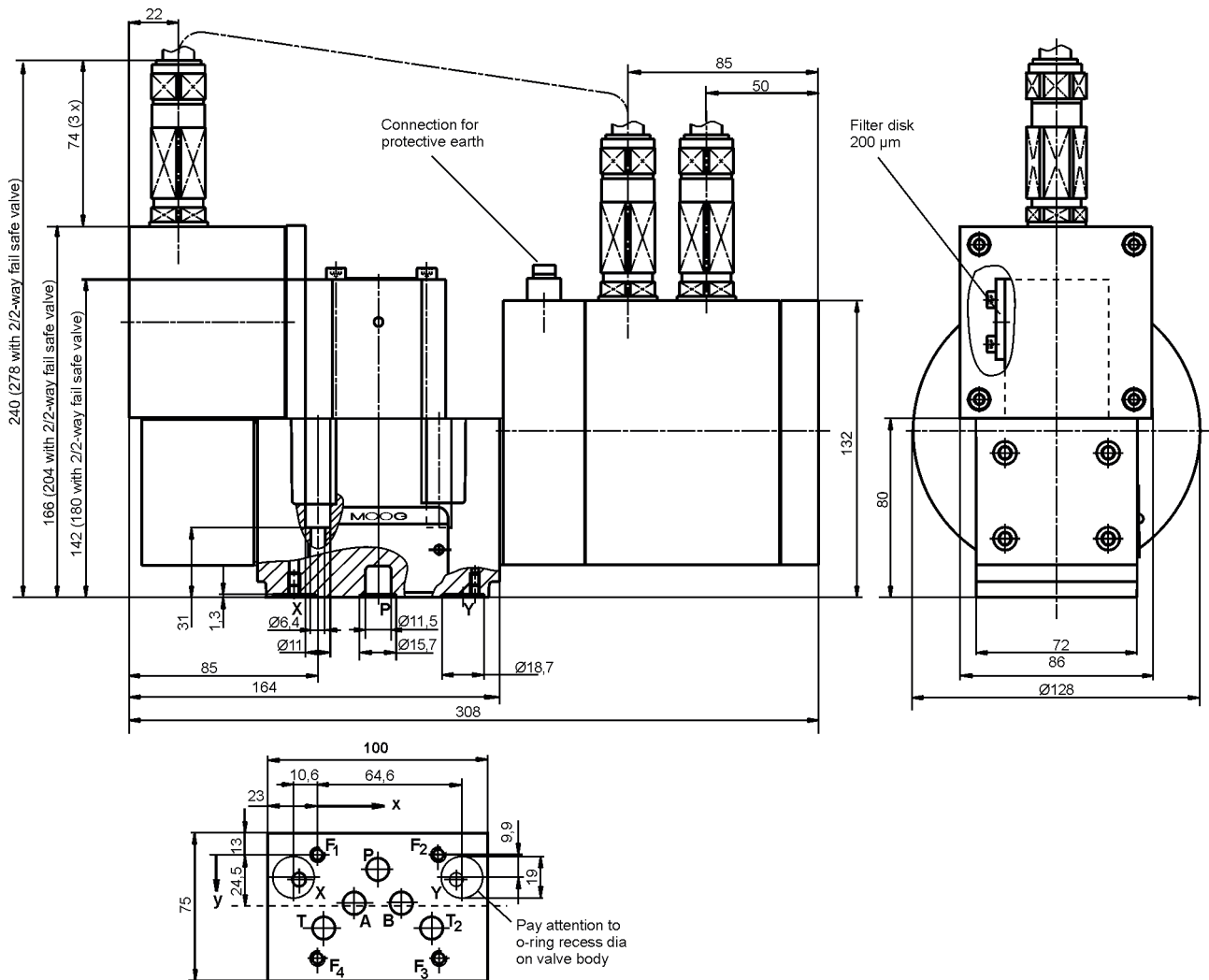
²⁾ The cleanliness of the hydraulic fluid greatly influences the functional safety and the wear and tear of the valve. In order to avoid malfunctions and increased wear and tear, we recommend filtrating the hydraulic fluid accordingly

³⁾ For long life wear protection of metering lands

Note: For additional technical information see catalog of D66x series.

TECHNICAL DATA

Dimensions D661K without hydraulic fail-safe valve



[mm]	P	A	B	T	T ₂	X	Y	F ₁	F ₂	F ₃	F ₄
Ø	11.5	11.5	11.5	11.5	11.5	6.3	6.3	M6	M6	M6	M6
x	27	16.7	37.3	3.2	50.8	-8	62	0	54	54	0
y	6.3	21.4	21.4	32.5	32.5	11	11	0	0	46	46

Notes on the mounting pattern of the mounting surface:
The mounting pattern of the mounting surface must conform to ISO 4401-05-05-0-05.

Contrary to this standard, the length of the mounting surface must be at least 100 mm so that the O-ring recesses for X and Y can be covered.

For valves with 4-way operation with $Q_N > 60$ l/min and for valves with 2x2-way operation, the second tank port T₂ is required.

To achieve maximum flow, the ports for P, T, A and B must contrary to the standard have a diameter of 11.5 mm.

TECHNICAL DATA

Proportional valves D662K, D663K and D664K

Model	D662K	D662K	D663K ⁴⁾	D664K ⁴⁾
Mounting pattern According to ISO, with additional 2nd T-port	ISO 4401-07-07-0-05	ISO 4401-07-07-0-05	ISO 4401-08-08-0-05	ISO 4401-08-08-0-05
Valve version	4-way, 2x2-way 2-stage, stub shaft spool			
Pilot stage D061K Jetpipe	Standard	High Flow	High Flow	High Flow
Pilot connection optional internal or external	X and Y			
Mass	11 kg	11 kg	19 kg	19 kg
Rated flow Q_N ($\pm 10\%$) at $\Delta p_N = 35$ bar per land	150/250 l/min	150/250 l/min	350 l/min	550 l/min
Maximum operating pressure p_{max} Main stage Ports P, A, B Port T with Y internal Port T with Y external Pilot stage Regular version with built-in dropping orifice (upon request)	350 bar 20% of pilot pressure, maximum 100 bar 350 bar 210 bar 350 bar			
Response time ¹⁾ for 0 to 100 % stroke	44 ms	28 ms	37 ms	48 ms
Threshold ¹⁾	< 0.1%			
Hysteresis ¹⁾	< 0.5%			
Null shift with $\Delta T = 55$ K	< 1.0%			
Null leakage flow ¹⁾ total maximum (- critical lap)	4.2 l/min	5.1 l/min	5.6 l/min	5.6 l/min
Pilot leakage flow ¹⁾ Pilot stage only	1.7 l/min	2.6 l/min	2.6 l/min	2.6 l/min
Pilot flow ¹⁾ maximum for 100 % step input	1.7 l/min	2.6 l/min	2.2 l/min	2.6 l/min
Temperature range (ambient and fluid)	See chapter "Intended operation"			
Operating fluid ²⁾ Viscosity recommended Viscosity permissible	Mineral oil based hydraulic fluid according to DIN 51524, part 1 to 3, other fluids upon request 15 to 45 mm ² /s 5 to 400 mm ² /s			
Class of cleanliness according to ISO 4406 for normal operation for longer life ³⁾	19/16/13 17/14/11			

¹⁾ At 210 bar pilot or operating pressure, fluid viscosity 32 mm²/s and fluid temperature of +40°C

²⁾ The cleanliness of the hydraulic fluid greatly influences the functional safety and the wear and tear of the valve. In order to avoid malfunctions and increased wear and tear, we recommend filtering the hydraulic fluid accordingly

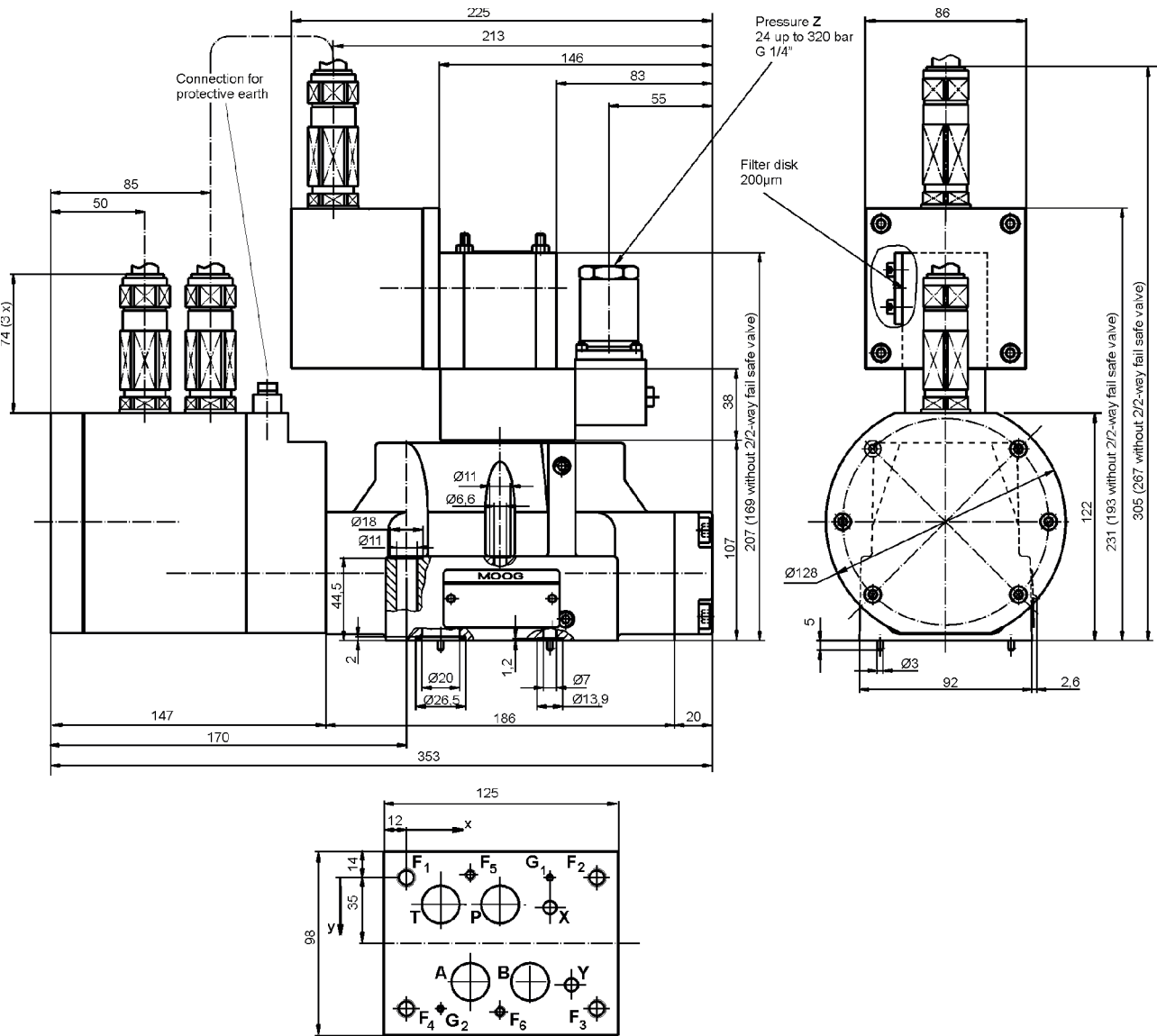
³⁾ For long life wear protection of metering lands

⁴⁾ The valves of the series D663K and D664K are provided with a threaded hole (size M8), which is located at the endcap of the valve. This threaded hole can be used to mount a ring bolt.

Note: For additional technical information see catalog of D66x series.

TECHNICAL DATA

Dimensions D662K with hydraulic fail-safe valve



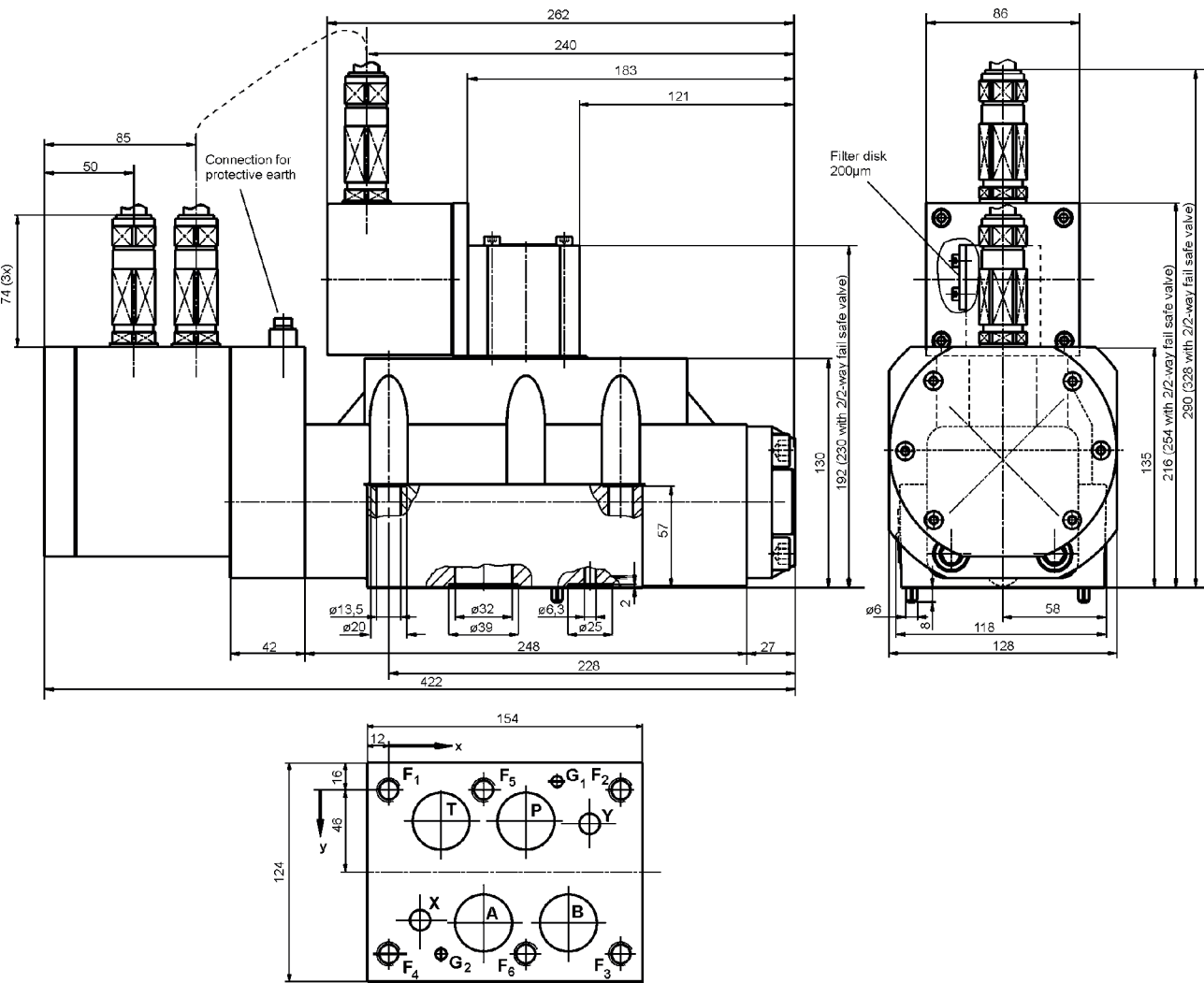
[mm]	P	A	B	T	X	Y	G ₁	G ₂	F ₁	F ₂	F ₃	F ₄	F ₅	F ₆
ø	20	20	20	20	6.3	6.3	4	4	M10	M10	M10	M10	M6	M6
x	50	34.1	65.9	18.3	76.6	88.1	76.6	18.3	0	101.6	101.6	0	34.1	50
y	14.3	55.6	55.6	14.3	15.9	57.2	0	69.9	0	0	69.9	69.9	-1.6	71.5

Notes on the mounting pattern of the mounting surface.
The mounting pattern of the mounting surface must conform to ISO 4401-07-07-0-05.

To achieve maximum flow, the ports for P, T, A and B must contrary to the standard have a diameter of 20 mm.

TECHNICAL DATA

Dimensions D663K and D664K without hydraulic fail-safe valve



[mm]	P	A	B	T	X	Y	G ₁	G ₂	F ₁	F ₂	F ₃	F ₄	F ₅	F ₆
ø D663K	28	28	28	28	11.2	11.2	7.5	7.5	M12	M12	M12	M12	M12	M12
ø D664K	32	32	32	32	11.2	11.2	7.5	7.5	M12	M12	M12	M12	M12	M12
x	77	53.2	100.8	29.4	17.5	112.7	94.5	29.4	0	130.2	130.2	0	53.2	77
y	17.5	74.6	74.6	17.5	73	19	-4.8	92.1	0	0	92.1	92.1	0	92.1

Notes on the mounting pattern of the mounting surface.
The mounting pattern of the mounting surface must conform to ISO 4401-08-08-0-05.

To achieve maximum flow, the ports for P, T, A and B must contrary to the standard have a diameter of 28 mm (for D663K) or a diameter of 32 mm (for D664K).

TECHNICAL DATA

Proportional valve D665K

Model	D665K ⁴⁾	
Mounting pattern According to ISO, with additional 2nd T-port	ISO 4401-10-08-0-05	
Valve version	4-way, 2x2-way 3-stage, standard spool	
Pilot stage D061K Jetpipe, 2-stage	Standard	
Pilot connection optional internal or external	X and Y	
Mass	75 kg	75 kg
Rated flow Q_N ($\pm 10\%$) at $\Delta p_N = 35$ bar per land	1000 l/min	1500 l/min
Maximum operating pressure p_{max} Main stage Ports P, A, B Port T with Y internal Port T with Y external Pilot stage Regular version with built-in dropping orifice (upon request)	350 bar 20% of pilot pressure, maximum 100 bar 350 bar 210 bar 350 bar	
Response time ¹⁾ for 0 to 100 % stroke	35 ms	40 ms
Threshold ¹⁾	< 0.05%	< 0.03%
Hysteresis ¹⁾	< 0.5%	< 0.3%
Null shift with $\Delta T = 55$ K	< 1.5%	< 1.0%
Null leakage flow ¹⁾ total maximum (~ critical lap)	11 l/min	
Pilot leakage flow ¹⁾ Pilot stage only	4 l/min	
Pilot flow ¹⁾ maximum for 100 % step input	40 l/min	50 l/min
Temperature range (ambient and fluid)	See chapter "Intended operation"	
Operating fluid ²⁾ Viscosity recommended Viscosity permissible	Mineral oil based hydraulic fluid according to DIN 51524, part 1 to 3, other fluids upon request 15 to 45 mm ² /s 5 to 400 mm ² /s	
Class of cleanliness according to ISO 4406 for normal operation for longer life ³⁾	19/16/13 17/14/11	

¹⁾ At 210 bar pilot or operating pressure, fluid viscosity 32 mm²/s and fluid temperature of +40°C

²⁾ The cleanliness of the hydraulic fluid greatly influences the functional safety and the wear and tear of the valve. In order to avoid malfunctions and increased wear and tear, we recommend filtering the hydraulic fluid accordingly

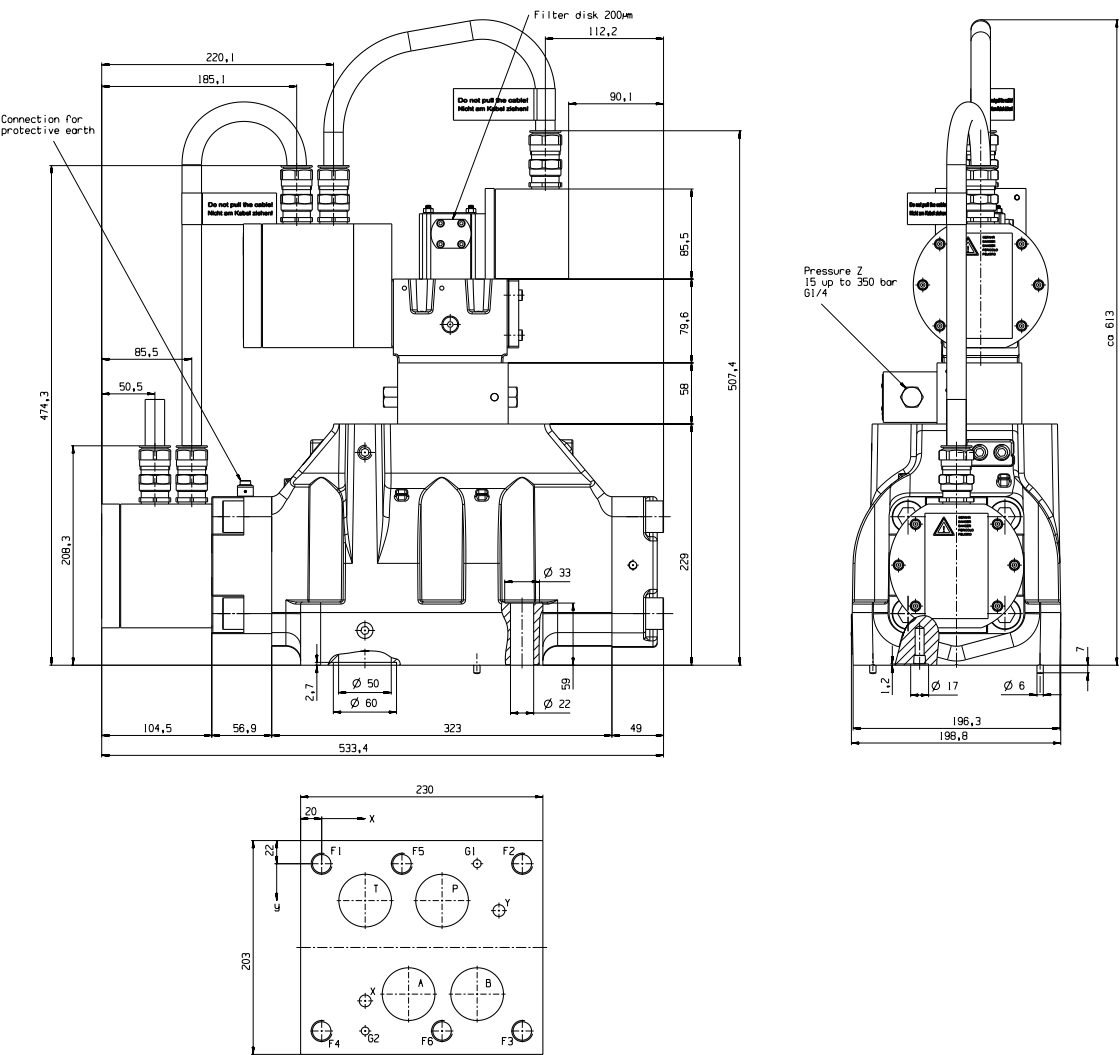
³⁾ For long life wear protection of metering lands

⁴⁾ The valves of the series D665K are provided with two ring bolts, which are located at the endcap of the valve

Note: For additional technical information see catalog of D66x Series.

TECHNICAL DATA

Dimensions D665K with hydraulic fail-safe valve



[mm]	P	A	B	T	X	Y	G ₁	G ₂	F ₁	F ₂	F ₃	F ₄	F ₅	F ₆
ø	50	50	50	50	11.2	11.2	7.5	7.5	M20	M20	M20	M20	M20	M20
x	114.3	82.5	147.6	41.3	41.3	168.3	147.6 ¹⁾	41.3	0	190.5	190.5	0	76.2	114.3
y	35	123.8	123.8	35	130.2	44.5	0	158.8	0	0	158.8	158.8	0	158.8

Notes on the mounting pattern of the mounting surface.

The mounting pattern of the mounting surface must conform to ISO 4401-10-09-0-05.

To achieve maximum flow, the ports for P, T, A and B must contrary to the standard have a diameter of 50 mm.

¹⁾ Contrary to ISO 4401-10-09-0-05, the x-coordinate of the locating pin, which is mounted at factory in the bore G1 of the valve body, is 147.6 mm. This measure complies with the requirements in DIN 24340. In addition to the a.m. bore G1 as per DIN 24340, the bore G1 at 138.6 mm, which is required by ISO 4401-10-09-0-05, has also been drilled. If required, the locating pin can be removed and can be plugged into this other bore G1 to realize a connection according to ISO.

INSTALLATION

General information

- Compare model number and valve type with information from the hydraulic schematic or bill of material.
- The valve can be mounted in any direction, fixed or movable.
- Check mounting surface for flatness (0.02 for 100 mm) and surface roughness ($R_a < 1 \mu\text{m}$).
- Pay attention to cleanliness of mounting surfaces and surroundings when installing the valve.
- Use always lint-free tissue to clean!
- The valve shipping plate may only be removed from the valve hydraulic ports directly prior to mounting and must be reinstalled directly after the valve has been removed.
- The valve shipping plate and the associated fastening elements (screws and nuts) must be kept for later use, e.g. during transportation.
- Pay attention to correct position of ports and location of O-rings during installation.
- Use socket head screws according to EN ISO 4762 (formerly DIN 912), strength class 10.9, for mounting and tighten them diagonally according to following table. Torque tolerance $\pm 10\%$.

Series	Mounting pattern ISO 4401	Socket head screws	Quantity	Torque [Nm]
D661K	05-05-0-05	M6 x 60	4	13
D662K	07-07-0-05	M10 x 60 M6 x 55	4 2	65 13
D663K	08-08-0-05	M12 x 75	6	110
D664K	08-08-0-05	M12 x 75	6	110
D665K	10-08-0-05	M20 x 90	6	460

Electrical connection

Please note information regarding input signals on the nameplate!

It must be ensured through correct assembly that a equipotential bonding is possible.

- Supply voltage $U_A = 24 \text{ VDC}$ (18 to 32 VDC)
- Maximum current consumption $I_{A_{\text{max}}} = 300 \text{ mA}$ (measured at an ambient temperature of $+25^\circ\text{C}$ and a supply voltage of 24 VDC).
External fuse per valve: 0.5 A (medium time lag)
- All signal lines, also those of external transducers, shielded. Shielding connected radially to $\perp$ (0 V), power supply side, and connected to the mating connector housing (EMC)
- **EMC:** Meets the requirements of EN 61000-6-4:2007 and EN 61000-6-2:2005.
- Minimum wire cross-section of all conductors $\geq 0.75 \text{ mm}^2$.
Consider voltage losses between cabinet and valve.
- **Note:** When making electric connections to the valve (shield, $\oplus$) appropriate measures must be taken to ensure that locally different earth potentials do not result in excessive ground currents. See also Technical Note TN 353.
- The protective earth connection is connected to the electronics housing or valve body. The insulation materials employed are designed for use in the safety extra-low-voltage range. To comply with safety regulations requires isolation from the mains as per EN 61558-1 and EN 61558-2-6 and limiting all voltages as per EN 60204-1.
We recommend using SELV/PELV power supplies.

ELECTRONICS INFORMATION

Connection lead wiring

- **Type code letter K/H** - For valves with 6+PE/6+FE-pole connection lead (see sticker on the electronic housing)

	Type of signal	Current command	Voltage command
	1 Supply	24 VDC (minimum 18 VDC, maximum 32 VDC) I_{maximum} : 300 mA	
	2 Supply or signal ground	$\perp$ (0 V)	
	3 Enabled ¹⁾ Not enabled	$U_{3-2} > 8.5 \text{ VDC}$ $U_{3-2} < 6.5 \text{ VDC}$ $I_e = 1.2 \text{ mA to } 24 \text{ VDC}$	
	4 Input rated command (differential)	Input command $I_{4-5}: 0 \text{ to } \pm 10 \text{ mA}$ Input command (inverted) $I_{4-5}: 0 \text{ to } \pm 10 \text{ mA}$ ($R_e = 200 \Omega$) Inputs U_{4-2} and U_{5-2} for both signal types limited to minimum -15 V and maximum 32 V	$U_{4-5}: 0 \text{ to } \pm 10 \text{ V}$ $R_e: 10 \text{ k}\Omega$
	6 Output actual spool position	$I_{6-2} = 4 \text{ to } 20 \text{ mA}$. At 12 mA spool is in centred position. $R_L = 100 \text{ to } 500 \Omega$ Signal code D : $U_{6-2} = 2.5 \text{ to } 13.5 \text{ V}$. At 8 V spool is in centred position. $R_a = 500 \Omega$	
	7 PE (protective earth) / FE (functional earth)		

¹⁾ With enable signal < 6.5 V the spool moves into the defined position.

- **Type code letter Z** - For valves with 11+PE-pole connection lead (see sticker on the electronic housing)

Type of signal	Current command	Voltage command
1 Supply	24 VDC (minimum 18 VDC, maximum 32 VDC) I_{maximum}	300 mA
2 Supply or signal ground	$\perp$ (0 V)	
3 Enabled ¹⁾ Not enabled	$U_{3-2} > 8.5 \text{ VDC}$ $U_{3-2} < 6.5 \text{ VDC}$	$I_e = 1.2 \text{ mA to } 24 \text{ VDC}$
4 Input rated command 5 (differential)	Input command $I_{4-5}: 0 \text{ to } \pm 10 \text{ mA}$ ($R_e = 200 \Omega$) Input command (inverted) $I_{4-5}: 0 \text{ to } \pm 10 \text{ mA}$ Inputs U_{4-2} and U_{5-2} for both signal types limited to minimum -15 V and maximum 32 V	$U_{4-5}: 0 \text{ to } \pm 10 \text{ V}$ $R_e: 10 \text{ k}\Omega$
6 Output actual value spool position	$I_{6-2} = 4 \text{ bis } 20 \text{ mA}$. At 12 mA spool is in centred position. $R_L = 100 \text{ bis } 500 \Omega$ Signal code D : $U_{6-2} = 2.5 \text{ V to } 13.5 \text{ V}$. At 8 V spool is in centred position. $R_a = 500 \Omega$	
7 Auxiliary signal	Spool position $I_{7-2} = 13 \text{ to } 3 \text{ V}$. At 8 V spool is in centred position. $R_a = 5 \text{ k}\Omega$	
8 Valve ready 9 Supply ready	$U_{8-2} > 8.5 \text{ VDC}$: Enable and supply ok $U_{8-2} < 6.5 \text{ VDC}$: Not enabled or supply not ok	Output $I_{\text{maximum}}: 20 \text{ mA}$
10 not used		
11 Position error, logic	$U_{11-2} > 8.5 \text{ VDC}$: safe operation $U_{11-2} < 6.5 \text{ VDC}$: not in safe operation	Output $I_{\text{maximum}}: 20 \text{ mA}$
PE PE (protective earth)		

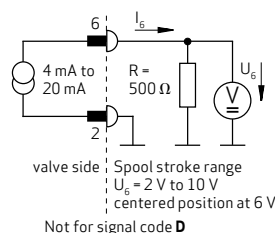
¹⁾ With enable signal < 6.5 V the spool moves into the defined position.

INSTALLATION

Signals

- Flow command input ± 10 mA, floating, signal code X**
 The spool stroke of the valve is proportional to $I_4 = -I_5$. 100% valve opening $P \rightarrow A$ and $B \rightarrow T$ is achieved at $I_4 = 10$ mA. At 0 mA command the spool is in centered position. The input flexible wire 4 and 5 are inverting. Either flexible wire 4 or 5 is used according to the required operating direction. The other flexible wire is connected to signal ground at cabinet side.
- Flow command input ± 10 V, floating, signal code M**
 The spool stroke of the valve is proportional to $(U_4 - U_5)$. 100% valve opening $P \rightarrow A$ and $B \rightarrow T$ is achieved at $(U_4 - U_5) = 10$ V. At 0 V command the spool is in centered position. The input stage is a differential amplifier. If only one command signal is available, flexible wire 4 or 5 is connected to signal ground at cabinet side, according to the required operating direction.
- Flow actual value output 4 to 20 mA**
 The actual spool position value can be measured at flexible wire 6. This signal can be used for monitoring and fault detection purposes. The spool stroke range corresponds to 4 to 20 mA. The centered position is at 12 mA. 20 mA corresponds to 100% valve opening $P \rightarrow A$ and $B \rightarrow T$.

- Flow actual value output 2.5 to 13.5 V**
 The actual spool position value can be measured at flexible wire 6. This signal can be used for monitoring and fault detection purposes. The spool stroke range corresponds to 2.5 to 13.5 V. The centered position is at 8 V. 13.5 V corresponds to 100% valve opening $P \rightarrow A$ and $B \rightarrow T$.
- Circuit diagram for measurement of actual value I_{6-2} (position of main spool)



SETTING UP

This information is valid for new installations to be put into operation as well as for valve replacement.

Filling the hydraulic system



New oil is never clean. Therefore the system should generally be filled by using a filling filter. This Mesh filter should at least comply with the following requirement: $\beta \geq 75$ (10 μm absolute).

Flushing the hydraulic system



Before the hydraulic system is put into operation for the first time or after a modification it has to be flushed carefully according to the instructions of the manufacturer of the machine/plant.

1. Before flushing suitable flushing elements have to be inserted in the pressure filters instead of the high pressure elements.
2. During flushing the operational temperature of the hydraulic system should be achieved. Observe temperature!
3. A flushing plate or, if the system allows, a directional valve should be mounted in place of the proportional valve. The P- and T-connections are flushed through the flushing plate. The user A- and B-connections can also be flushed by the directional valve. Attention, the directional valve can lead to impermissible movements in the load (i.e., with parallel drives), which may result in damage to the machine/plant. Instructions of the manufacturer have to be strictly observed. Minimum flushing time t can be calculated as follows:

$$t = \frac{V}{Q} \times 5 \text{ [h]}$$

V = content of reservoir [Liter]
 Q = flow rate of the pump [l/min]
 t = flushing time [hours]

4. The flushing process can be considered completed when a system cleanliness of 19/16/13 according ISO 4406 is achieved. A long life of the metering lands of the proportional valve can be expected for a cleanliness of 17/14/11.
5. Replace flushing elements in the pressure filters by suitable high pressure elements after flushing. Install proportional valve instead of flushing plate or directional valve.



Setting up

Danger of explosion!

An explosion can be triggered by sparks when switching on the machine.

- Open connectors for the interface must absolutely be covered before start-up.



The unsafe operation of the valves is dangerous!

- Only operate the valve when it is in safe and functional state.



1. After setting up the valves, put the machine or system into operation, observing the operating instructions of the machine/plant manufacturer. Vent the system.
2. The safety directives (EN ISO 13849-1) and the safety requirements of the individual applications as injection moulding machines (EN 201), blow moulding machines (EN 422), pressure metal diecasting units (EN 869), etc. must be observed. In particular the safety requirements of EN 60079-1 / IEC 60079-1 apply.
3. Observe the oil temperature!
4. Check the hydraulic system for external leaks!

MALFUNCTIONS - ROOTS AND TROUBLESHOOTING



Structural modifications and repair work on valves and accessories of the series D66xK may only be made by Moog GmbH or by a service center authorized by MOOG GmbH.

Intervention by third parties will invalidate the ex certification!

Report any changes to the responsible group / person immediately. If necessary, stop the machine immediately and secure it. Have any defects rectified immediately.

Leakage at the mounting surface of the valve

- ☐ Have all seals been installed at ports A, B, P, T, (T₂), Y and X and are they ok?
- ☐ Have the mounting bolts been tightened correctly?



**Pay attention to the required torque!
Tighten bolts diagonally!**

No hydraulic response of the valve

- ☐ Check all signals at the flexible wires.
- ☐ Is supply voltage present?
- ☐ Is electric input signal (command signal) present?
- ☐ Is the enable signal > 8.5 V at flexible wire 3 present?
- ☐ Is hydraulic pressure present?
- ☐ Check pilot supply.
Do you need internal or external?
- ☐ If external pilot connection, is pilot pressure present?
- ☐ Is the filter disk contaminated?

With fail-safe version K/H:

- ☐ Is the release pressure Z available on the 2/2- or 4/2-way valve?

Instability of the system - control loop oscillates

- ☐ Check, whether output signal at flexible wire 6 is following exactly the command signal at flexible wire 4 or 5.
If so, the electronics of the valve is in order; the fault is in the external control loop.
If not, the electronics of the valve may be defective.
- ☐ Check filter disk for contamination.

With hydraulics „ON“ valve goes hardover

- ☐ Has the 2/2- or 4/2-way valve been actuated?
- ☐ Pilot stage is contaminated!

Send the valve back to the Moog GmbH service office for repairs.

MAINTENANCE

General information



Structural modifications and repair work on valves and accessories of the series D66xK may only be made by Moog GmbH or by a service center authorized by MOOG GmbH. **Intervention by third parties will invalidate the ex certification!**



With the exception of removing the filter cover and filter plug (see chapter "Filter replacement") the explosion-proof valves D66xK series may not be opened by unauthorized persons. **Unauthorized opening will invalidate the ex certification! Return failed valve to Moog!**



Danger of explosion!

The unsafe operation of the valves is dangerous.

- At least once per shift, check valve for damage visible from the outside and defects such as leakage or damaged cables or connectors.
- The cable glands must be checked at regularly-prescribed intervals. For details, see standard EN60079-17 / IEC 60079-17.
- Report changes, including to the operating behavior, damage, and defects to the responsible department immediately. If necessary, shut down the machine immediately and secure it.



Danger of explosion due to impermissible heating up of the valve!

As a result of insufficient ventilation of the valve or deposits on the valve, the impermissible heating up of the valve can be such that the maximum temperatures of the certified temperature classes are exceeded.

- The valves must be checked regularly, cleaned if necessary. Deposits on the valve must be removed.
- If necessary inform the responsible person immediately and remove the valve from electrical and hydraulic operation.

Danger of personal injury and damage to property!

To avoid damage or leaks, the following tasks must be performed at regular intervals in accordance with the instructions of the manufacturer and the operator of the machine:



- Checking the valve and the hydraulic system for externally identifiable damage and defects.
- Checking for loose plugs/connectors.
- Checking the cleanliness level of the hydraulic fluid.
- Checking the port O-rings for elasticity, integrity and correct seating.
- Checking filter for condition and contamination.
- If necessary replace O-rings of the mounting surface and of the filter.
- After a storage or operating period of 5 years we recommend to check the valves by us or our authorized service partners to avoid possible consequential losses or damages.

MAINTENANCE

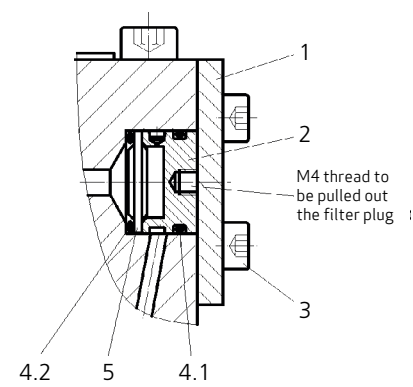
Filter replacement

The built-in filter disk protects jet and receiver against coarse contaminants. With severe contamination the valve response will be reduced.



Replace filter! Do not reinsert used filter discs!

1. Before starting to work on the valve clean the external surface around the filter cover!



2. Dismantle the four hexagon socket screws (3) with the AF3 hexagon socket screw key and remove the filter cover (1).
3. Pull out the filter plug (2), which is now accessible, with the help of one of the screws (3) by means of the M4 thread.
4. Remove the filter disk (5) with a scriber or a fine screwdriver.
5. Check O-rings (4.1) and (4.2) and replace them if necessary. Pay attention to the correct material for the O-ring (NBR or FKM).
6. Insert the new filter disk. For this, firstly insert the O-ring (4.2), then the filter disk (5) in such a way that the side with the impression points towards the outside. Insert O-ring (4.1) in the filter plug with some clean grease and insert the filter plug (2) in the bore.
7. Assemble cover (1) with the four M4 hexagon socket screws (3) and tighten with a torque of 4.1 Nm.
8. After putting the valve into operation, check it for external leaks.

O-ring replacement

Only O-rings of the mounting surface of the main stage, O-rings of the filter and its plug may be replaced by the user.

Pay attention to cleanliness when replacing the O-rings.



TRANSPORTATION AND STORAGE



Risk of damage due to dirt, moisture and ozone/UV exposure!

Outdoor storage or storage under wrong climatic conditions can result in corrosion and valve damage. Condensation due to variations in temperature can lead to a short circuit.

- Observe the following storage conditions:

Ambient temperature recommended: +15 to +25°C,
Ambient temperature permissible: -20 to +80°C,
Ambient temperature variations: <10°C,
Relative humidity: <65% not condensing

- Wait with the start-up of the valves after transportation/storage until the valves have reached the ambient temperature
- The valves must not be transported or stored without their shipping plate fitted.
- The valve shipping plate may only be removed from the valve hydraulic ports directly prior to mounting and must be reinstalled directly after the valve has been removed.
- The valve shipping plate and the associated fastening elements (screws and nuts) must be kept for later use, e.g. during transportation.

Risk of damage!

Improper handling during transport or storage of the valves, spare parts, and accessories can cause damage to the original packaging and to the contents.

- After transporting or storing valves, spare parts and accessories, check the original packaging and contents for possible damage.
- Do not start up the system if the packaging or contents show signs of damage. In this case, notify us or the supplier responsible immediately.
- In the event of transportation damage, store the damaged packaging so that if necessary damages can be claimed from the transport contractor.
- Pack valves carefully to prevent damages during transportation and storage
- Ensure vibration- and shock-free storage.



DISPOSAL

DISPOSAL

It is essential to comply with the relevant national waste disposal regulations and environmental protection provisions when disposing of valves, spare parts or accessories, packaging that is no longer needed, hydraulic fluid or auxiliary materials and substances used for cleaning!

If necessary, the items to be disposed of must be expertly dismantled into individual parts, separated into individual materials and placed in the corresponding waste system or earmarked for recycling.

The valve contains among others the following materials:

- Electronic components
- Adhesives and casting compounds
- Parts with electro-plated surfaces
- Permanent-magnet materials
- Hydraulic fluid
- Assorted metals and plastics

TOOLS AND AUXILIARIES

The following tools and auxiliaries are required for installation and filter replacement:

Installation of the valve

To fit the valve:

Allan wrench AF 5 for D661K

Allan wrench AF 5 and AF 8 for D662K

Allan wrench AF 10 for D663K and D664K

Allan wrench AF 17 for D665K

Filter replacement

1. For dismantling and fitting the filter cover:
Allan wrench AF 3.
2. For dismantling the filter disk, a scriber or a fine electronic engineer's screwdriver is recommended.
3. For inserting the O-ring on the filter cover and also at the installation of the O-rings on the assembly surface, **clean** grease is required.



Standard grease must not be used with valve models having EPDM seals. Use special grease!

SPARE PARTS AND ACCESSORIES



Danger of personal and property damage due to defective accessories and defective spare parts!

Unsuitable or defective accessories or unsuitable or defective spare parts may cause damage, malfunctions or failure of the valve or the machine.

- Use only original accessories and original spare parts.

Spare parts Jetpipe pilot stage D061K

Part Number	Description	Position ¹⁾	Dimensions	Material	Quantity
-45122-012	O-ring, ports P, T, A, B	-	ID7.65 x Ø1.78	NBR Sh 90	4 pieces
CB35150-012	O-ring, ports P, T, A, B	-	ID7.65 x Ø1.78	FKM Sh 90	4 pieces
A67999-200	Replaceable filter disk	-	200 µm nominal		1 piece
-66117-013-015	O-ring, on filter stuffing and behind filter disk	4.1 and 4.2	ID13 x Ø1.5	NBR Sh 90	2 pieces
A25163-013-015	O-ring, on filter stuffing and behind filter disk	4.1 and 4.2	ID13 x Ø1.5	FKM Sh 85	2 pieces

¹⁾ see sketch, „Filter replacement“

Spare parts D661K

Part Number	Description	Dimensions	Material	Quantity
-45122-004	O-ring, ports P, T, A, B, T2, X	ID12.4 x Ø1.78	NBR Sh 90	6 pieces
CB35150-004	O-ring, ports P, T, A, B, T2, X	ID12.4 x Ø1.78	FKM Sh 90	6 pieces
-45122-011	O-ring, ports Y	ID15.6 x Ø1.78	NBR Sh 90	1 piece
CB35150-011	O-ring, ports Y	ID15.6 x Ø1.78	FKM Sh 90	1 piece

Spare parts D662K

Part Number	Description	Dimensions	Material	Quantity
-45122-129	O-ring, ports P, T, A, B	ID21.89 x Ø2.62	NBR Sh 90	4 pieces
CB35150-129	O-ring, ports P, T, A, B	ID21.89 x Ø2.62	FKM Sh 90	4 pieces
-45122-022	O-ring, ports X and Y	ID10.82 x Ø1.78	NBR Sh 90	2 pieces
CB35150-022	O-ring, ports X and Y	ID10.82 x Ø1.78	FKM Sh 90	2 pieces

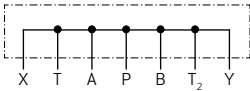
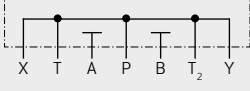
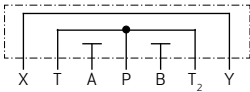
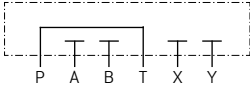
Spare parts D663K and D664K

Part Number	Description	Dimensions	Material	Quantity
-45122-113	O-ring, ports P, T, A, B	ID34.59 x Ø2.62	NBR Sh 90	4 pieces
CB35150-113	O-ring, ports P, T, A, B	ID34.59 x Ø2.62	FKM Sh 90	4 pieces
-45122-195	O-ring, ports X and Y	ID20.29 x Ø2.62	NBR Sh 90	2 pieces
CB35150-195	O-ring, ports X and Y	ID20.29 x Ø2.62	FKM Sh 90	2 pieces

Spare parts D665K

Part Number	Description	Dimensions	Material	Quantity
B97217-227H	O-ring, ports P, T, A, B	ID53.6 x Ø3.4	HNBR Sh 90	4 pieces
B97217-227V	O-ring, ports P, T, A, B	ID53.6 x Ø3.4	FKM Sh 90	4 pieces
B97217-015H	O-ring, ports X and Y	ID14.0 x Ø17	HNBR Sh 90	2 pieces
B97217-015V	O-ring, ports X and Y	ID14.0 x Ø17	FKM Sh 90	2 pieces

Accessories (not included in delivery)

Part Number	Description		Dimensions/Notes	Quantity
A03665-060-060	Mounting bolts	D661K	M6x60 EN ISO 4762-10.9	4 pieces
A03665-100-060		D662K	M10x60 EN ISO 4762-10.9	4 pieces
A03665-060-055		D662K	M6x55 EN ISO 4762-10.9	2 pieces
A03665-120-075		D663K	M12x75 EN ISO 4762-10.9	6 pieces
A03665-120-075		D664K	M12x75 EN ISO 4762-10.9	6 pieces
A03665-200-090		D665K	M20x90 EN ISO 4762-10.9	6 pieces
On request	Mounting manifold	D661K	According separate drawing	
B46891-001		D662K		
A25855-009		D663K		
A25855-009		D664K		
On request		D665K		
B67728-001	Flushing plate	D661K		
B67728-002		D661K		
B67728-003		D661K		
-76741		D662K		
-76047-001		D663K and D664K		
-76047-002		D663K and D664K		
		D665K	not available	

ORDERING INFORMATION

Servo valve D661K

D661 K G 2 -

Specification status	
K	Explosion proof version

Model designation	
	Assigned at the factory

Factory identification	
------------------------	--

Valve version	
G	Bushing

Rated flow		
	Q_N [l/min] at Δp_N	
	70 bar	10 bar
15	40	15
30	80	30
45	120	45
60	160	60
75	200	75

Maximum operating pressure		
B	70 bar	
F	210 bar	At $p_x \leq 210$ bar (X and Y external) operating pressure in ports P, A, B and T up to 350 bar allowed
K	350 bar	With dropping orifice in pilot valve X
X		Special version

Bushing spool type	
O	4-way: critical lap, linear characteristic
S	4-way: critical lap, curvilinear characteristic, $> Q_N = 80$ l/min
X	Special bushing upon request

Pilot stage	
3	D061K Jetpipe Standard

Function code	
0	Not enable input. Flexible wire 3 not used.
A	Without enable signal applied the spool moves to adjustable centred position.
B	Without enable signal applied the spool moves into defined end position A $\rightarrow$ T or B $\rightarrow$ T.

Electric supply	
2	24 VDC (18 to 32 VDC)

Signals for 100% spool stroke		
	Command	Output
D	± 10 V	2 to 10 V
M	± 10 V	4 to 20 mA
X	± 10 mA	4 to 20 mA

Valve connection lead	
K	6+PE-pole (protective earth) ¹⁾
H	6+FE-pole (functional earth), mud resistant ¹⁾

¹⁾ Cable's length 3 m, other lengths upon request

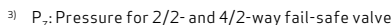
Seal material	
N	NBR Standard
V	FKM optional
Others upon request	

Pilot connections ²⁾		
	Supply	Return
4	internal	internal
5	external	internal
6	external	external
7	internal	external

²⁾ Parameters of the control electronics are adapted to the pilot pressure. See operating pressure on the nameplate and in this ordering information

Spool position without electric supply		
0	Undefined (no fail-safe function)	
	Mechanical fail-safe versions	achieved at
A	P $\rightarrow$ B, A $\rightarrow$ T connected	$p_x > 25$ bar
B	P $\rightarrow$ A, B $\rightarrow$ T connected	$p_x > 25$ bar

Proportional valves D661K, D662K, D663K, D664K AND D665K



MORE PRODUCTS. MORE SUPPORT.

Moog designs a range of motion control products to complement those featured in this document. Moog also provides service and support for all of our products. For more information, contact the Moog facility closest to you.

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Servo and proportional valves with integrated electronics for areas with potentially explosive atmospheres.
Rev. J, March 2018, Id. CA49305-001

EU - Declaration of conformity

as defined by directive 2014/34/EU (ATEX), Annex X

Herewith we declare that the

Servo and Proportionalvalves Series D66xKxxxx

(detailed model & serial number is referenced on the delivery note)

are in conformance with the provisions of the directive 2014/34/EU (ATEX).

The admission of the series is registered under: **DNV 22 ATEX 64264 X**
by DNV Product Assurance AS, Veritasveien 1, 1363 Høvik, Norway (2460)
The monitoring body of the QM system is TÜV Süd (0123)

Applied harmonized standards in particular:

EN 60079-0:2018 / A11:2024	Explosive atmospheres - Equipment - General requirements
EN 60079-1:2014 / A11:2024	Explosive atmospheres - Equipment protection by flameproof enclosures "d".

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Böblingen, 30.06.2026