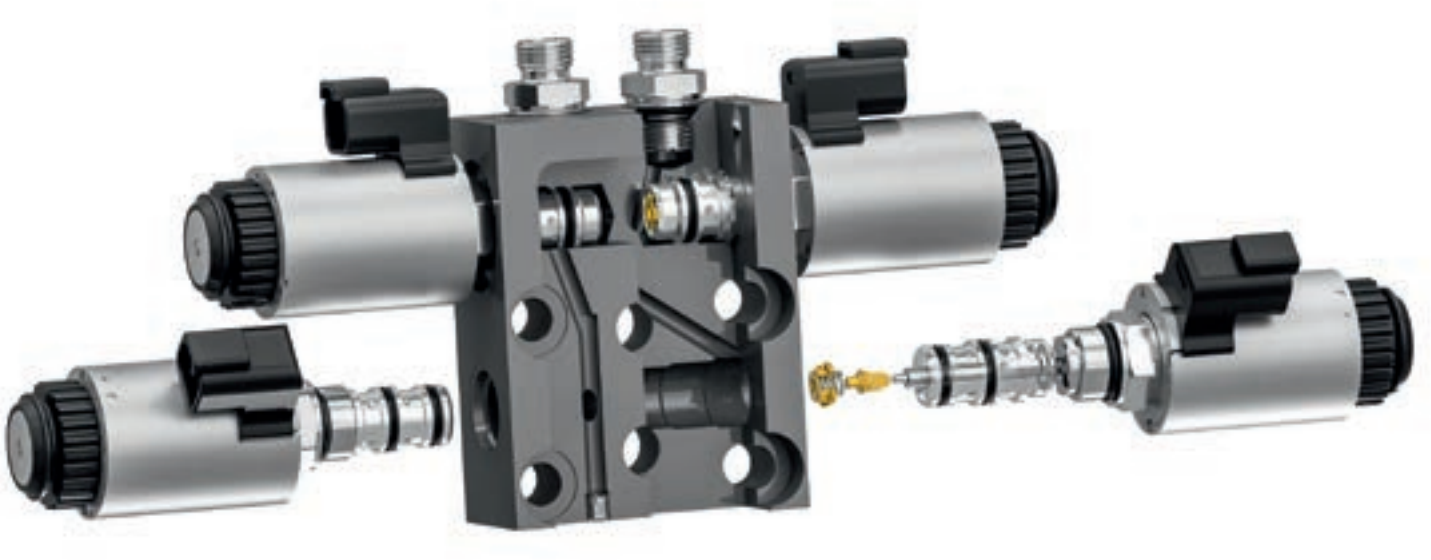
CLAAS
INDUSTRIETECHNIK

Hydraulics

Product catalogue

Valve series

CL03



Contents

At home in every field and on every street – system solutions from CLAAS Industrietechnik

The CLAAS Industrietechnik is your innovative, reliable development partner and system supplier for hydraulic components and drive technology.
Our strengths: our 600 employees in Paderborn, Germany develop and produce specific solutions tailored to the needs of customers and industries. Hence you will find our products and systems in agricultural and construction machinery, in municipal service technology and a wide range of special applications.
Our customers appreciate the high-level product benefits and top-class technology we offer. As different as the customer-specific applications are our products always share the same strengths: innovation, reliability and quality to meet the highest requirements.

Modular efficiency: Hydraulic valves from CLAAS Industrietechnik

High-quality switching and proportional valve technology is one of the core competences of CLAAS Industrietechnik. Our system approach ranges from design and simulation to integration in our customers' applications. Herewith we develop solutions for a wide variety of challenges in hydraulic and electronic system technology. Our test facilities are used to validate all components and systems thoroughly during the development process.
Our switching valves, directional valves, pressure and flow control valves are used as basic components. At the start of a development project, our engineers try to get a complete understanding of the application together with our customers. After this, they develop individual solutions on the basis of our modular philosophy. The wide range of combination options available with the basic elements of our modular mobile hydraulic system is adapted to your application in a technically and economically efficient way. With it we offer a holistic project handling for all hydraulic tasks.

Combination of hydraulics and electronics

Complex control tasks require close interaction between hydraulics and electronics. The combination of the modular mobile hydraulic system and our electronic control systems developed and tested in our own company provides the basis for customized solutions that are precisely tailored to your needs.

Overview of valve series CL03

Driven by the ever-increasing performance capability and complexity of machines and vehicles, the trend towards mobile hydraulics is leading to an ever-higher level of automation. The number of electro-hydraulic and electric drives required for this has therefore increased significantly, forcing manufacturers to focus even more on the efficiency and, above all, the reliability of the components used. With its CL03 screw-in cartridges, CLAAS Industrietechnik has developed a completely new valve series, which is characterised by low power consumption and maximum resistance to contamination. The volume flow range of up to 20 l/min covers all standard controlling, folding and pilot functions.

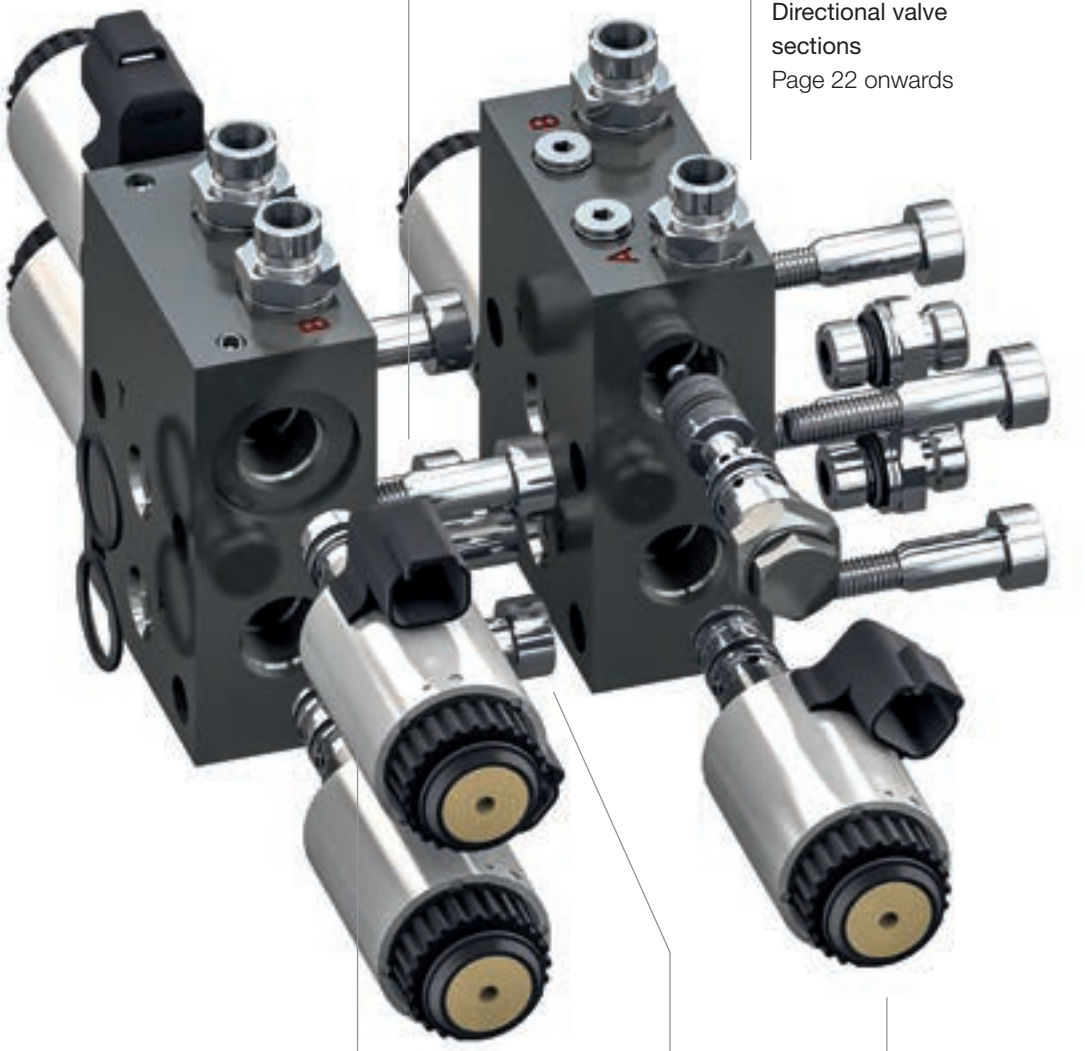
- Directly actuated switching valves in a leak-proof poppet design
- Check valves and pressure relief valves
- Flow control valves
- With the CLAAS screw-in-screw system flanged valve sections
- Customer-specific special cartridges

This modular structure enables us to provide tailor-made solutions for your applications.
High-grade components and a full check of all cartridges ensures the reliable operation of your machinery.

Components of valve series CL03

General technical specifications

Operating pressure	max.	270 bar
Ambient temperature	min.	-25 °C
	max.	+50 °C
Permissible oil temperature	min.	-25 °C
	max.	+85 °C
Permissible oil viscosity	min.	10 cSt
	max.	500 cSt
	optimum	35 cSt



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Permissible oil types		Mineral oil HL, HLP, HVLP according to DIN 51524;
		polialphaolefines, e.g. Avia Syntofluid;
		other fluids on request
Required oil purity	min.	21/18/15 according to ISO4406; no particles > 200 µm
Nominal voltage		12 VDC and 24 VDC
Electrical connectors	Standard	Compagnie Deutsch DT04-2P IPX9K
	Optional	3-pin DIN connector according to DIN EN175301-803 (IP65)
	Optional	AMP Junior Timer 2-pin (IP65)
Electrical protection classes		IP65 to 69 according to EN 60529, depending on the connector
		Only applies in conjunction with a fitted connector

Screw-in Cartridges of the CL03 valve series

The valves in the CL03 valve series are compact screw-in cartridges with a M18x1 screw thread. These valves, which are all directly actuated, were designed for volume flows of up to 20 l/min and operating pressures of up to 270 bar. This means that they can be used in a very wide range of applications, particularly in mobile hydraulics. Thanks to their simple design and low space requirements, they offer a very good cost/performance ratio. All external components are coated with CrVI-free anti-rust protection.

Directional control valves
The 2/2 and 3/2 directional cartridges are directly actuated poppet type valves. The 2/2-directional normally closed cartridge with free flow in reverse direction has a patented unique selling point within the market. The fact that no pilot control, which is susceptible to contamination, is required, makes the cartridges robust and reliable.

Check valves
Check valves are available with different opening pressures in connection with a hardened spool and in a design with tried-and-tested GFK poppets.

Pressure valves
The directly actuated, mechanical and eletrical proportional pressure relief valves are available with different pressure stages on request.

Flow control valves
Mechanical flow control valves for installation between two CL03 valve sections or in the consumer ports extend the range of standard cartridges.

3/2 directional cartridge

poppet type, positive overlapped

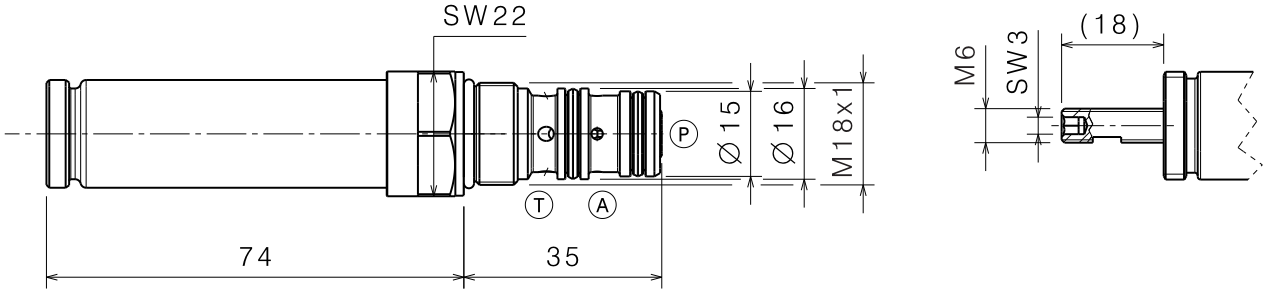
The 3/2 directional cartridge is a directly actuated seat valve with positive spools overlap. The poppets and spools are hardened and grinded. All external parts have a CrVI-free coating, which enables them to be used under extremely harsh environmental conditions.
In terms of function, a positive overlapped 3/2 directional control valve is particularly suitable for use in constant pressure systems, as the separation of the three ports largely prevents pressure peaks during the shifting operation. The design prevents silting over long periods under pressure. In the standard design, every cartridge features a manual override. A lockable manual override is available as an option.

Technical specifications

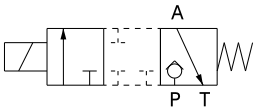
Type	3/2 directional valve, poppet type
Version	Positive overlap
Installation position	any
Cavity	CL03 3 ports
Weight (without coil)	0.20 kg
Nominal flow rate	15 l/min
Flow rate	max. 20 l/min
Nominal operating pressure	270 bar at all ports
Switching time	30 < 150 ms
Switching frequency*	max. 12,000/h
Leakage *	max. 3 drops/min at ΔP 250 bar
Nominal voltage	12 VDC; 24 VDC
Supply voltage tolerance	±12.5%
Duty cycle	100%
Nominal power consumption (at 20 °C)	20.3 W
Nominal current (operating temp.)	at 12 VDC: 0.95 A
	at 24 VDC: 0.52 A
Coil type	CC03-MSP-037-SW0
Standard connector	Deutsch DT04-2P with freewheeling diode
Coil diameter	37 mm

* Data and characteristic curves measured with oil viscosity approx. 35 cSt

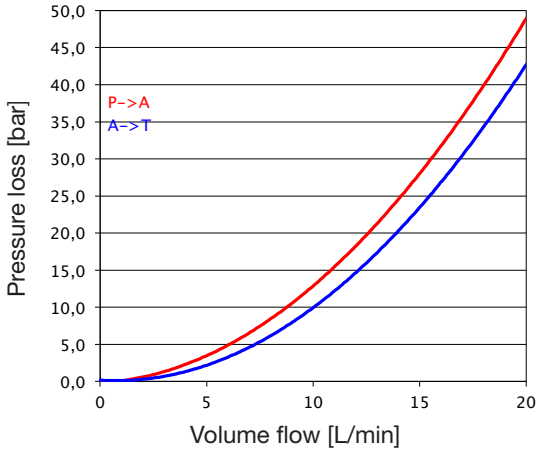
Dimensional drawing



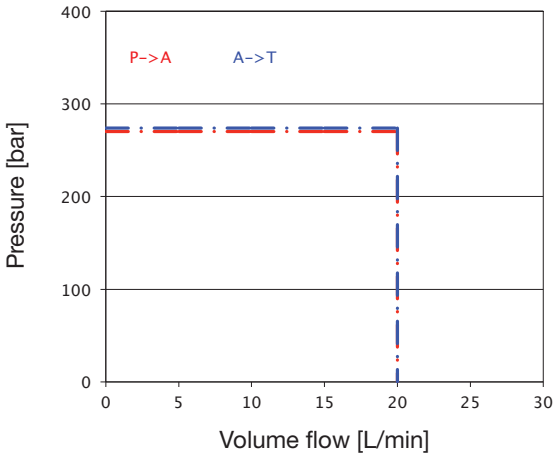
Characteristic curves



Volume flow characteristic curve



Valve performance



Order code

		CC03	-	W32	-		-		-		-	
Series	CLAAS cartridge range CL03											
Type				3/2 directional valve								
Model	Poppet type with positive overlap					PPO						
Version	Solenoid, standard design with manual override							STN				
	Solenoid, standard design with lockable manual override							STF				
Nominal voltage	12 V									12 V		
	24 V									24 V		
	without coil									OSP		
Connector type	DIN 43650											DIN
	DT04-2P with freewheeling diode (without diode = DT0)											DTD
	AMP Junior Timer											AMP
	without coil											000

2/2 directional cartridge
normally closed (poppet type)

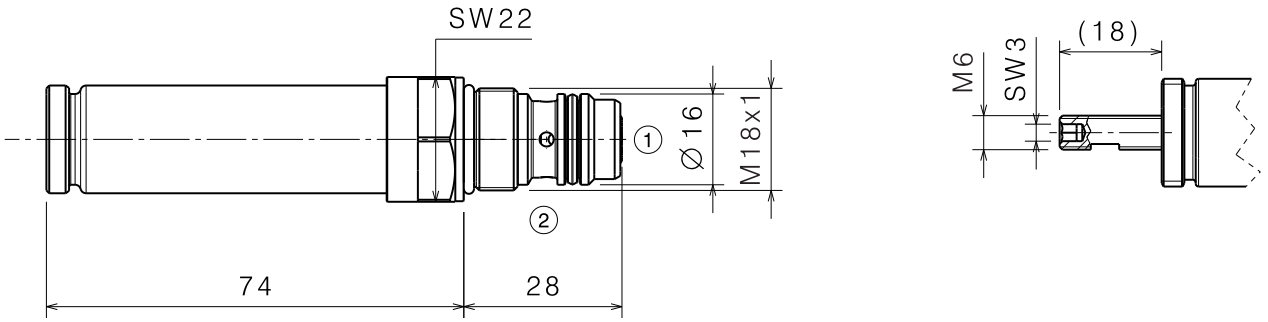
The 2/2 directional cartridge is a directly actuated poppet type valve which is normally closed. In the direction of flow 2=>1 it works in the same way as a check valve. The fact that the market-standard pilot stage is eliminated in this valve type with its high number of very small seats and orifice diameters results in a high resistance to silting over long periods under pressure and increases functional reliability. The poppets and spools are hardened and grinded. All external parts have a CrVI-free coating, which enables them to be used under extremely harsh environmental conditions. In the standard design, every cartridge features a manual override. The primary field of use is for load holding functions in mobile hydraulics.

Technical specifications

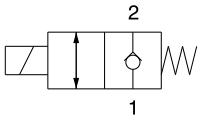
Type	2/2 directional valve, poppet type
Design	free reverse flow
Installation position	any
Cavity	CL03 2 ports
Weight (without coil)	0.19 kg
Nominal flow rate	15 l/min
Flow rate	max. 20 l/min
Nominal operating pressure	270 bar at all ports
Switching time*	30–150 ms
Switching frequency*	max. 12,000/h
Leakage*	max. 3 drops/min at ΔP 250 bar
Nominal voltage	12 VDC; 24 VDC
Supply voltage tolerance	±12.5 %
Duty cycle	100 %
Nominal power consumption (at 20 °C)	20.3 W
Nominal current (operating temp.)	at 12 VDC: 0.95 A
	at 24 VDC: 0.52 A
Coil type	CC03-MSP-037-SW0
Standard connector	Deutsch DT04-2P with freewheeling diode
Coil diameter	37 mm

* Data and characteristic curves measured with oil viscosity approx. 35cSt

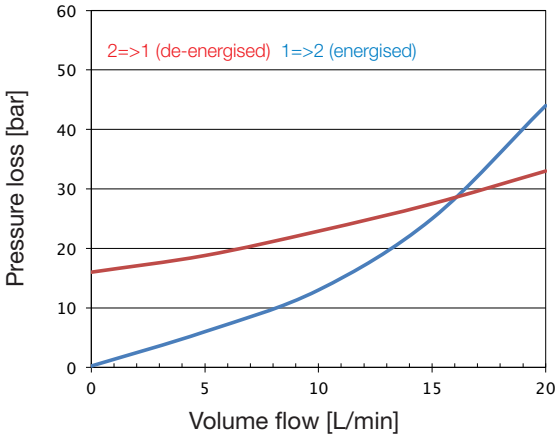
Dimensional drawing



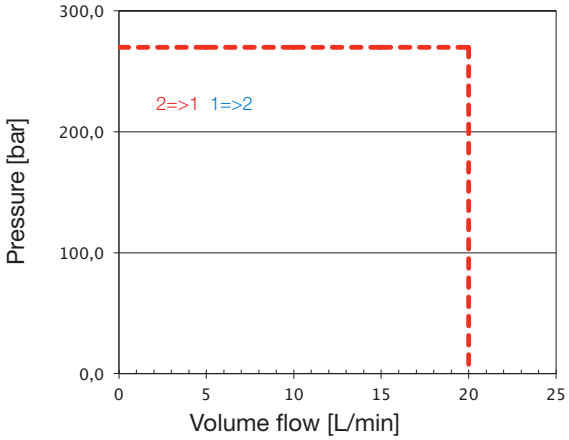
Characteristic curves



Volume flow characteristic curve



Valve performance



Order code

CC03 - W22 - CP1 - [ ] - [ ] - [ ]

Series	CLAAS cartridge range CL02	
Type	2/2 directional valve	
Model	Poppet design, normally closed	CP1
Version	Solenoid, standard design with manual override	STN
	Solenoid, standard design with lockable manual override	STF
Nominal voltage	12 V	12 V
	24 V	24 V
	without coil	OSP
Connector type	DIN 43650	DIN
	DT04-2P with freewheeling diode (without diode = DT0)	DTD
	AMP Junior Timer	AMP
	without coil	000

2/2 directional cartridge

normally closed, poppet type

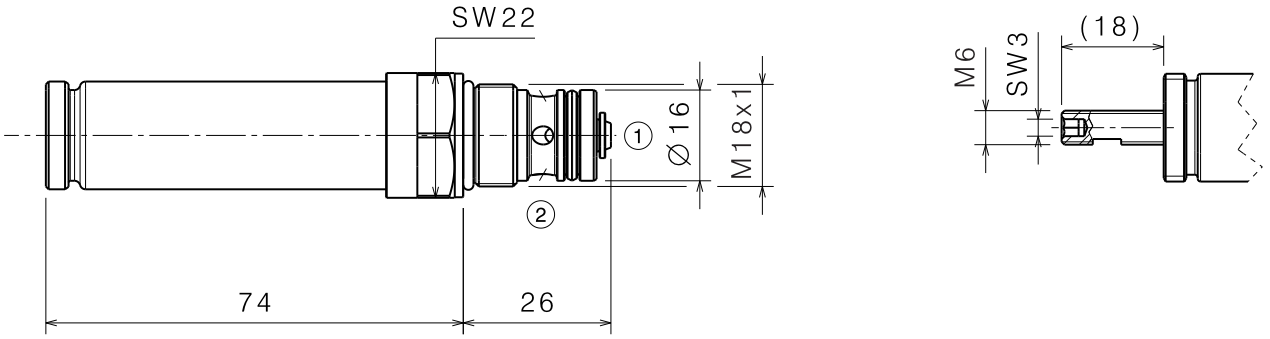
The 2/2 directional cartridge is a directly actuated seat valve with a normally closed design. The poppets are hardened and grinded. Together with the outer PU high-pressure seals and the low-friction piston seal, this guarantees reliability and efficiency. All external parts have a CrVI-free coating, which enables them to be used under extremely harsh environmental conditions. In the standard design, every cartridge features a manual override. The primary field of use is for load holding functions in mobile hydraulics.

Technical specifications

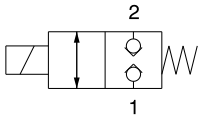
Type	2/2 directional valve, poppet type
Version	Normally closed
Installation position	any
Cavity	CL03 2 ports
Weight (without coil)	0.19 kg
Nominal flow rate	15 l/min
Flow rate	max. 25 l/min
Nominal operating pressure	270 bar
Switching time *	30–150 ms
Switching frequency*	max. 12,000/h
Leakage*	max. 3 drops/min at ΔP 250 bar
Nominal voltage	12 VDC; 24 VDC
Supply voltage tolerance	±12.5 %
Duty cycle	100 %
	20.3 W
Nominal current (operating temp.)	at 12 VDC: 0.95 A
	at 24 VDC: 0.52 A
Coil type	CC03-MSP-037-SW1
Standard connector	Deutsch DT04-2P with freewheeling diode
Coil diameter	37 mm

* Data and characteristic curves measured with oil viscosity approx. 35cSt

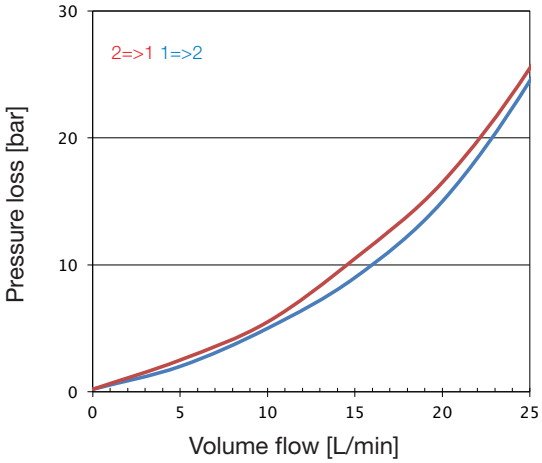
Dimensional drawing



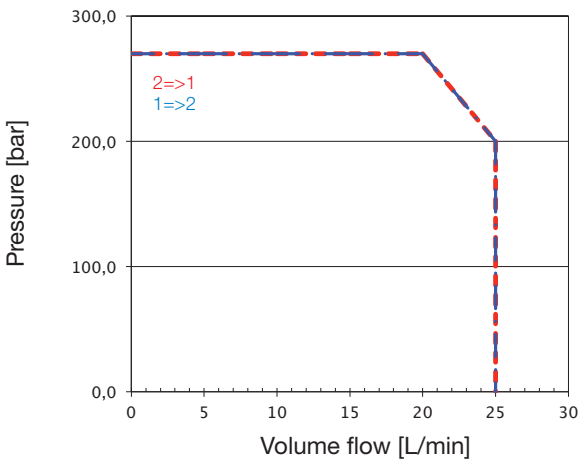
Characteristic curves



Volume flow characteristic curve



Valve performance



Order code

		CC03	-	W22	-	CPO	-		-		-	
Series	CLAAS cartridge range CL03											
Type	2/2 directional valve											
Model	Poppet type, normally closed					CPO						
Version	Solenoid, standard design with manual override							STN				
	Solenoid, standard design with lockable manual override							STF				
Nominal voltage	12 V									12 V		
	24 V									24 V		
	without coil									OSP		
Connector type	DIN 43650											DIN
	DT04-2P with freewheeling diode (without diode = DT0)											DTD
	AMP Junior Timer											AMP
	without coil											000

SRS flow control valve
2 way, spool type

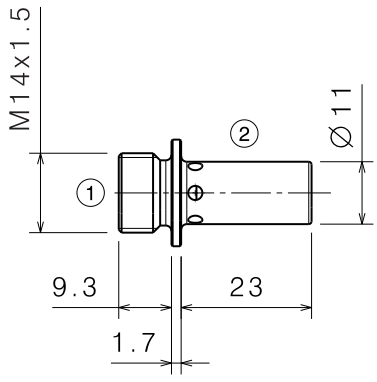
The CL03 SRS is a load independent 2 way flow control valve. Different nominal volume flows are covered by variying the diameter of an orifice. The special design enables an SRS to be placed between two CL03 valve sections in the pump line. This in turn enables individual sections in a longitudinally interlinked CL03 valve block to be supplied with a defined volume flow. The minimum control volume flow is 0.6 l/min. The control direction is from port 1 to 2. In the reverse direction of flow, the function of the SRS corresponds to that of a simple orifice plate. The SRS allows for a bidirectional installation, which enables the user to define the control direction with the block assembly. The poppets are hardened and grinded.

Technical specifications

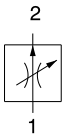
Type	2 directional flow control valve, spool type
Version	Intermediate plate valve
Installation position	Preferably suspended
Cavity	CL03 flange, M14x1.5
Weight	0.08 kg
Nominal flow rate**	0.6 l/min
	0.9 l/min
	2.1 l/min
	3.7 l/min
	5.8 l/min
Control pressure difference	7 bar
Permissible operating pressure	max. 270 bar

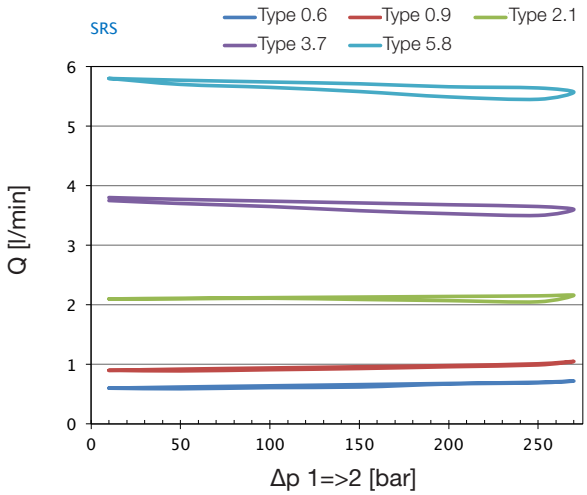
* Data and characteristic curves measured with an oil viscosity of approx. 35 cSt
** Other nominal flow rates possible on request

Dimensional drawing



Characteristic curves





Order code

	CC03	-		-	
Series	CLAAS cartridge range CL03				
Type	SRS flow control valves	SRS			
Nominal flow rate	0.6 l/min				006
	0.9 l/min				009
	2.1 l/min				021
	3.7 l/min				037
	5.8 l/min				058

RVS/RVX check valves
Poppet type

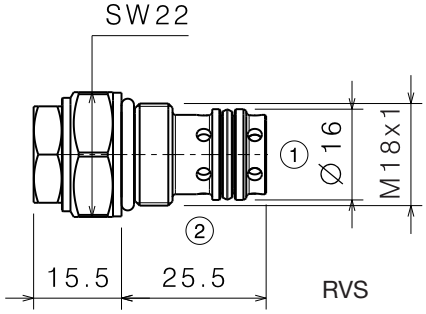
The RVS and RVX are poppet type check valves. They are locked in the direction 2 to1. In the opposite direction (1 to 2), the opening pressure of the check valves is determined by the spring force. With the RVX, there is a choice of six different opening pressures from 0.3 bar to 5.7 bar. The switching elements of the RVX are made of high strength steel and grinded. Inside the RVS a tried-and-tested, extremely resistant, glass-fibre-reinforced plastic is used for the switching element. All visible parts have a Cr VI-free zinc coating.

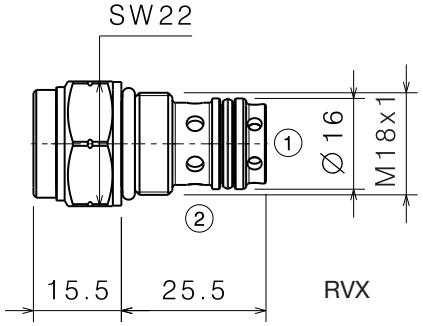
Technical specifications

	RVS model	RVX model
Type	Check valve with spool, poppet type	
Installation position	any	
Cavity	CL03 2 ports	
Weight	0.04 kg	0.06 kg
Nominal flow rate	20 l/min	30 l/min
Flow rate	max. 30 l/min	max. 60 l/min
Permissible operating pressure	max. 210 bar	max. 350 bar
Opening pressure:	2.8 bar	0.3/0.5/0.9/1.8/3.6/5.7 bar
Leakage*	max. 3 drops/min at ΔP 200 bar	

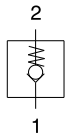
* Data and characteristic curves measured with oil viscosity approx. 35cSt

Dimensional drawing

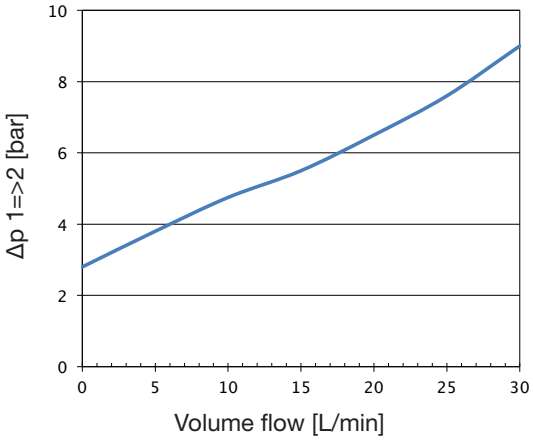




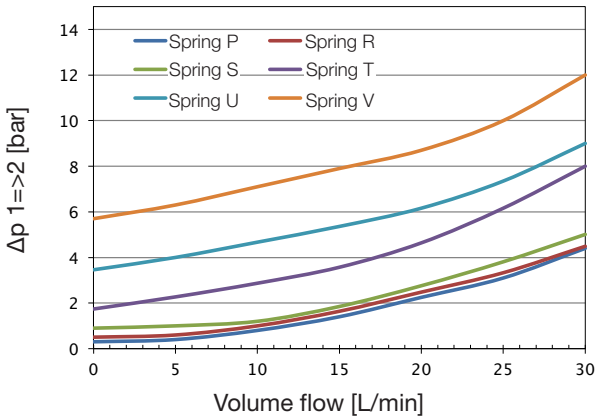
Characteristic curves



RVS



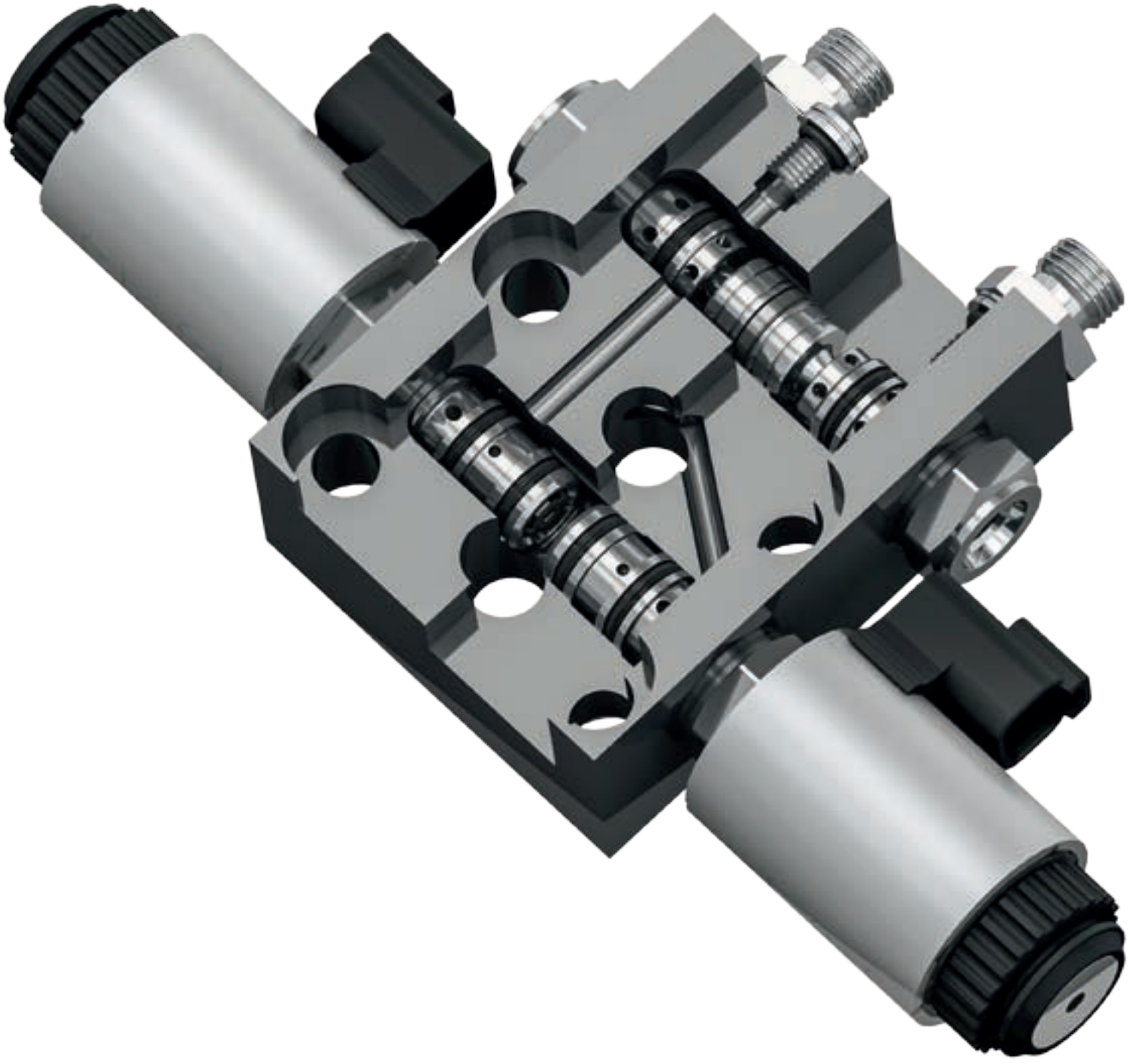
RVX



Order code

	CC03 - ☐ - ☐		
Series	CLAAS cartridge range CL03		
Type	Check valve, standard, directly controlled	RVS	
	Check valve, HD, directly controlled	RVX	
Nominal opening pressure	0.3 bar		P03
	0.5 bar		R05
	0.9 bar		S09
	1.8 bar		T18
	2.8 bar*		X28
	3.6 bar		U36
	5.7 bar		V57

* RVS only in combination with an opening pressure of 2.8 bar
* RVX not in combination with an opening pressure of 2.8 bar



Valve sections in the CL03 valve series

The aluminium valve sections in the CL03 model series cover the standard functions of 4/3 directional, 4/3 directional with piloted double check valve and various 3/3 directional functions at operating pressures of up to 210 bar and volume flows of up to 20 l/min. They can be freely combined thanks to the CLAAS "screw-in-screw" principle. Customer-specific sections as well as inlet sections, e.g. with free circulation and pressure relief function, extend the range of applications. The particularly compact aluminium valve sections with two independent 2/2 directional cartridges are core elements of the CLAAS modular mobile hydraulic system, which is based on the CL03, CL04 and CL06 series. Several of these valve sections are combined with a pre-selection valve, which means that they can be used in place of classic 4/3 directional valve sections cost-effectively. At operating pressures of 210 bar and above, the housing must be made of steel or spheroidal cast iron to ensure a higher fatigue strength.
Thanks to the combination of aluminium housings and screw-in elements with a CrVI-free coating, the CL03 valve sections are ideal for use under harsh environmental conditions.

Valve section

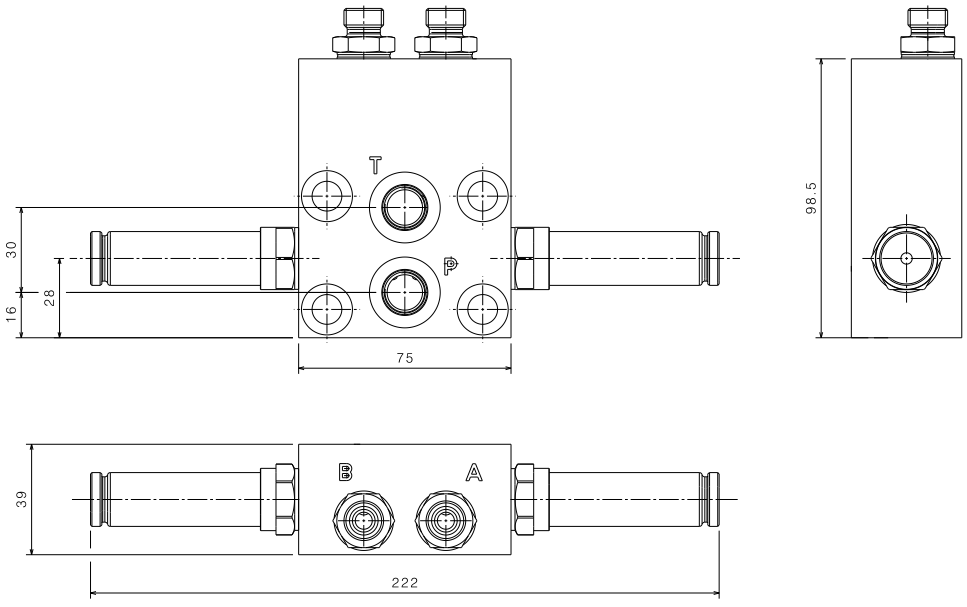
4/3 directional

The CL03 4/3 directional switch valve is based on two 3/2 directional switching cartridges. Primary applications include actuating double-acting hydraulic cylinders or driving small, reversible hydrostatic motors in an open circuit. In the neutral position, both consumer ports, A and B, open towards the tank, which means that a stop valve may need to be installed on the load side. Inlet and end plates are not required. These valve sections can be connected to other sections in a flange configuration using four special screws from the CLAAS screw-in-screw system to form individual function blocks.

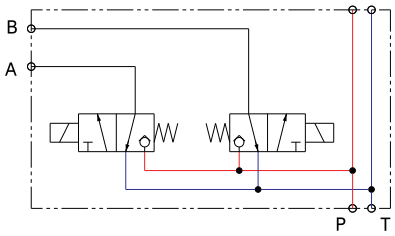
Technical specifications

Type	4/3 directional valve section
	2x 3/2 directional CL03 switching elements with cartridge design
Operating pressure	max. 210 bar
Installation position	any
Cavity, primary axis	CL03 3 ports
Threaded ports for pump and tank	M14x1.5 DIN EN ISO 6149-1
Threaded ports for A and B	M14x1.5 DIN EN ISO 6149-1
Weight (without fittings and solenoid coils)	1.0 kg
Nominal flow rate	15 l/min
Flow rate	max. 20 l/min
Flange design	CL03; for 39 mm special screw

Dimensional drawing



Circuit diagram



Order code

CC03 - 430 - [ ] - [ ] - [ ] - [ ] - [ ]

Series	CLAAS valve section range CL03	
Type	4/3 directional section	430
Screw-in valves, primary axis for port A	3/2 directional control valve, on-off, poppet type	PA1
	3/2 directional control valve, on-off, poppet type, with lockable manual override	PA2
Screw-in valves, primary axis for port B	Electric, standard design with manual override	PB1
	Electric, standard design with lockable manual override	PB2
		000
Nominal voltage	12 V	12 V
	24 V	24 V
	without coil	OSP
Connector type	DIN 43650	DIN
	DT04-2P with freewheeling diode (without diode = DT0)	DTD
	AMP Junior Timer	AMP
	without coil	000

Valve section

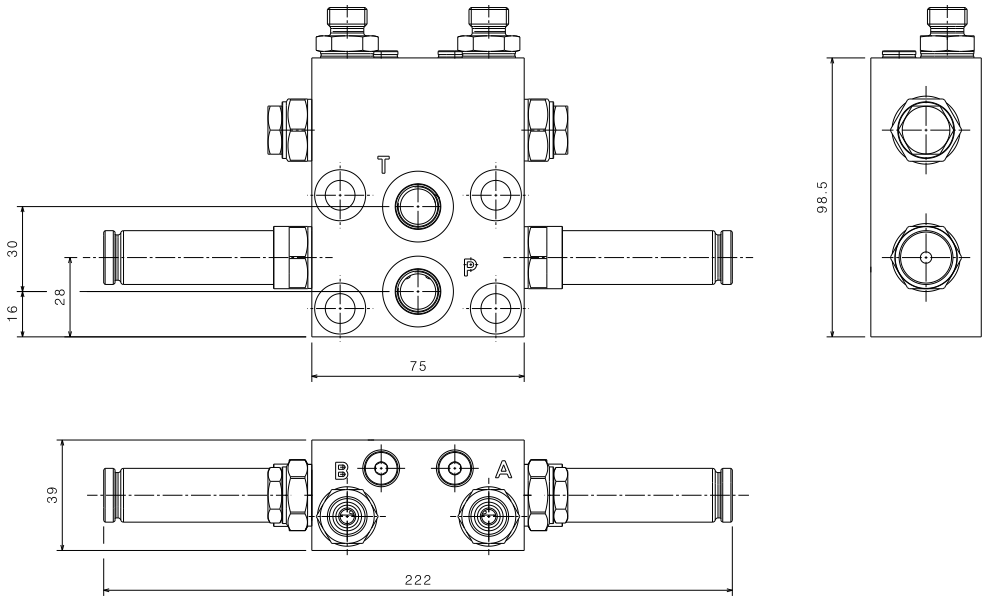
4/3 directional with piloted double check valve

The CL03 4/3 directional switch valve with piloted double check valve consists of two 3/2 directional switching cartridges and two check valves that are hydraulically unlockable. Their primary application is the actuation of double-acting hydraulic cylinders. In the neutral position, consumer ports A and B are both leakage free locked. Inlet and end plates are not required. These valve sections can be connected to other sections in a flange configuration using four special screws from the CLAAS screw-in-screw system to form individual function blocks.

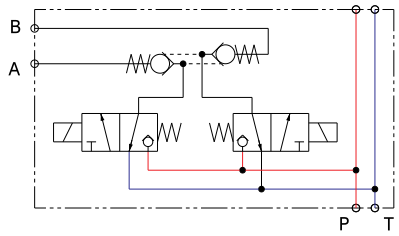
Technical specifications

Type	4/3 directional valve section with piloted double check valves
	2x 3/2 directional CL03 switching elements with cartridge design
Operating pressure	max. 210 bar
Installation position	any
Cavity, primary axis	CL03 3 ports
Cavity, secondary axis	CL03 2 directional
Threaded ports for pump and tank	M14x1.5 DIN EN ISO 6149-1
Threaded ports for A and B	M14x1.5 DIN EN ISO 6149-1
Weight (without fittings and solenoid coils)	1.1 kg
Nominal flow rate	15 l/min
Volume flow	max. 20 l/min
Pilot ratio, piloted double check valve	3.5:1 with RVS
	3.1:1 with RVX
Flange design	CL03; for 39 mm special screw

Dimensional drawing



Circuit diagram



Order code

CC03 - 431 - ☐ - ☐ - ☐ - ☐ - ☐

Series	CLAAS valve section range CL03	
Type	4/3 directional section with stop valve	431
Screw-in valves, primary axis for port A	3/2 directional control valve, on-off, poppet type	PA1
	3/2 directional control valve, on-off, poppet type, with lockable manual override	PA2
Screw-in valves, primary axis for port B	3/2 directional control valve, on-off, poppet type	PB1
	3/2 directional control valve, on-off, poppet type, with lockable manual override	PB2
Installation on the secondary axis for ports A and B	Piloted double check valve on both sides	PK
	Stop valve in port A	SA
	Stop valve in port B	SB
Opening pressure	Opening pressure 2.8 bar (RVS)	0
	Opening pressure 1.8 bar (RVX-T)	T
	Opening pressure 3.6 bar (RVX-U)	U
	Opening pressure 5.7 bar (RVX-V)	V
Nominal voltage	12 V	12 V
	24 V	24 V
	without coil	OSP
Connector type	DIN 43650	DIN
	DT04-2P with freewheeling diode (without diode = DT0)	DTD
	AMP Junior Timer	AMP
	without coil	000

Valve section

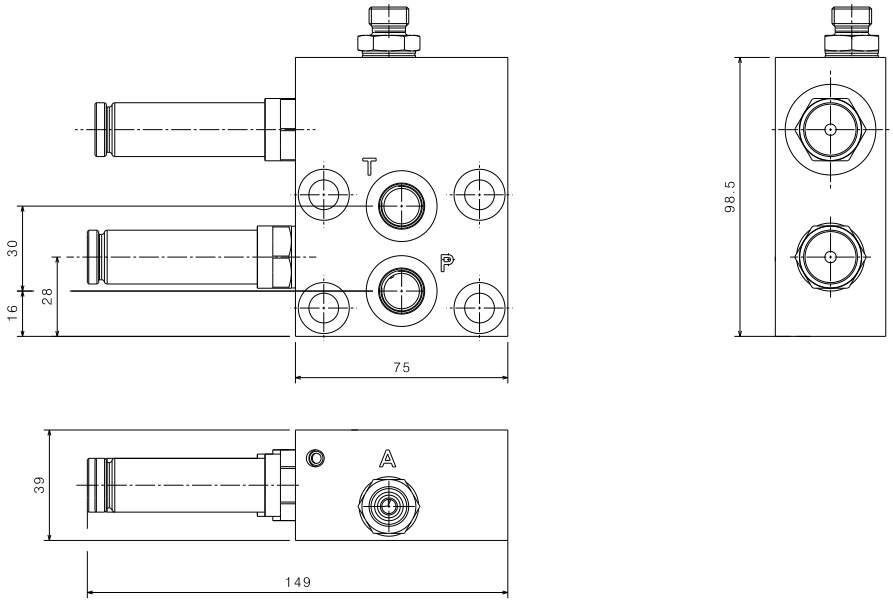
3/3 directional

The 3/3 directional switch function of this CL03 valve section is realised by the combination of a 3/2 and a 2/2 directional cartridge in series. The primary application is the actuation of a single-acting cylinder. In the neutral position, the load is safely held at port A. In the standard configuration, with a 2/2 directional control valve with free reverse flow as the secondary valve, it is sufficient to switch just one cartridge for the purposes of raising and lowering. Inlet and end plates are not required. These valve sections can be connected to other sections in a flange configuration using four special screws from the CLAAS screw-in-screw system to form individual function blocks.

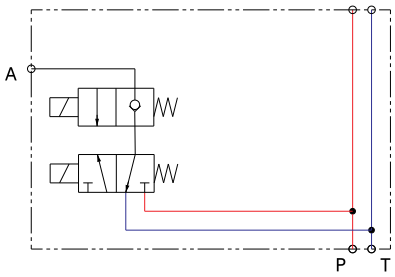
Technical specifications

Type	3/3 directional valve section
	3/2 directional switching element CL03
	2/2 directional switching element CL03
Operating pressure	max. 210 bar
Installation position	any
Cavity, primary axis	CL03 3 ports
Cavity, secondary axis	CL03 2 ports
Threaded ports for pump and tank	M14x1.5 DIN EN ISO 6149-1
Threaded ports for A and B	M14x1.5 DIN EN ISO 6149-1
Weight (without fittings and solenoid coils)	1.0 kg
Nominal flow rate	15 l/min
Volume flow	max. 20 l/min
Flange design	CL03; for 39 mm special screw

Dimensional drawing



Circuit diagram



Order code

CC03 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Series	CLAAS valve section range CL03	
Type	3/3 directional section	331
Screw-in valves, primary axis for port A	3/2 directional control valve, on-off, poppet type	PA1
	3/2 directional control valve, on-off, poppet type, with lockable manual override	PA2
		000
Screw-in valves, secondary axis for port A	2/2 directional control valve, on-off, poppet type, normally closed	S10
	2/2 directional control valve, on-off, poppet type, normally closed, lockable manual override	S20
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow	S30
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow, lockable manual override	S40
Nominal voltage	12 V	12 V
	24 V	24 V
	without coil	OSP
Connector type	DIN 43650	DIN
	DT04-2P with freewheeling diode (without diode = DT0)	DTD
	AMP Junior Timer	AMP
	without coil	000

Valve section

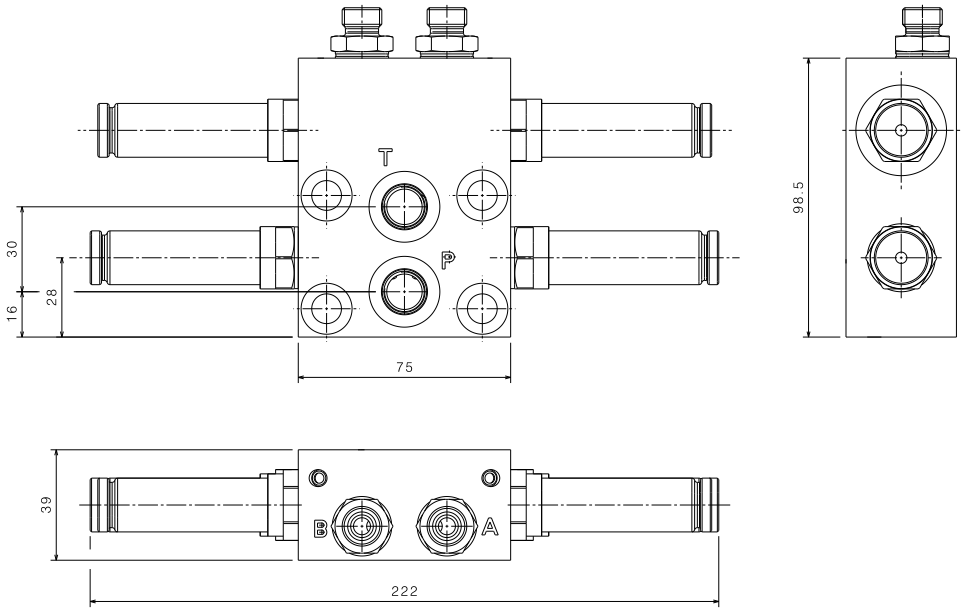
2x3/3 directional

The CL03 2x3/3 directional valve section combines two 3/3 directional sections in one in a way that has been optimised to suit space requirements. With this valve section, two single-acting cylinders can be actuated independently of one another. Alternatively, in function-critical applications, a 4/3 directional section can be replaced with a piloted double check by this section when a 4/3 directional function has to be brought to a failsafe state. Inlet and end plates are not required. These valve sections can be connected to other sections in a flange configuration using four special screws from the CLAAS screw-in-screw system to form individual function blocks.

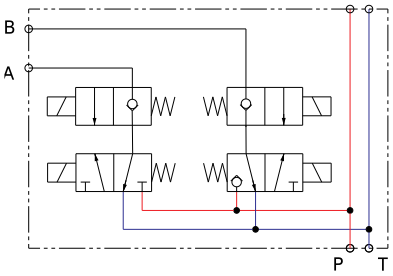
Technical specifications

Type	2x 3/3 directional valve section
	2x 3/2 directional switching element CL03
	2x 2/2 directional switching element CL03
Operating pressure	max. 210 bar
Installation position	any
Cavity, primary axis	CL03 3 ports
Cavity, secondary axis	CL03 2 ports
Threaded ports for pump and tank	M14x1.5 DIN EN ISO 6149-1
Threaded ports for A and B	M14x1.5 DIN EN ISO 6149-1
Weight (without fittings and solenoid coils)	1.4 kg
Nominal flow rate	15 l/min
Volume flow	max. 20 l/min
Flange design	CL03; for 39 mm special screw

Dimensional drawing



Circuit diagram



Order code

CC03 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Series	CLAAS valve section range CL03	
Type	2x 3/3 directional section	332
Screw-in valves, primary axis for port A	3/2 directional control valve, on-off, poppet type	PA1
	3/2 directional control valve, on-off, poppet type, with lockable manual override	PA2
Screw-in valves, primary axis for port B	3/2 directional control valve, on-off, poppet type	PB1
	3/2 directional control valve, on-off, poppet type, with lockable manual override	PB2
Installation on secondary axis for port A	2/2 directional control valve, on-off, poppet type, normally closed	S10
	2/2 directional control valve, on-off, poppet type, normally closed, lockable manual override	S20
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow	S30
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow, lockable manual override	S40
Installation on secondary axis for port B	2/2 directional control valve, on-off, poppet type, normally closed	1
	2/2 directional control valve, on-off, poppet type, normally closed, lockable manual override	2
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow	3
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow, lockable manual override	4
Nominal voltage	12 V	12 V
	24 V	24 V
	without coil	OSP
Connector type	DIN 43650	DIN
	DT04-2P with freewheeling diode (without diode = DT0)	DTD
	AMP Junior Timer	AMP
	without coil	000

Valve section

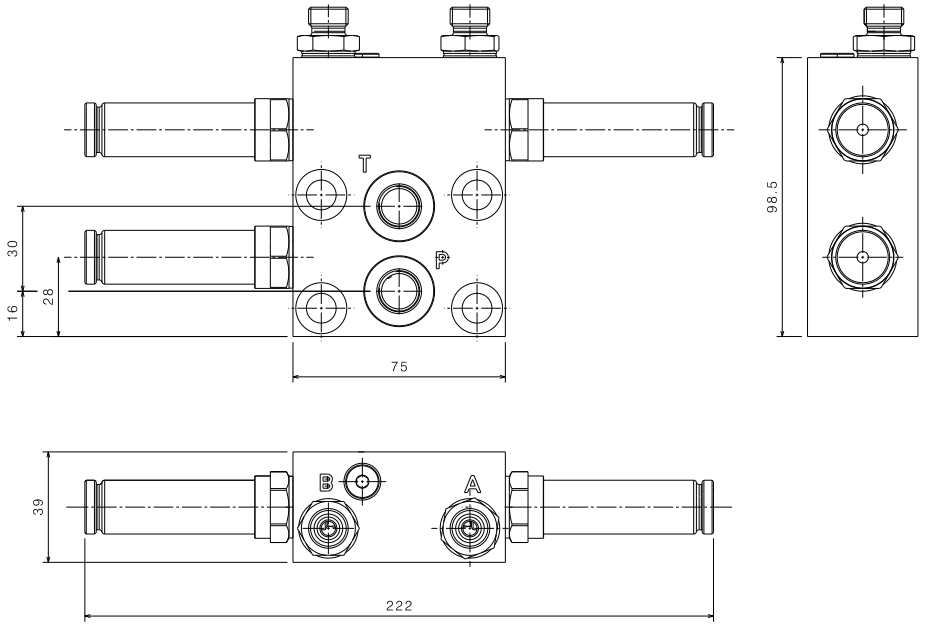
2x3/3 directional with function pre-selection

The 2x3/3 directional switch function of this CL03 valve section is achieved by the connection of a 3/2 directional as a pre-selection valve and two 2/2 directional cartridges as a stop valve in series. The primary application is the actuation of two single-acting cylinders. In contrast to the 2x3/3 directional valve section without pre-selection function, a total of just three solenoids need to be actuated. In the standard configuration, two cartridges have to be energised at the same time for the purposes of raising and lowering. Inlet and end plates are not required. These valve sections can be connected to other sections in a flange configuration using four special screws from the CLAAS screw-in-screw system to form individual function blocks.

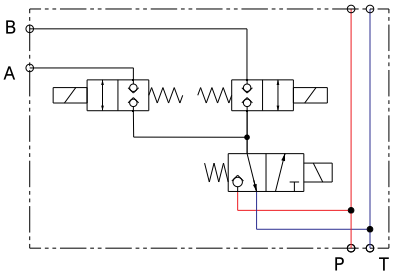
Technical specifications

Type	2x 3/3 directional section
	3/2 directional switching element CL03
	2x 2/2 directional switching element CL03
Operating pressure	max. 210 bar
Installation position	any
Cavity, primary axis	CL03 3 ports
Cavity, secondary axis	CL03 2 ports
Threaded ports for pump and tank	M14x1.5 DIN EN ISO 6149-1
Threaded ports for A and B	M14x1.5 DIN EN ISO 6149-1
Weight (without fittings and solenoid coils)	1.2 kg
Nominal flow rate	15 l/min
Volume flow	max. 20 l/min
Flange design	CL03; for 39 mm special screw

Dimensional drawing



Circuit diagram



Order code

CC03 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - [ ]

Series	CLAAS valve section range CL03	
Type	2x 3/3 directional section with function pre-selection	333
Screw-in valves, primary axis for port A	3/2 directional control valve, on-off, poppet type	PA1
	3/2 directional control valve, on-off, poppet type, with lockable manual override	PA2
		000
Installation on secondary axis for port A	2/2 directional control valve, on-off, poppet type, normally closed	S1
	2/2 directional control valve, on-off, poppet type, normally closed, lockable manual override	S2
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow	S3
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow, lockable manual override	S4
Installation on secondary axis for port B	2/2 directional control valve, on-off, poppet type, normally closed	1
	2/2 directional control valve, on-off, poppet type, normally closed, lockable manual override	2
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow	3
	2/2 directional control valve, on-off, poppet type, normally closed, free reverse flow, lockable manual override	4
Nominal voltage	12 V	12 V
	24 V	24 V
	without coil	OSP
Connector type	DIN 43650	DIN
	DT04-2P with freewheeling diode (without diode = DT0)	DTD
	AMP Junior Timer	AMP
	without coil	000

Valve section

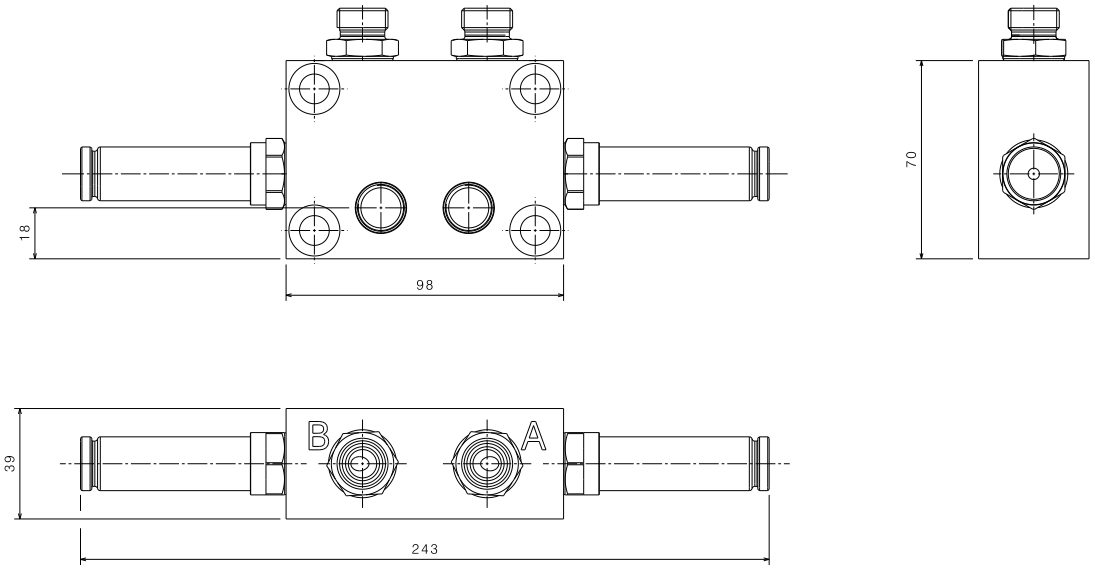
2x2/2 directional

The particularly compact 2x2/2 directional valve sections are core elements of the CLAAS modular mobile hydraulic system. Several of these valve sections are combined with a 4/3 directional pre-selection valve in a customer-specific inlet section, which means that they can be used in place of classic 4/3 directional valve sections, provided the individual functions in the application do not need to be actuated in opposition or at the same time. The switching characteristics can be achieved in this concept via the pre-selection valve. These valve sections can be connected to other 2x2/2 directional sections from both the CL03 and CL04 model series in a flange configuration using four special screws from the CLAAS screw-in-screw system to form individual function blocks.

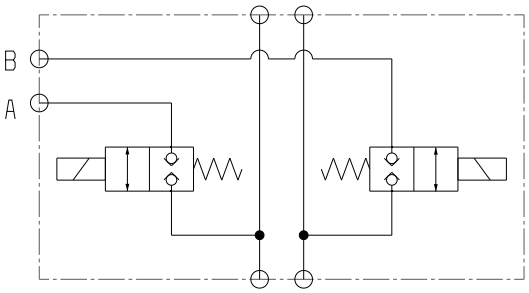
Technical specifications

Type	2x 2/2 directional section
	2x 2/2 directional CL03 switching elements with cartridge design
Operating pressure	max. 210 bar
Installation position	any
Cavity, primary axis	CL03 2 ports
Threaded ports for A and B inlet	M14x1.5 DIN EN ISO 6149-1
Threaded ports for A and B	M14x1.5 DIN EN ISO 6149-1
Weight (without fittings and solenoid coils)	0.9 kg
Nominal flow rate	15 l/min
Volume flow	max. 25 l/min
Flange design	CL03; for 39 mm special screw

Dimensional drawing



Circuit diagram



Order code

CC03 - 222 - ☐ - ☐ - ☐ - ☐ - ☐

Series	CLAAS valve section range CL03	
Type	2x 2/2 directional control valve	222
Screw-in valves, primary axis for port A	2/2 directional control valve, on-off, poppet type, normally closed	PA1
	2/2 directional control valve, on-off, poppet type, normally closed, lockable manual override	PA2
Screw-in valves, primary axis for port B	2/2 directional control valve, on-off, poppet type, normally closed	PB1
	2/2 directional control valve, on-off, poppet type, normally closed, lockable manual override	PB2
		000
Nominal voltage	12 V	12 V
	24 V	24 V
	without coil	OSP
Connector type	DIN 43650	DIN
	DT04-2P with freewheeling diode (without diode = DT0)	DTD
	AMP Junior Timer	AMP
	without coil	000

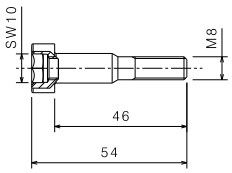
CL03 flange concept

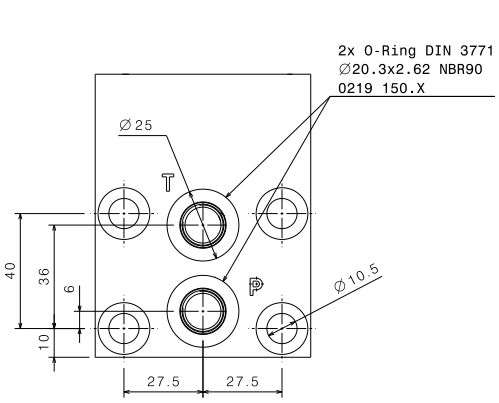
Connecting components

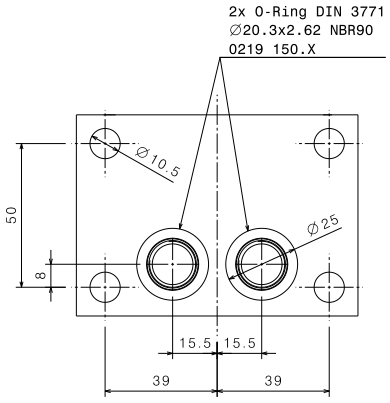
All CL03 valve sections can be connected in a flange configuration according to the "screw-in-screw" principle using four special screws. The screws, with an M8 internal thread in the screw head, enable valve sections to be subsequently extended, without having to release valve sections that have already been installed or use other longer or shorter screws. This allows OEM customers to respond flexibly to customer demands for optional equipment, even during final assembly. The usual installation method using studs is still possible, irrespective of this concept. A maximum of four valve sections can be connected in a flange configuration with the screw-in-screw solution. If more valve sections need to be installed, it is possible to install four sections with a longer special screw and to connect up to three further individual sections to this in a flange configuration.

Dimensional drawing

Special screw M8
for section width 39 mm
1799 485.X

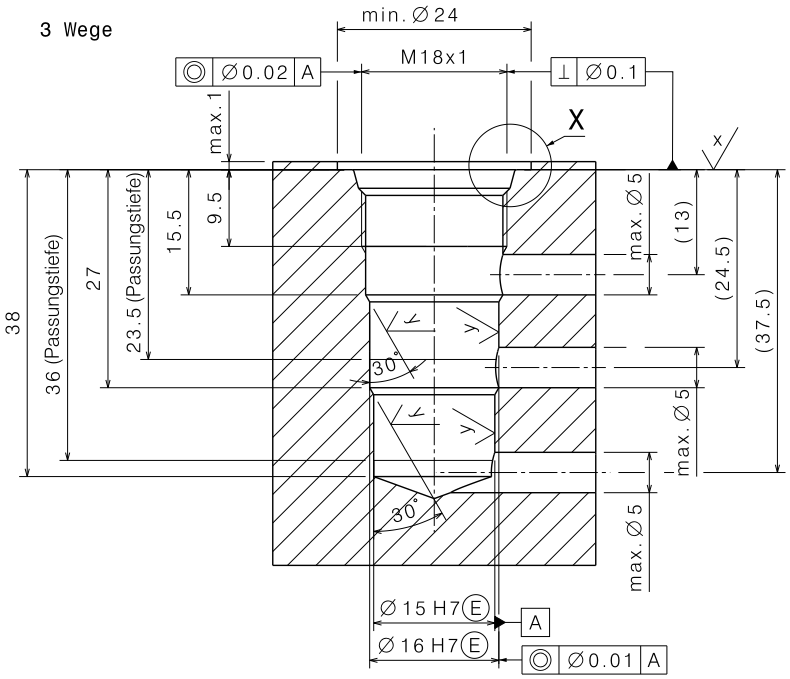




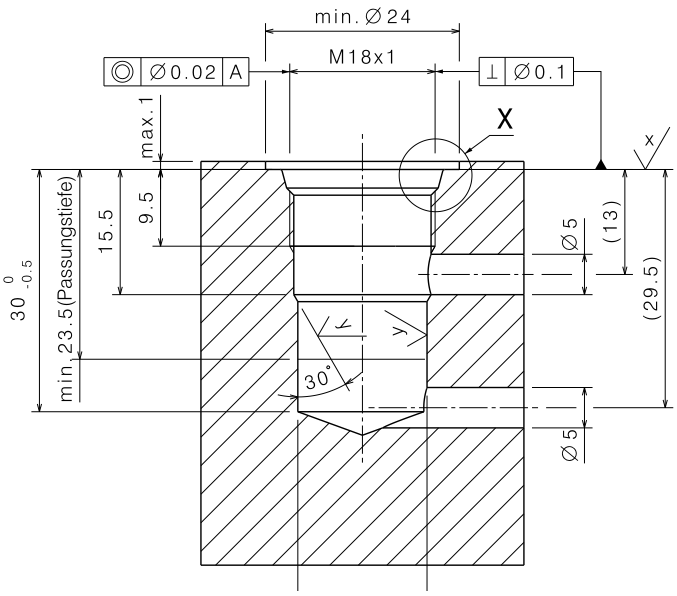


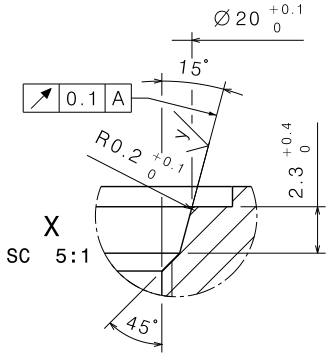
CL03 cavities

3 Wege



2 Wege





Kanten gebrochen R0.2

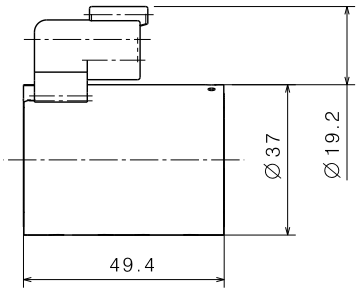
gratfrei

Rz25 (x = Rmax20 y = Rmax16)

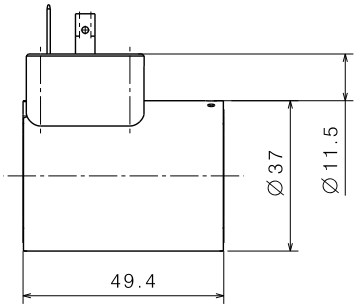
Solenoid coils

Dimensional drawing

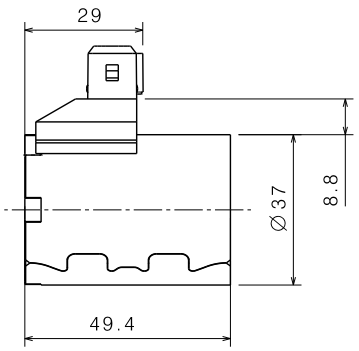
DT04-2P
12/24 VDC
Switching solenoid



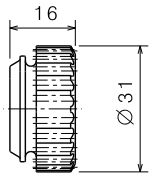
DIN-43650
12/24 VDC
Switching solenoid



AMP-JT
12/24 VDC
Switching solenoid



M19x1 nut
1799 449.X



O-ring DIN3771
20x2.5 NBR70
0212 539.X

Technical specifications/switching solenoids

	37 mm switching solenoid (MSP-037 SW1…)						
	12 V				24 V		
	DTD	DT0	DIN	AMP	DTD	DIN	AMP
Connector type	DT04-2P	DT04-2P	DIN-43650	AMP-JT	DT04-2P	DIN-43650	AMP-JT
Freewheeling diode (in connector marked in blue)	Yes	No	No	No	Yes	No	No
Diameter [mm]	37 +0.4						
Rated voltage	12 VDC				24 VDC		
Permissible voltage supply tolerance	±12.5%						
Duty cycle	100%						
Nominal current (operating temperature, at U_{min})	0.95 A				0.52 A		
Resistance R_{20} [Ω]	7.1 Ω				26.4 Ω		
Watts (at 20°C) Pmax	20.3 W				21.8 W		
Protection class (with mounted plug)	IP67 IPX9k		IP65	IP65	IP67 IPX9k	IP65	IP65
Thermal protection class	F (DIN VDE 0580) up to 155 °C						
Weight [kg]	0.22 kg						

Order code

CC03 - MSP - [ ] - [ ] - [ ] - [ ]

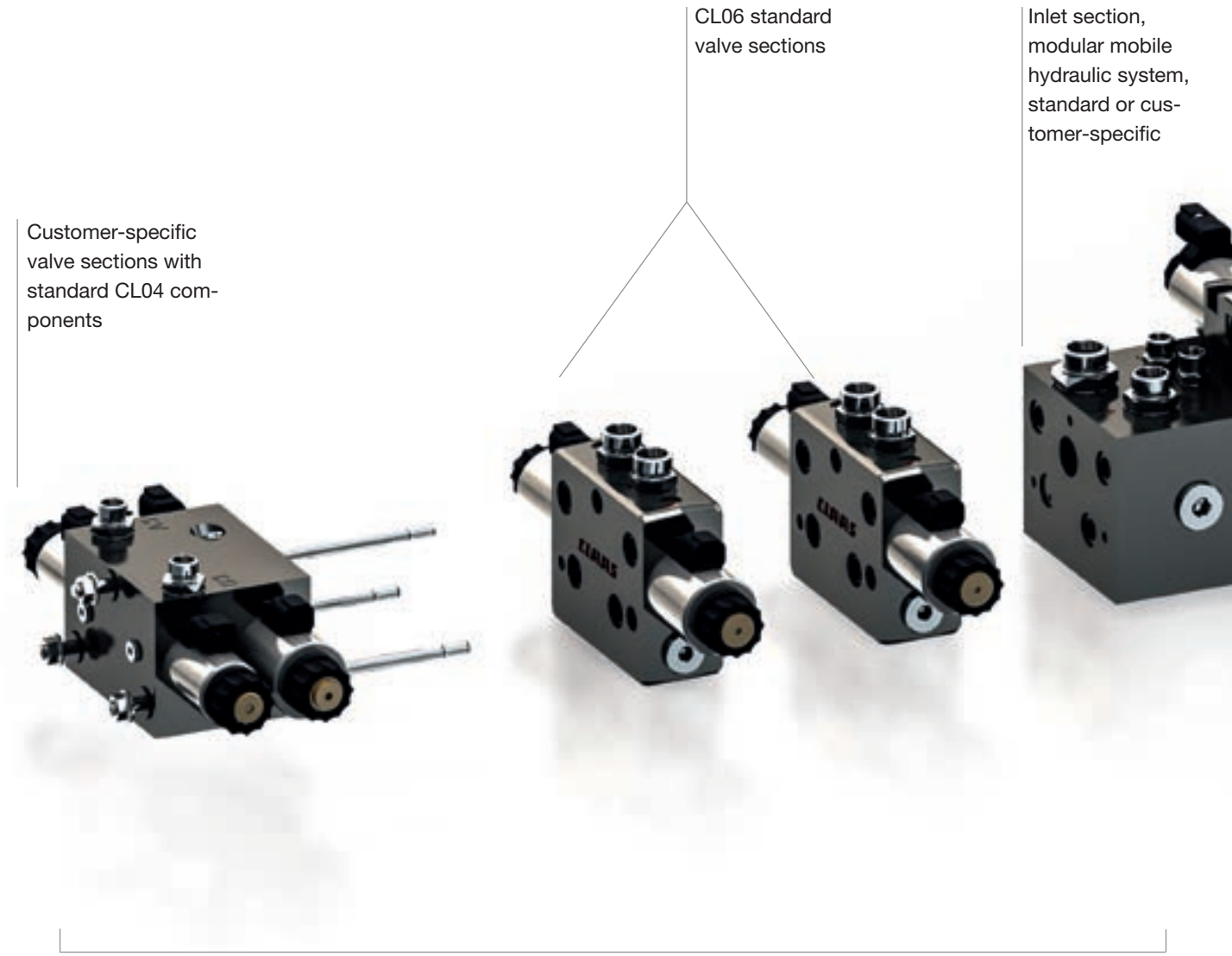
Series	CLAAS cartridge range CL03	
Solenoid coils		MSP
Diameter	37 mm	037
Characteristics	switching	SWO
Nominal voltage	12 VDC	12 V
	24 VDC	24 V
Connector type	DIN 43650	DIN
	DT04-2P with freewheeling diode (standard)	DTD
	AMP Junior Timer	AMP
	DT04-2P without diode	DT0

Modular mobile hydraulic system – Individual control block

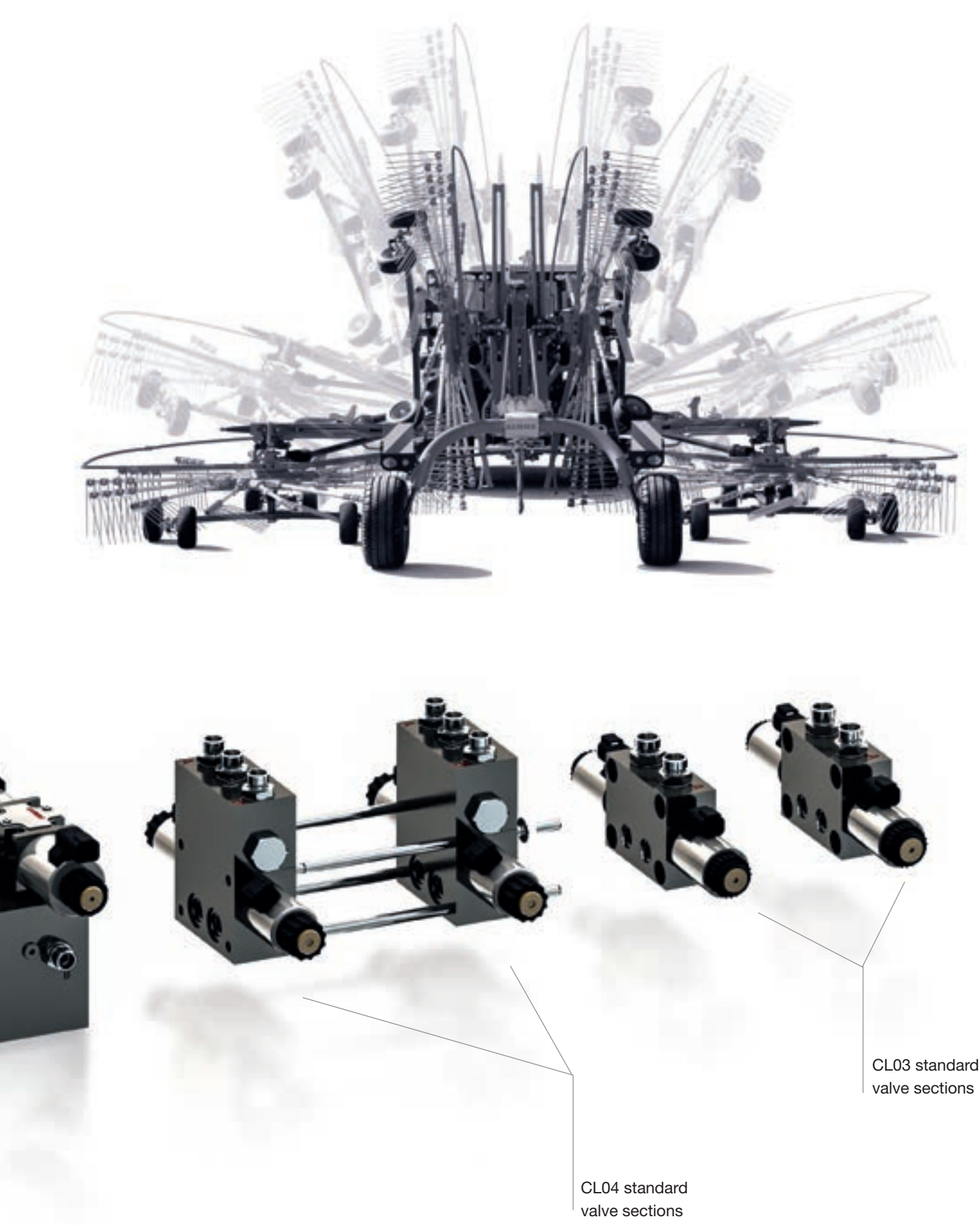
The modular mobile hydraulic system is characterised by the combination of different valve series in a single valve block:

- CL06 proportional spool valves
- CL03 directional seat valves
- CL04 directional seat valves
- ND50 seat valves for low-pressure applications.

The valve sections are flanged to a central inlet section, e.g. CL06 on the left and CL03 on the right. Special adapters enable different valve series to be combined directly. Thanks to the option of flanging together individual valve blocks, all customer-specific functions can be implemented within a single valve block.



Up to 8 valve sections from one series or, if combined with special adapters, from different series can be flanged together.



Up to 8 valve sections from one series or, if combined with special adapters, from different series can be flanged together.

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