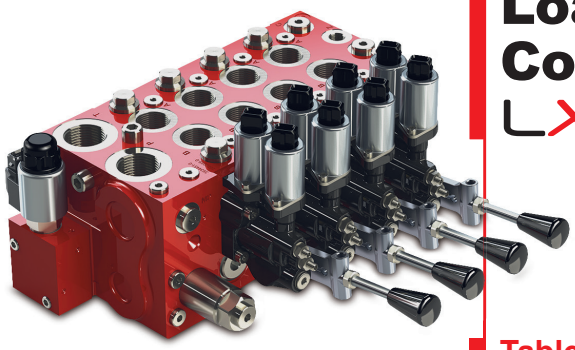
HYDAC INTERNATIONAL

X-Series

Load-Sensing Sectional Control Block

LX-6

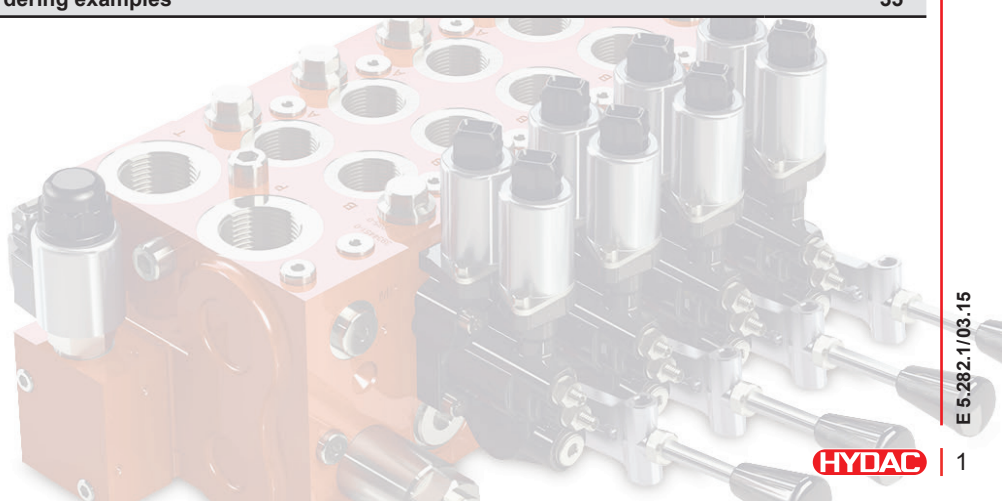


Nominal pressure: 350 bar

Nominal flow rate

- Pump port: 250 l/min
- Working ports: 160 l/min
  with compensator and load holding function

Table of contents



Product features

- Load pressure independent flow control with
  - Open Center (OC) system for fixed displacement pump
  - Closed Center (CC) system for variable displacement pump
- Flow-optimized valve design
- High mechanical and electrical resolution
- Compact size and low weight
- Modular design up to 8 working sections
- Types of operation (with/without hand lever):
  - Hydraulic
  - Electrohydraulic (on/off, proportional)
- Application-specific main spools with adjustable stroke limiter
- Shock/anti-cavitation valves for protection of actuators
- Adjustable load sense pressure limitation (mechanically or electro proportionally) causes the compensator to block flow to the working ports A or B independently
- Direct-mounted option blocks for remote control of LS and pilot oil supply
- End plates with additional pilot oil supply options
- Areas of application:
  - Cranes
  - Lifting platforms
  - Drilling machinery
  - Construction
  - Agriculture
  - Forestry
  - Municipal vehicles
  - Truck applications
  - Stationary applications

General information and functional description

The LX-6 is a proportional directional control valve according to the load-sensing principle pre compensated.

The nominal flow rate to the working ports A and B is 160 l/min. The main spool 2.1 determines the flow direction and magnitude of flow rate.

Pressure control valves 2.4.3 and 2.4.4 are providing shifting pressure to the left and right side of the main spool 2.1 to control its position. The level of electric current determines the level of pilot pressure and therefore the position of the main spool.

Adjustable stroke limiters 2.4.1 and 2.4.2 can be set mechanically to limit the maximum flow rate to the working ports A and B.

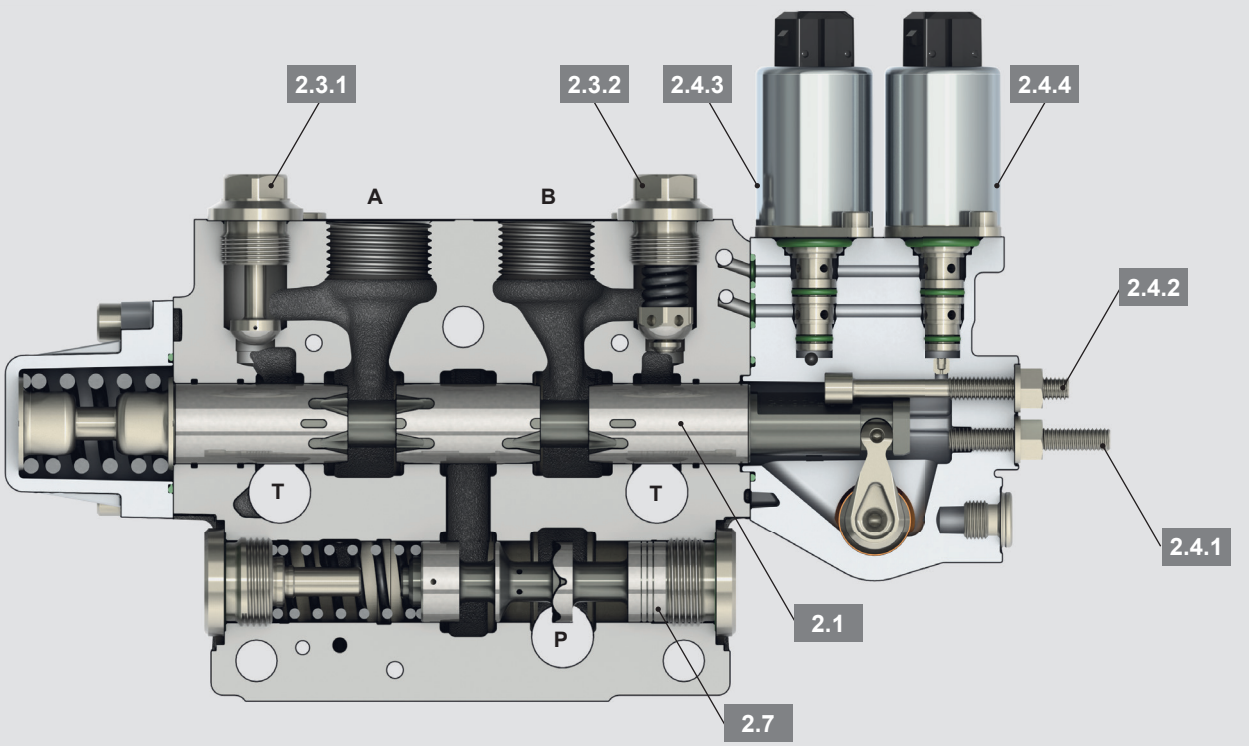
The pressure compensator 2.7 keeps the flow rate to the actuator constant, even if the system pressure varies. Pressure changes at the pump or working ports A and B are compensated for each working section individually.

The maximum operating pressure can be adjusted by LS pressure limitation for working ports A and B separately.

Shock / anti-cavitation valves 2.3.2 protect the working ports A and B from pressure peaks. Anti-cavitation valves 2.3.1 protect the system from cavitation.

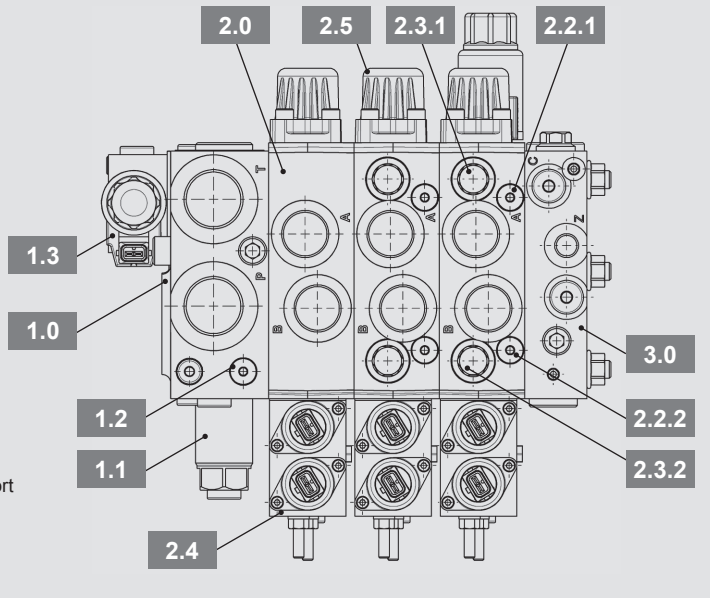
Shuttle valves are integrated into the working sections to signal the highest load pressure for the valve stack to the inlet plate or variable displacement pump.

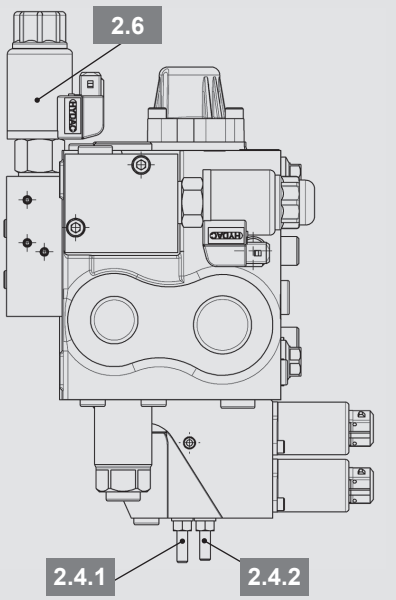
Overview



2.7	Pressure compensator	2.4.1	Stroke limiter port A (clockwise rotation)
2.1	Main spool	2.4.2	Stroke limiter port B (counterclockwise rotation)
2.3.1	Workport valve port A (anti-cavitation valve)	2.4.3	Pressure control valve port A
2.3.2	Workport valve port B (shock / anti-cavitation valve)	2.4.4	Pressure control valve port B

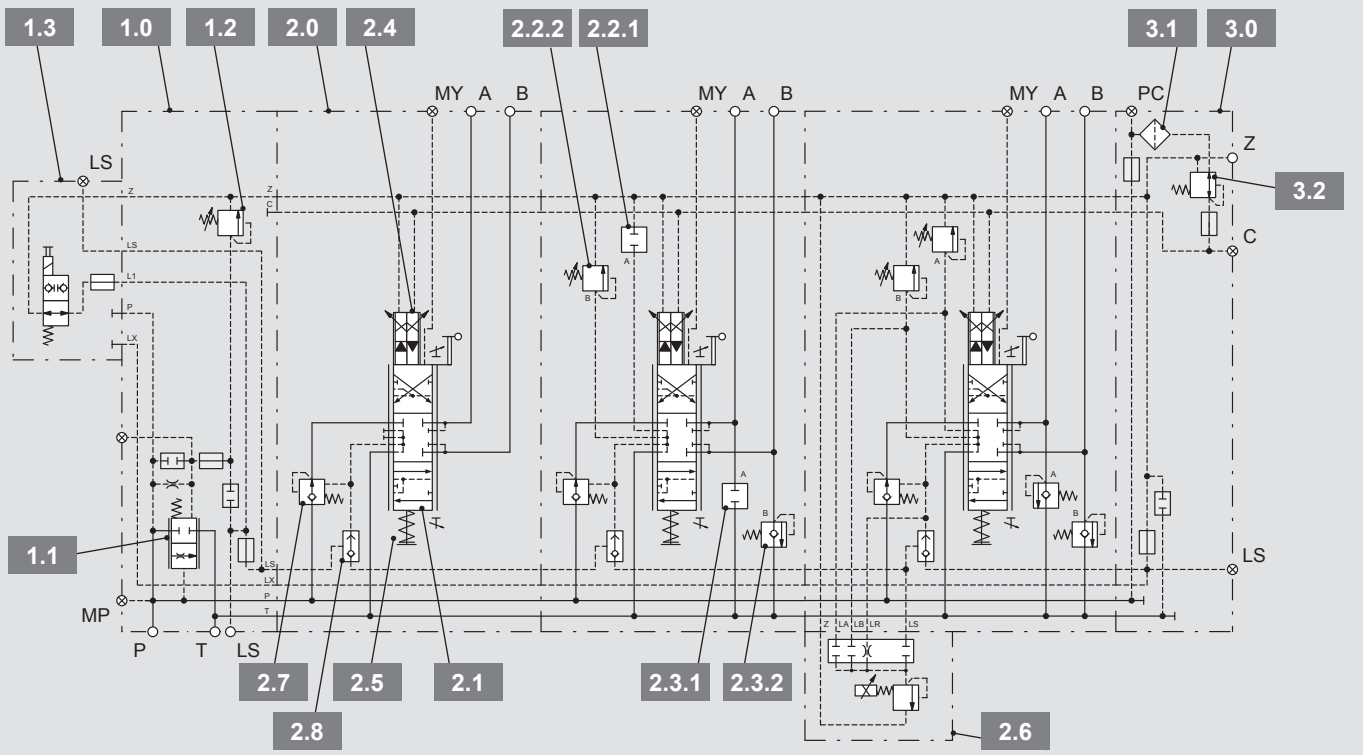
Overview





Ports

P	Pump
MP	Pump measuring port
T	Tank
LS	Load-sensing
A, B	Working ports
C	Pilot oil supply
Z	Pilot drain
MY	Pilot pressure measuring port (port B)



1.0	Inlet plate	2.4	Operation unit
1.1	Main axis of 3-way flow controller or pump pressure limiter	2.4.1	Stroke limiter of main spool port A
1.2	Pilot pressure relief valve of main axis 1.1	2.4.2	Stroke limiter of main spool port B
1.3	Option block for inlet plate	2.5	Spring cap
2.0	Working section	2.6	Option block for working section
2.1	Main spool	2.7	Pressure compensator
2.2.1	LS pressure limitation port A	2.8	LS shuttle valve
2.2.2	LS pressure limitation port B	3.0	End plate
2.3.1	Workport valve port A	3.1	Filter element
2.3.2	Workport valve port B	3.2	Pressure reducing valve for internal pilot oil supply

Technical data

General data and operating conditions		
No. of working sections:		1 – 8 [1]
Installation position:		Optional
Mass in kg:	Inlet plate CL17 / UL17 / UL17F	6.1 / 6.0 / 5.9
	Option block UD1 / UW 1...	0.4 / 1.1
	Working section B6 / LS 6 / LS6F	5.1 / 4.7 / 4.6
	Operation unit H... / E...	0.4 / 0.9
	Hand lever 1 / 2 / 3	0.1
	Option block LD1 / LW... / LW1...	0.3 / 1.2 / 1.6
	End plate ER1 / ER 2 / ER27 / ER2F	4.0 / 3.9 / 4.2 / 3.9
	Option block E1C	0.7
	Tie rod for working sections 2 / 4 / 6 / 8	0.3 / 0.5 / 0.7 / 0.8
Connection type (thread type):		BSPP (acc. to ISO 1179-1); SAE (acc. to ISO 11926-1 or SAE J1626)
Ambient temperature range:		-20 to +60 °C [1]
Hydraulic fluid temperature range:		-20 to +80 °C [1]
Painting:		Standard primer and top coat RAL 9005 on inquiry
Hydraulic data		
Nominal flow rate	P / A, B	250 l/min / 160 l/min
Nominal pressure		350 bar
Max. operating pressure at port:	P / A, B	350 bar / 420 bar
	T	30 bar for external drained tank line Z 10 bar for internal connection Z → T
	Z	Drained to tank
Max. pilot pressure at port C / X, Y		30 bar
Pilot pressure range		6.5 to 20 bar hydraulic 4.5 to 20 bar electrohydraulic
Required control Δp at the control block		17 bar
Hydraulic fluid		Mineral oil (HL/HLP) acc. to DIN 51524, other hydraulic fluids on inquiry
Viscosity range		10 – 400 mm²/s
Max. permitted degree of contamination of the hydraulic fluid		20/18/15 acc. to ISO 4406 (c) Please contact HYDAC Filtration Technology to ensure system cleanliness
Electrical data		
Supply voltages		12 V DC / 24 V DC
Solenoid data		See section “Operation units” and “Solenoid valves and coils”
Connector type and IP protection class (with mating connector mounted and locked)		AMP Junior Timer, 2-pin, axial / up to IP6K6 [2] Deutsch DT04, 2-pin, axial / up to IPX9K [2]
Amplifiers and control devices		See Product Catalogue 18.500 – Control Technology for Mobile Machines

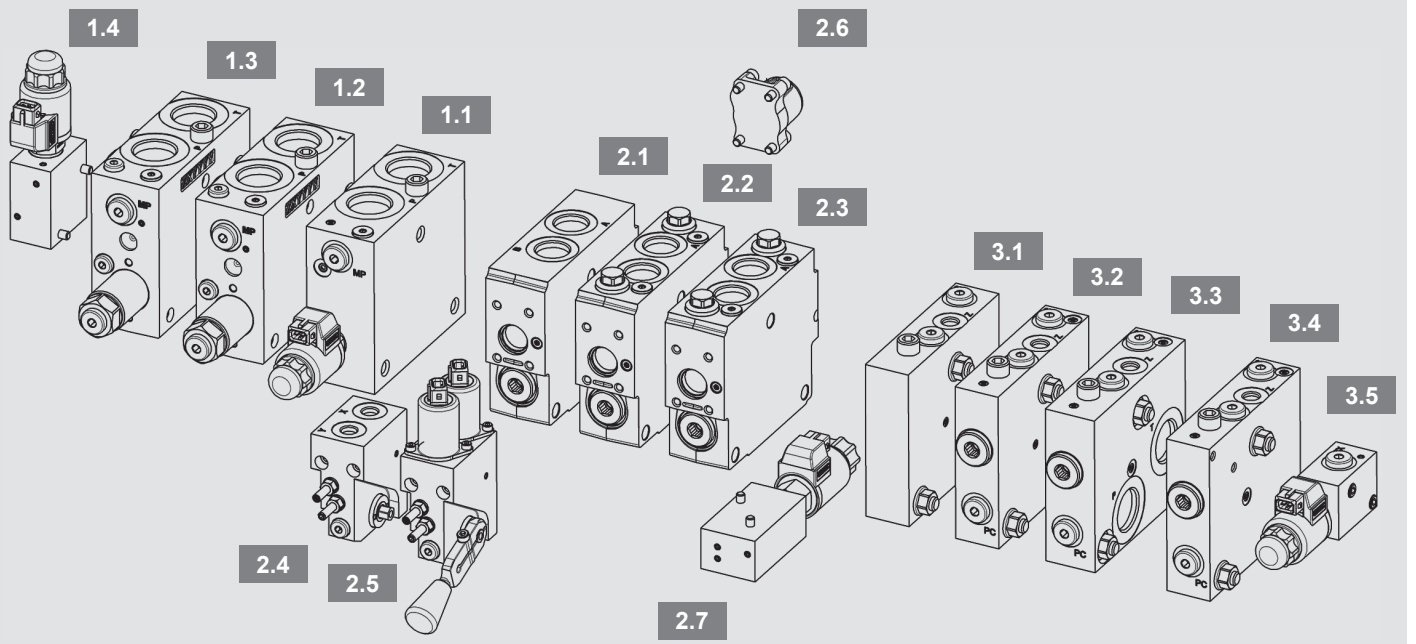
[1] Deviation of data on inquiry only
[2] Mating plug-in connectors are not included

⚠ The technical data and characteristic curves were determined at a viscosity of 32 mm²/s

Modular structure

The LX-6 can be customised to different applications and machines.
The principle sectional design and modular structure consists of an inlet plate, max. 8 working sections and an end plate.
A complete control block is defined by a type code system.

Setup with left hand inlet plate



Type code structure

General

LX-6 _ _ / B 0

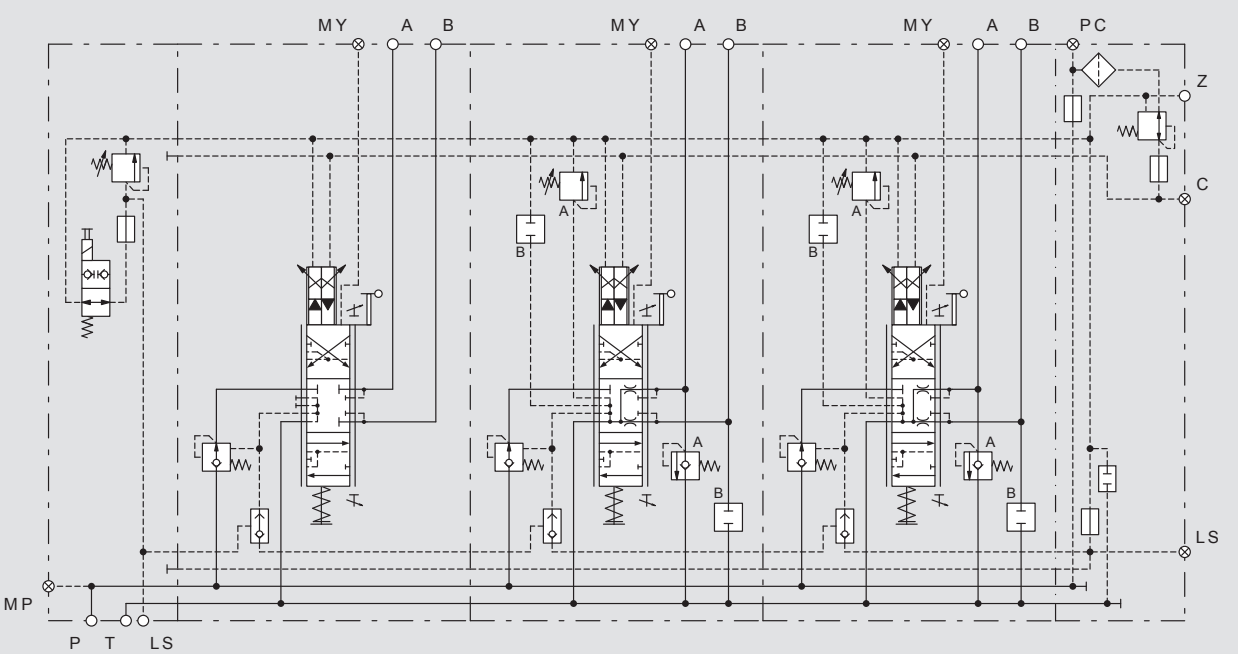
- **Connection type B (BSPP) or S (SAE)**
- **No. of working sections (01-08)**

Inlet plate	**UL17F / ... / UW1...**	1.1	Inlet plate CL17
		1.2	Inlet plate UL17
		1.3	Inlet plate UL17F
		1.4	Option block UD1, UW1...
Working section	**LS6F / ... / LW...**	2.1	Working section B6
		2.2	Working section LS6
	.	2.3	Working section LS6F
	.	2.4	Hydraulic operation HY
	.	2.5	Electrohydraulic operation E1Y, EY
	.	2.6	Spring cap
		2.7	Option block LD1, LW..., LW1...
End plate	**ER2F / ... / E1C...**	3.1	End plate ER1
		3.2	End plate ER2
		3.3	End plate ER27
		3.4	End plate ER2F
		3.5	Option block E1C

Example of block specifications and type code

Example: control block for hydraulic system with variable displacement pump (CC system)

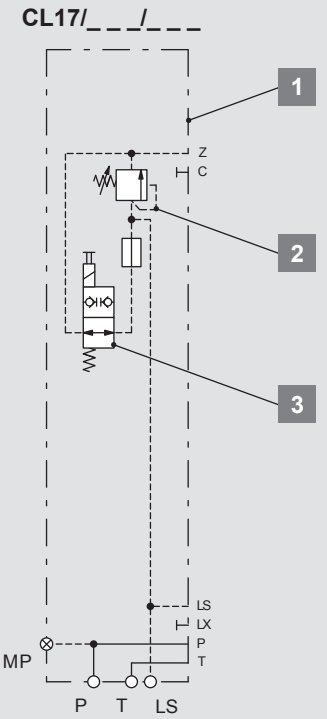
Type code	Control block specification	
Valve type	LX-603	LX-6 with 3 working sections
LX-603 / B0	B0	BSPP connection type, valve series 0
Inlet plate	CL17	Left hand inlet plate for CC systems, w/o primary pressure limiter
CL17 / 300 / V2D	300	LS pressure relief valve set to 300 bar
	V2D	LS unloading valve (normally open) with 24 V solenoid and connector type Deutsch DT04-2P
Working section 1	B6	Basic section type w/o LS or workport valves
B6 / CS160-160RN / EYHS2D-1 / C1E	CS – RN	- Main spool type CS (closed in neutral position) - Flow rate at working port A and B 160 l/min - Pressure compensator with load holding function, spring type N
	EYHS2D-1	- Electrohydraulic operation and measuring port MY - Hand lever axis and stroke limiter - 24 V solenoid and connector type Deutsch DT04-2P - Hand lever type 1
	C1E	Spring cap for electrohydraulic operation
Working sections 2 and 3	LS6	Working section with LS and workport valves
LS6 / CR050-050RG / 200 – P / 250 – P / EYHS2D-1 / C1E	CR – RG	- Main spool type CR (unloaded in neutral position) - Flow rate at working port A and B 50 l/min - Pressure compensator with load holding function, spring type G
	200 – P	LS pressure limitation port A 200 bar, port B plug screw
	250 – P	Shock valve port A 250 bar, port B plug screw
	EYHS2D-1	- Electrohydraulic operation and measuring port MY - Hand lever axis and stroke limiter - 24 V solenoid and connector type Deutsch DT04-2P - Hand lever type 1
	C1E	Spring cap for electrohydraulic operation
End plate	ER2	Right hand end plate with internal pilot oil supply and external drained tank line
ER2 / 0	0	No options (standard)

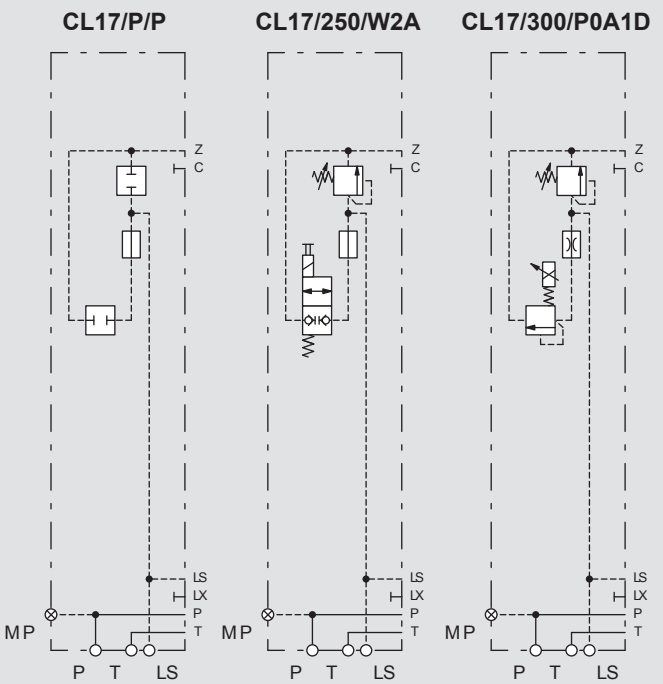


Type code

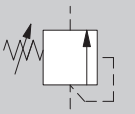
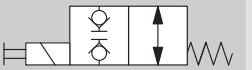
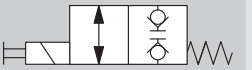
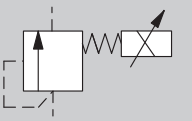
CL17 / 300 / V2D

1 2 3





⚠ Unloading the LS circuit with the option valves V and W 3 will not block the flow to the working ports A and B completely when the main spool is out of neutral position.
Regardless of viscosity or parallel operation, the working pressure during blocking can be up to 15 bar depending on the selected pressure compensator spring type.
For working sections without pressure compensator (load holding function only), the stand-by pressure of the variable displacement pump has to be taken into account.

1	**Basic type**	
C	Closed Center system for variable displacement pump	
L	Left hand side	
1	Version	
7	Port size P / T	
2	**LS pressure relief valve**	
_ _ _	Pressure setting in bar, 3-digit, max. 350 bar	
P	Plug screw	
3	**Option valve for LS circuit[1)]**	
P	Plug screw	
V_ _	LS unloading Normally open (Manual emergency operation)	
W_ _	LS unloading Normally closed (Manual emergency operation)	
P0A_ _	Electro-proportional pressure adjustment Pressure stage A: 350 bar 12 V: I_{max} = 1,500 mA 24 V: I_{max} = 750 mA	
⚠	The electro-proportional pressure relief valve P0A is not suitable for acting as an LS unloading valve.[1)]	
Solenoid (supply voltage, connector type)		
1_	12 V	
2_	24 V	
_A	AMP Junior Timer	
_D	Deutsch DT04-2P	

Example configurations

CL17/P/P

- Basic type CL17
- w/o LS pressure relief valve (plug screw)
- w/o LS option valve (plug screw)

CL17/300/P0A1D

- Basic type CL17
- LS pressure relief valve set to 300 bar
- LS option valve type P0A, electro-proportional pressure adjustment (pressure stage A: 350 bar)
- 12 V solenoid and connector type Deutsch DT04-2P

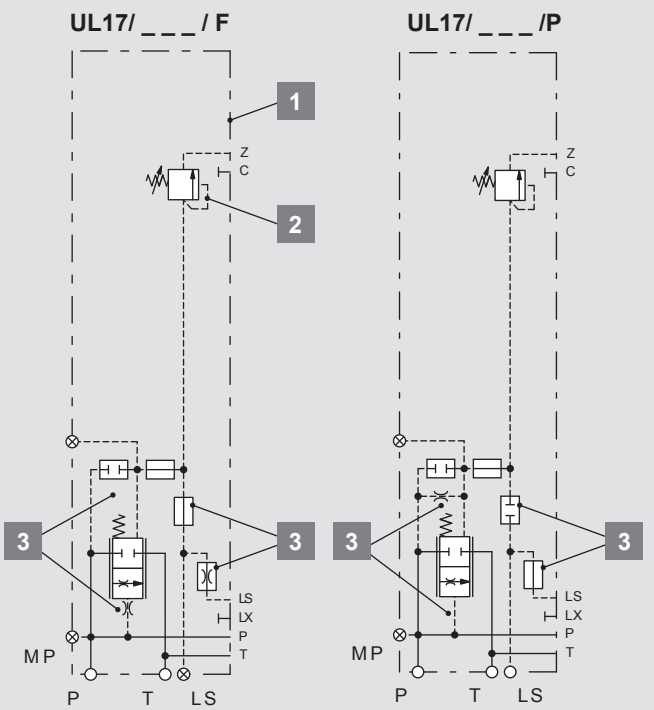
[1)] See section “Solenoid valves and coils”

Type code

UL17 / 250 / F

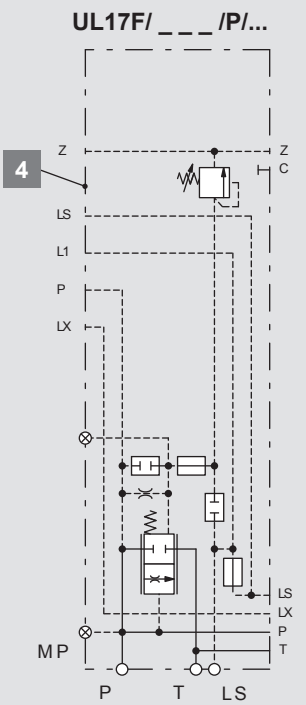
UL17F / 300 / P / UW1V2D

1	2	3	4



Flange channels

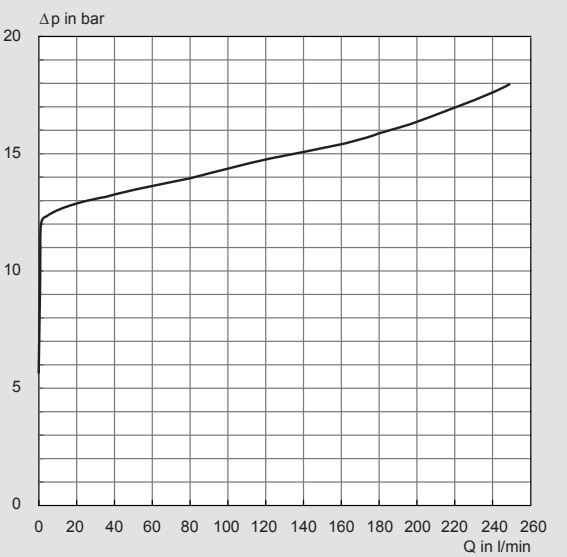
Z	Pilot drain
LS	Load-sensing
L1	Load signal 1
P	Pump
LX	Load signal X [1]



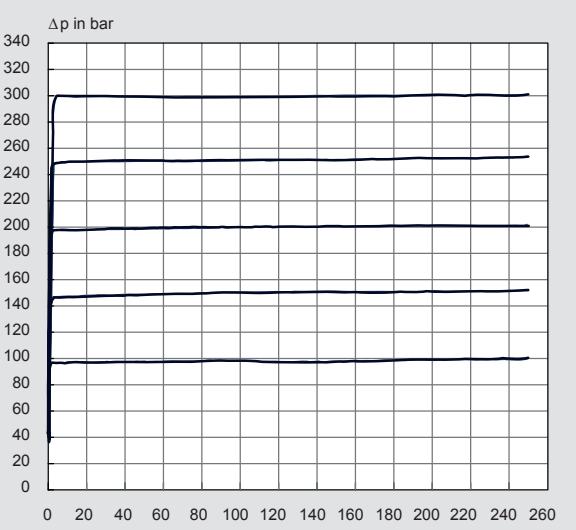
[1] Separate, internal channel for optional functions

1	**Basic type**	
	U	Universal plate for OC and CC systems
	L	Left hand side
	1	Version
	7	Port size P / T
	F	Flange interface for option blocks
2	**Pilot pressure relief valve of main axis**	
	_ _ _	Pressure setting in bar, 3-digit, max. 350 bar
	P	Plug screw
3	**Logic of main axis**	
	F	3-way flow controller for fixed displacement pump
	P	Pump pressure relief valve for variable displacement pump
4	**Option block for basic type UL17F**	

Characteristic curves (measured at 32 mm²/s)



Open Center circulation pressure P → T



Pressure relief function P → T

Option blocks for inlet plate UL17F

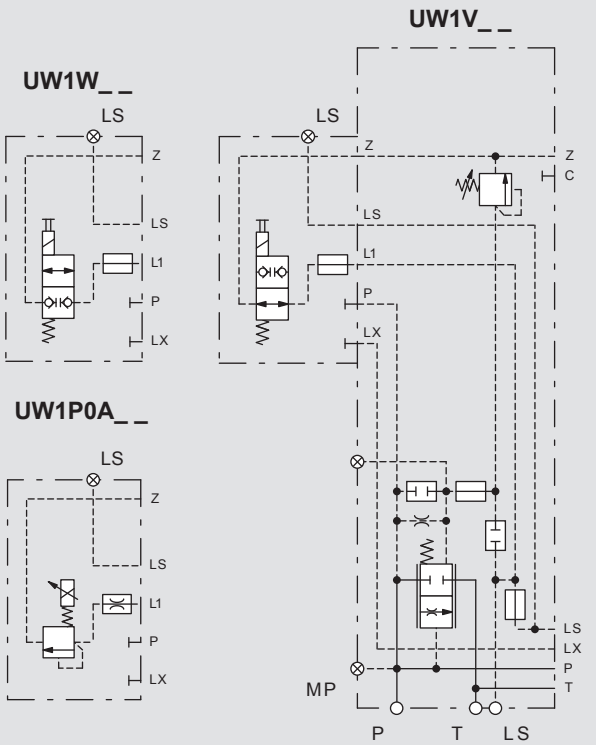
Type code

UL17F / 300 / P / UW1V2D

Flange channels

Z Pilot drain
LS Load-sensing
L1 Load signal 1
P Pump
LX Load signal X

UD1



Example configurations

UW1W2A

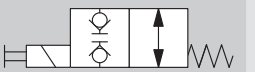
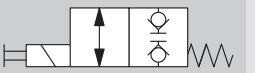
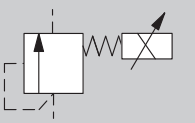
- Basic type UW1
- LS option valve type W, normally closed
- 24 V solenoid and connector type AMP Junior Timer

UW1P0A1D

- Basic type UW1
- LS option valve type P0A, electro-proportional pressure adjustment (pressure stage A: 350 bar)
- 12 V solenoid and connector type Deutsch DT04-2P

[1] See section “Solenoid valves and coils”

Dummy plate	
UD	Basic type
1	Version 1

LS option valves[1]		
UW1	Basic type	
V_ _	LS unloading Normally open (Manual emergency operation)	
W_ _	LS unloading Normally closed (Manual emergency operation)	
P0A_ _	Electro-proportional pressure adjustment Pressure stage A: 350 bar 12 V: I_{max} = 1,500 mA 24 V: I_{max} = 750 mA	

⚠ The electro-proportional pressure relief valve P0A is not suitable for acting as an LS unloading valve.[1]

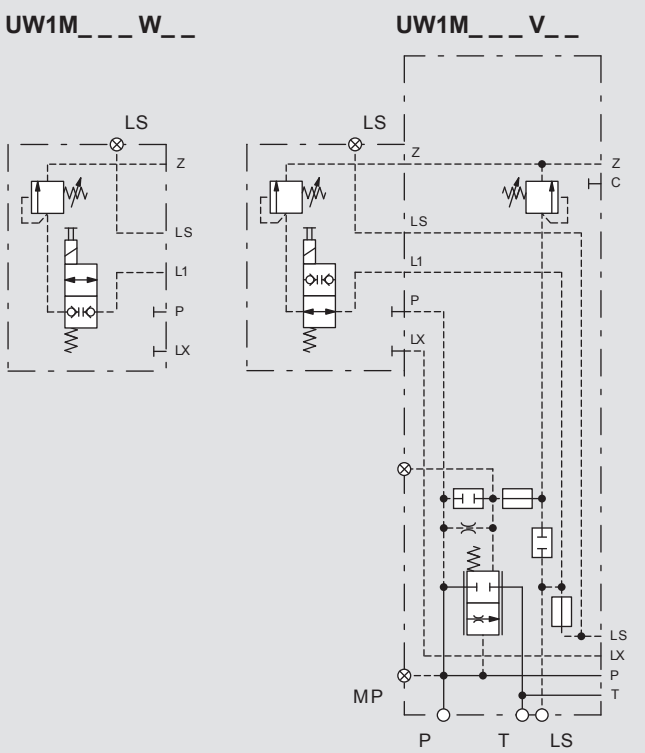
Solenoid (supply voltage, connector type)	
1_	12 V
2_	24 V
_A	AMP Junior Timer
_D	Deutsch DT04-2P

⚠ Unloading the LS circuit with the option valves V and W will not block the flow to the working ports A and B completely when the main spool is out of neutral position.

Regardless of viscosity or parallel operation, the working pressure during blocking can be up to 15 bar depending on the selected pressure compensator spring type.

For working sections without pressure compensator (load holding function only), the stand-by pressure of the variable displacement pump or circulation pressure of the fixed displacement pump has to be taken into account.

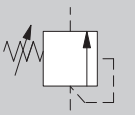
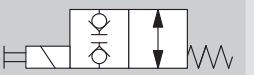
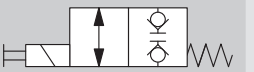
Option blocks for inlet plate UL17F



Example configurations

UW1M200W2A

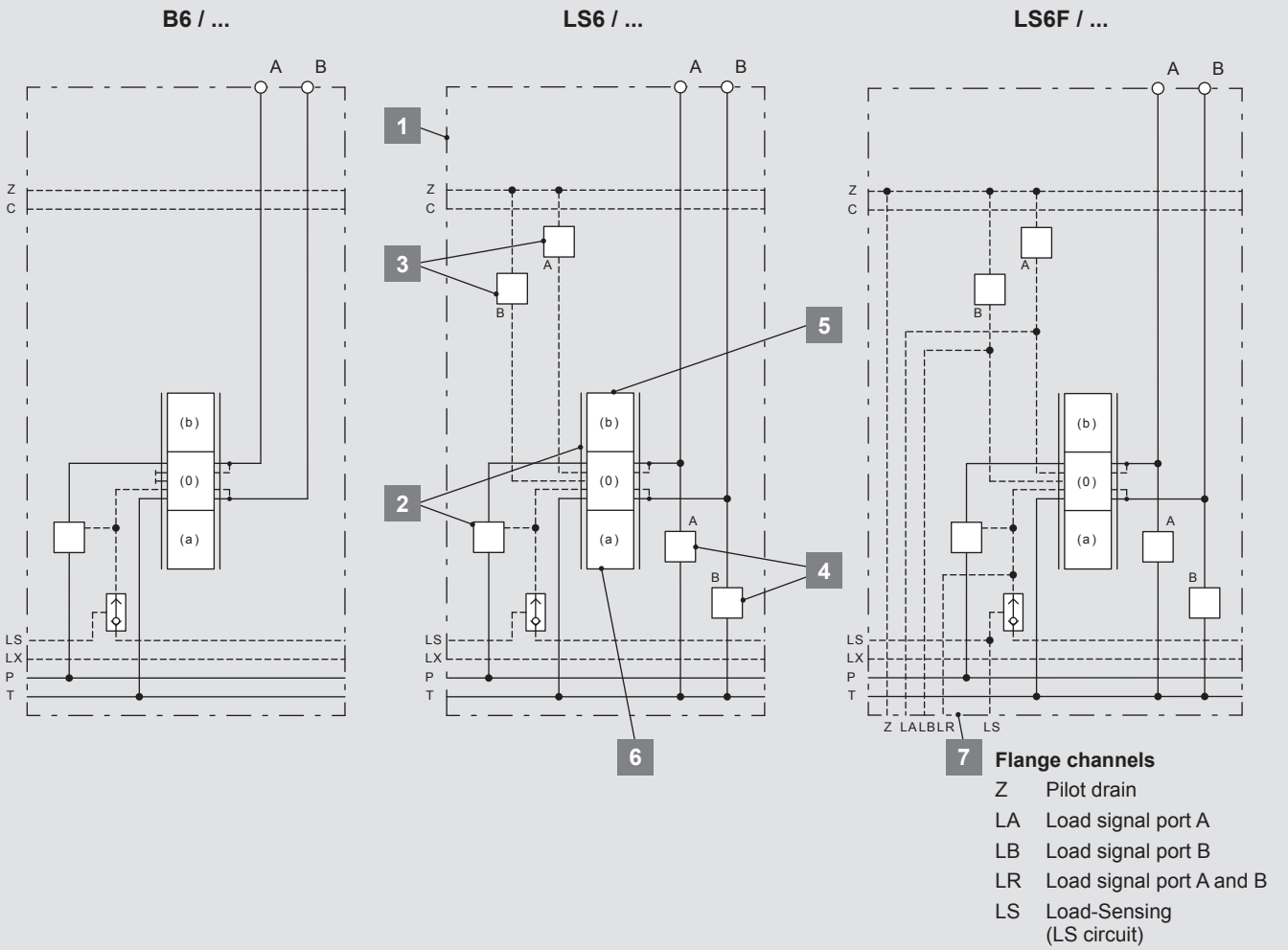
- Basic type UW1M
- LS pressure relief valve set to 200 bar
- LS option valve type W, normally closed
- 24 V solenoid and connector type AMP Junior Timer

Switchable LS pressure limitation for LS circuit[1)]	
UW1M	Basic type
_ _ _	Pressure setting in bar, 3-digit, max. 350 bar 
V_ _	Normally open (Manual emergency operation) 
W_ _	Normally closed (Manual emergency operation) 

Solenoid (supply voltage, connector type)	
1_	12 V
2_	24 V
_A	AMP Junior Timer
_D	Deutsch DT04-2P

[1)] See section “Solenoid valves and coils”

Working sections B6 / LS6 / LS6F



Flange channels

Z	Pilot drain
LA	Load signal port A
LB	Load signal port B
LR	Load signal port A and B
LS	Load-Sensing (LS circuit)

Type code

B6 / CR160-160RN / EYHS2D-1 / C1E

LS6 / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

1 2 3 4 5 6 7

1	**Basic type**	
	B6	Basic section type w/o LS pressure limitation and workport valves
	LS6	Working section with LS pressure limitation and workport valves
	LS6F	Working section with LS pressure limitation and workport valves Flange interface for option blocks
		Port size 6 for working ports A / B
2	**Main spool and pressure compensator**	
3	**LS pressure limitation**	
4	**Workport valves**	
5	**Operation unit**	
6	**Spring cap**	
7	**Option block for basic type LS6F**	

Main spool and pressure compensator

Type code

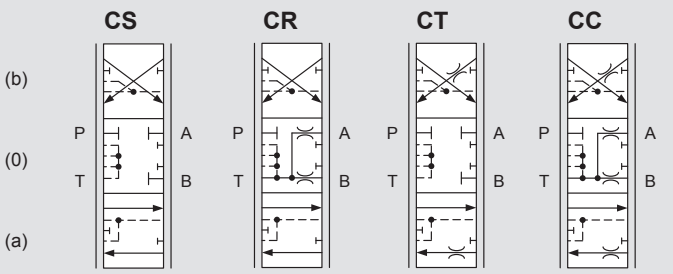
LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

Examples

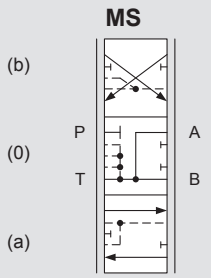
CR	**160**	**-**	**160**	**R**	**N**	
MS	**180**	**-**	**180**	**L**		
2.1	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	

2.1	Basic type of main spool
2.2	Max. flow at port A to actuator in l/min
2.3	Characteristic curve and overlap
2.4	Max. flow at port B to actuator in l/min
2.5	Basic type of pressure compensator / load holding function
2.6	Pressure compensator spring type

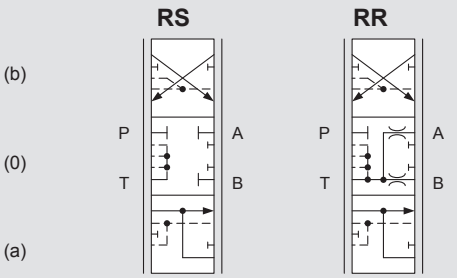
Basic type of main spool



Cylinder as actuator	
CS	4/3 directional valve closed in neutral position
CR	4/3 directional valve unloaded in neutral position
CT	4/3 directional valve closed in neutral position 20 bar return orifice for A and B → T to support system stability
CC	4/3 directional valve unloaded in neutral position 20 bar return line orifice for port A and B → T to support system stability



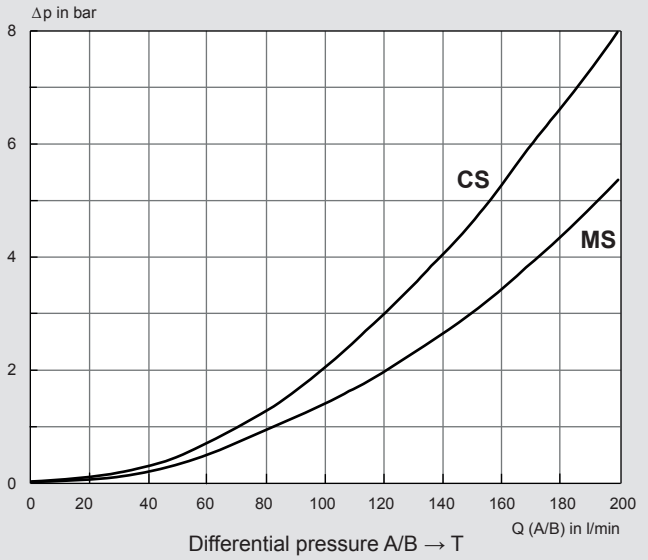
Motor as actuator	
MS	4/3 directional valve open in neutral position



Regeneration function	
RS	4/3 directional valve closed in neutral position Regeneration function in spool position (a)
RR	4/3 directional valve unloaded in neutral position Regeneration function in spool position (a)

⚠ Other spool types and configurations on inquiry

Characteristic curves (measured at 32 mm²/s)



CS: Cylinder spool type – nominal control edge size: 08
MS: Motor spool type – nominal control edge size: 08

Type code

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

CR	160	-	160	R	N
2.1	2.2	2.3	2.4	2.5	2.6

Main spool flow range

Symmetrical spools 2.2 2.4 2.5 2.6

Max. flow rate to actuator in l/min (Port A - Port B)								Pressure compensator Type	Pressure compensator spring Type	Pressure compensator spring Identifier
180 - 180	150 - 150	125 - 125	090 - 090	062 - 062	045 - 045	030 - 030	020 - 020	R	Y	Yellow
170 - 170	138 - 138	116 - 116	085 - 085	058 - 058	042 - 042	028 - 028	019 - 019	R	W	Blue
160 - 160	**130 - 130**	**110 - 110**	**080 - 080**	**055 - 055**	**040 - 040**	**027 - 027**	**018 - 018**	**R**	**N**	**None**
-	-	100 - 100	072 - 072	050 - 050	036 - 036	025 - 025	016 - 016	R	G	Green

Nominal control edge size							
08 - 08	07 - 07	06 - 06	05 - 05	04 - 04	03 - 03	02 - 02	01 - 01

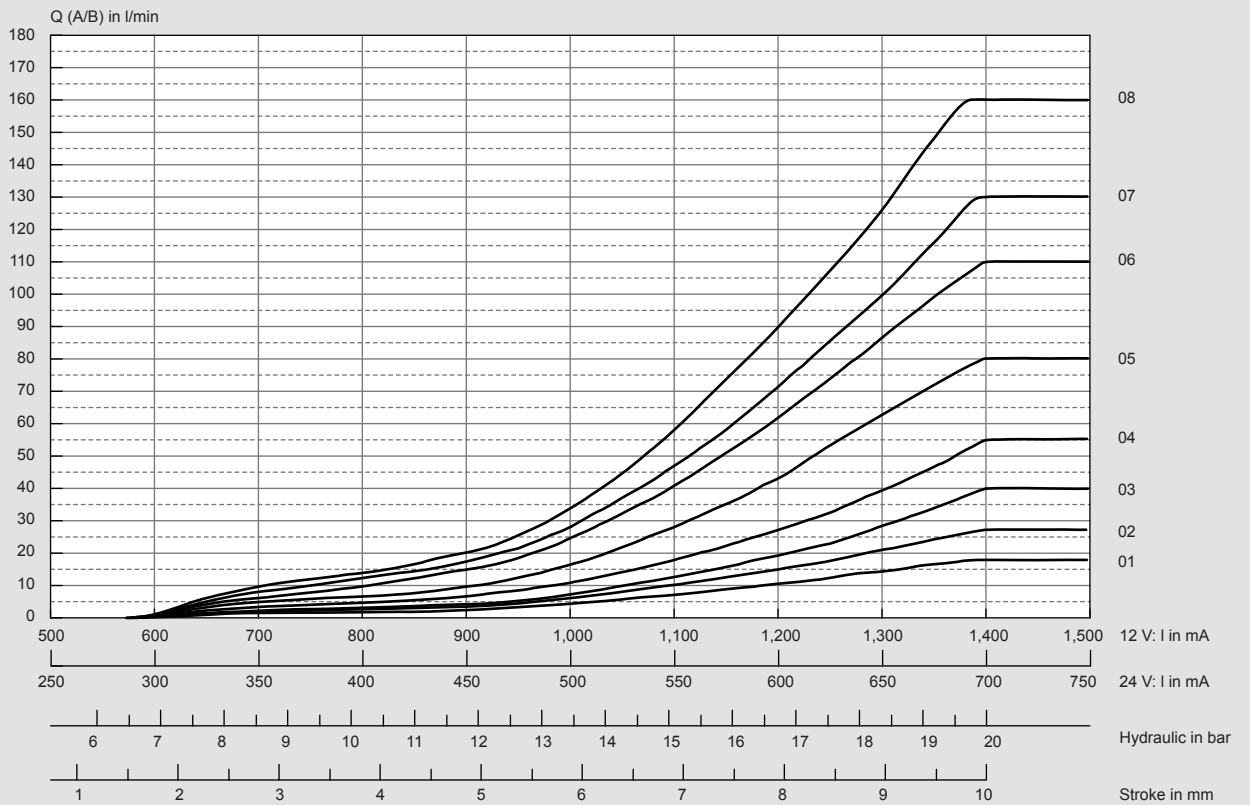
Asymmetrical spools (on inquiry)

The main spool for asymmetrical flow rates can only be defined within one row in the table above.
The higher flow rate must be assigned to working port A (e.g. 160 – 130, 100 – 036, 150 – 090).

Characteristic curve and overlap 2.3

-	Progressive/positive (standard)

Characteristic curves for nominal flow rates of main spool (measured at 32 mm²/s)



Example:

Max. flow to the actuator at working port A and B: 120 l/min

1. See table above: nominal control edge size 06 – 06 with pressure compensator spring Y → Q = 125 – 125 l/min
2. Setting to final target value 120 l/min by stroke limiter

Main spool and pressure compensator

Type code

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

CR	160	-	160	R	N
2.1	2.2	2.3	2.4	2.5	2.6

Flow control by section pressure compensator

Figure A Main spool in neutral position (Type CR – A/B unloaded to T)

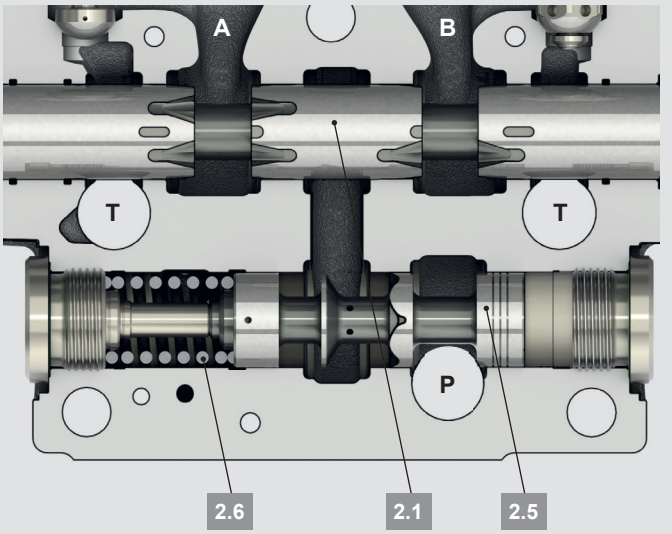
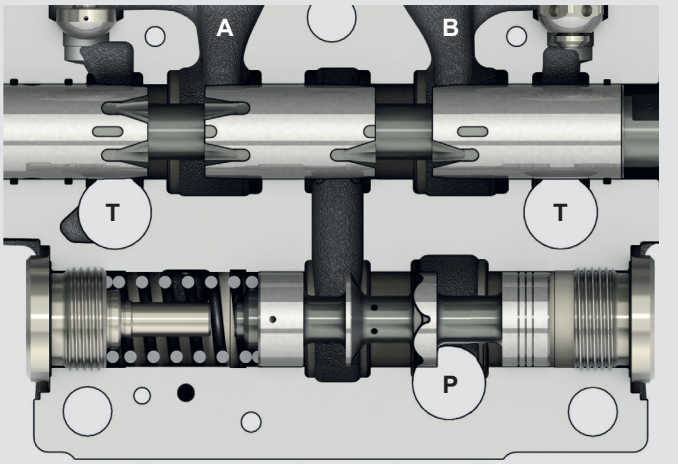


Figure B Main spool out of neutral position (P → B, A → T)

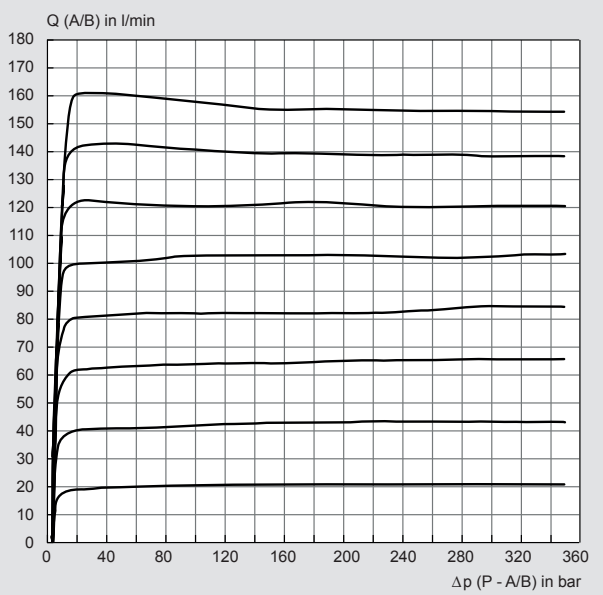


P is not connected to the working ports A and B when the main spool 2.1 is in neutral position(Fig. A). The compensator spool 2.5 is moved to left against the compensator spring 2.6 by pump pressure and blocks flow to the main spool.
When the main spool 2.1 is operated out of the neutral position (Fig. B), the load pressure (LS pressure) of the working port A or B is connected to the spring chamber of the pressure compensator and moves the compensator spool to the right into a corresponding controlled position.

The flow rate through the main spool (= metering orifice) is kept constant by the pressure compensator when sections are in parallel operation with different load or pump pressures.

The characteristic flow rate curve of a main spool can be adapted and optimized to each application by using the different pressure compensator spring types Y, B, N or G.

Pump pressure compensation (measured at 32 mm²/s)

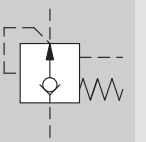


Basic types of pressure compensator / load holding function

R

Pressure compensator spool - released with load holding function (standard type)

⚠ The load holding function is not free of leak oil, the hydraulic schematic / symbol is simplified

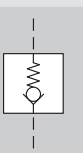


The pressure compensator R must always be indicated in the type code with the corresponding compensator spring type Y, B, N or G.

L

Load holding function only

⚠ The load holding function is not free of leak oil, the hydraulic schematic / symbol is simplified.



Different load or pump pressures are not compensated when sections are in parallel operation. The flow rate to the actuator depends on the pressure difference between pump pressure and load (LS pressure). Main spool definition and detailed system setup on inquiry.

The pressure compensator spring 2.6 is not indicated for the load holding function in the type code.

Example: MS180-180L

LS pressure limitation

Type code

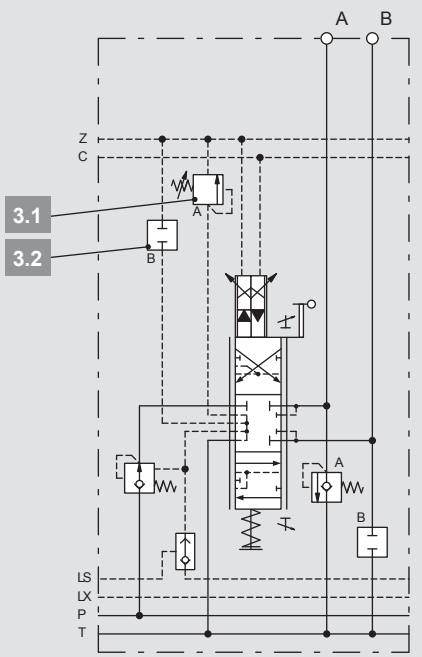
LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

250 – P

3.1 **3.2**

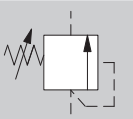
Adjustable LS pressure limitation by blocking the sectional flow rate to the working ports A and B.

For LS option valves and electro-proportional pressure adjustment, see section “Option blocks for working section LS6F”.

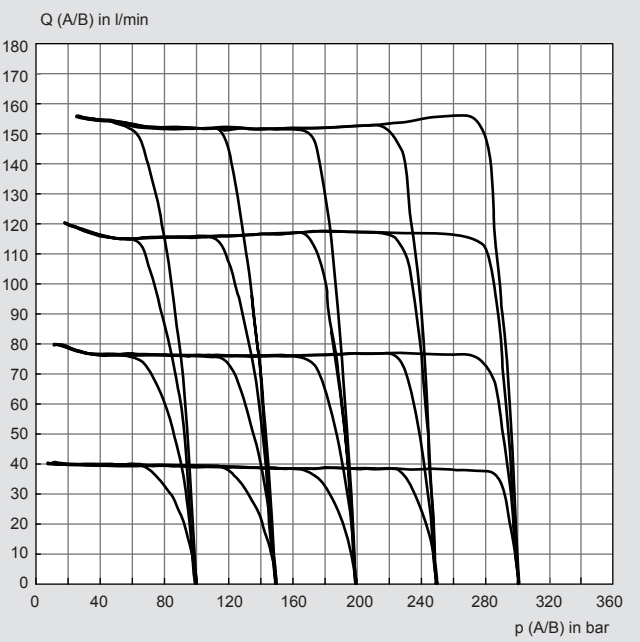


⚠ The max. pressure setting in the inlet plate has to be min. 20 bar higher than the LS pressure limitation in the working section.

3.1	LS pressure limitation port A
3.2	LS pressure limitation port B

Basic type		
– – –	Pressure setting in bar, 3-digit Minimum setting: 050 bar Maximum setting: 320 bar	
P	Plug screw	
U	LS unloading – permanent (3/3 directional valve function)	

Load pressure compensation / limitation
(measured at 32 mm²/s)



Type code

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

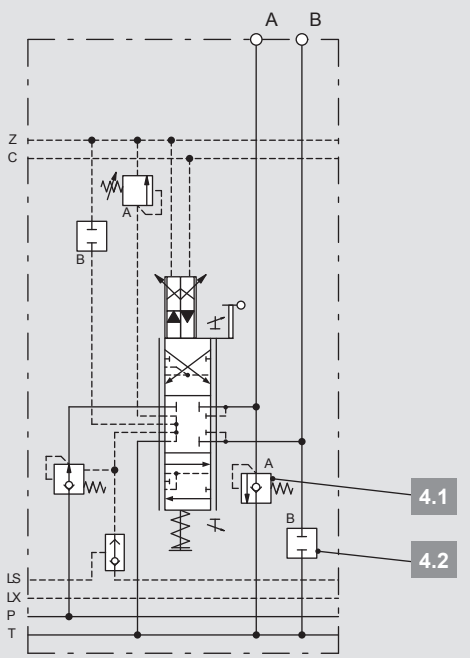
300 – P

4.1 **4.2**

Fixed shock/anti-cavitation valves protect working ports A and B against pressure peaks and cavitation. Anti-cavitation valves protect the system against cavitation.

⚠ Shock/anti-cavitation valves are only for reduction of pressure peaks and should not be used as pressure relief valves.

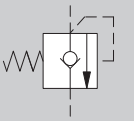
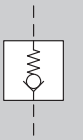
⚠ The setting for shock/anti-cavitation valves are fixed ex works. The pressure setting is defined at a flow rate of 10 l/min.



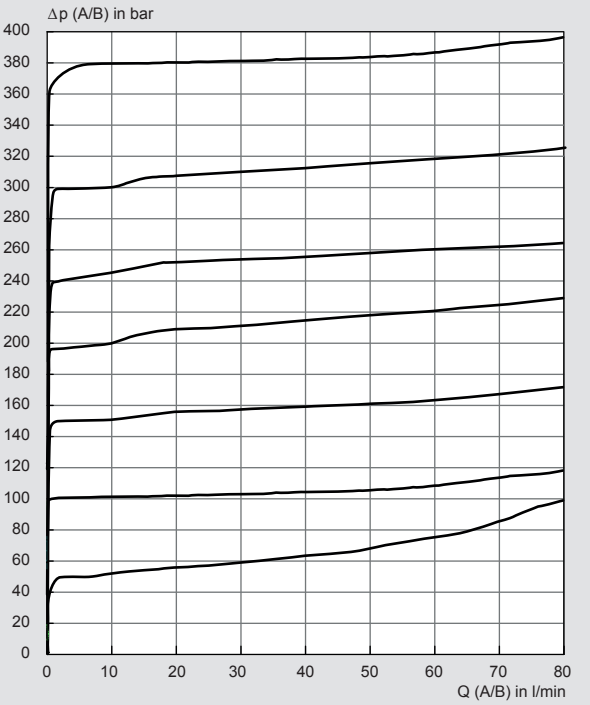
⚠ In case of shock/anti-cavitation valves for all working ports, the LS pressure relief valve in the inlet plate CL17 or UL17/.../F has to be defined min. 20 bar below the highest shock relief valve setting.

4.1	Workport valve port A
4.2	Workport valve port B

Basic type

– – –	Shock/anti-cavitation valve Pressure setting in bar, 3-digit (fixed) See table on next page for settings	
A	Anti-cavitation valve	
P	Plug screw	

Characteristic curves (measured at 32 mm²/s)



Shock function A/B → T

Workport valves

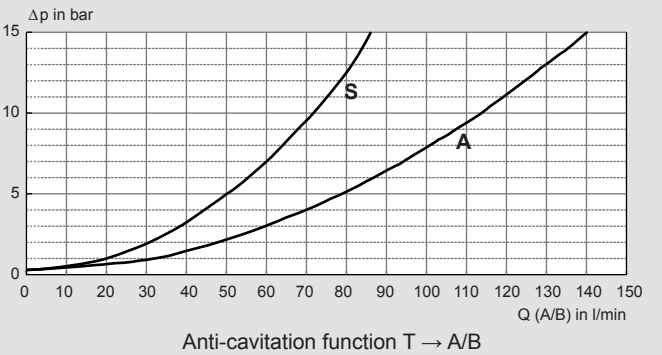
⚠ The maximum pressure setting for the shock/anti-cavitation valves depends on the chosen pressure settings for the LS limitations port A and B. To avoid interaction recommended values are shown in the following table.

The values listed in the table are calculated according to the following guidelines:

Shock valve setting $p_{shock} < 150$ bar: $p_{shock} - p_{LS} > 20$ bar

Shock valve setting $p_{shock} \geq 150$ bar: $p_{shock} - p_{LS} > 30$ bar

Characteristic curves (measured at 32 mm²/s)



Anti-cavitation function T → A/B

S: Shock/anti-cavitation valve

A: Anti-cavitation valve

Shock / anti-cavitation valve pressure settings (fixed)

Settings	bar	050	065	080	100	125	140	150	160	175	190	200	210	230	240	250	265	280	300	320	350	380
Tolerance range	± bar	5	5	5	5	7	7	7	7	10	10	10	10	10	10	10	12	12	12	12	12	15
Max. LS pressure cut-off	bar	-	050	060	080	105	120	120	130	145	160	170	180	200	210	220	235	250	270	290	320	320

(Min./max. LS pressure limitation setting: 050/320 bar)

Operation units

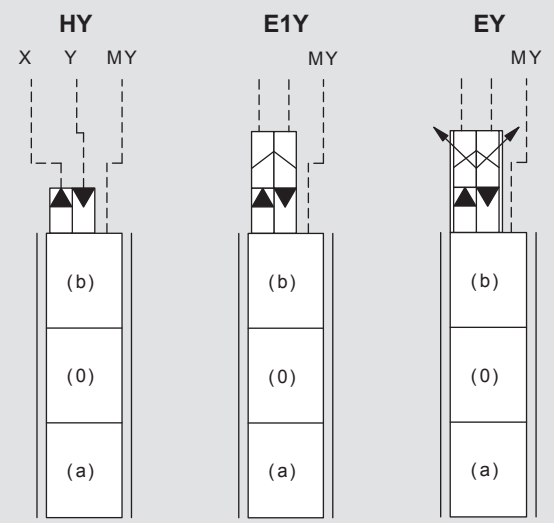
Type code

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

E Y	H	S	2D	-	1
H Y		S			
5.1	5.2		5.3		5.4

5.1	Basic type
5.2	Hand lever axis/main spool stroke limiter
5.3	Electrical supply voltage, connector type
5.4	Hand lever

Basic types 5.1



HY	Unit for hydraulic operation: Port X: spool position (a) Port Y: spool position (b) Pilot pressure measuring port MY: spool position (b)
E1Y	Unit for electrohydraulic operation, on/off: orifice setup 1 (orifice 1,0 mm) Pilot pressure measuring port MY: spool position (b)
EY	Unit for electrohydraulic operation, proportional: Pilot pressure measuring port MY: spool position (b)

Operation units

Technical data for electrohydraulic pilot valves (on/off and proportional)

General			
Supply voltage	V DC	12	24
Coil resistance at 20 °C (±5%)	Ω	4.7	20.8
Duty cycle	%	100	
Connector type and IP protection class (with mating connector mounted and locked)			
AMP Junior Timer, 2-pin, axial		up to IP6K6 [2]	
Deutsch DT04, 2-pin, axial		up to IPX9K [2]	
Protective screen	µm	125	

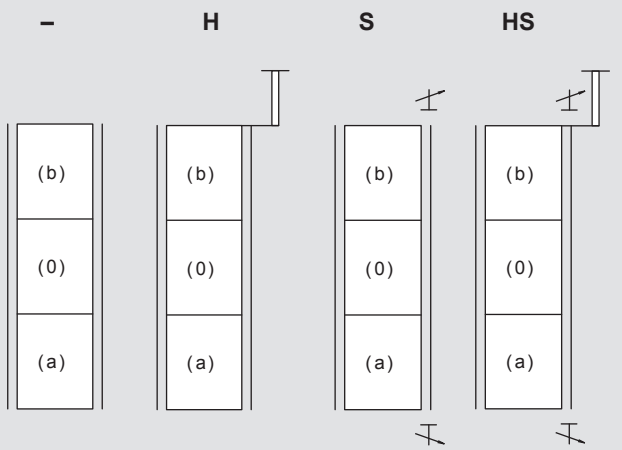
Pressure control valve (proportional)			
Supply voltage	V DC	12	24
Max. control current	mA	1,500	750
PWM frequency (recommended) [1]	Hz	100 ... 150	

[1] The PWM frequency is to be optimized depending on the application

[2] Mating plug-in connectors are not included

⚠ Standards ISO 13732-1 and ISO 4413 must be observed in regard to the surface temperatures occurring on the coils.

Hand lever axis/main spool stroke limiter 5.2



-	w/o hand lever axis – w/o stroke limiter *(n/a)*
H	Hand lever axis – w/o stroke limiter
S	Stroke limiter – w/o hand lever axis
HS	Hand lever axis – stroke limiter

Interface of hand lever axis and hand lever: Hexagon WAF9

⚠ Stroke limiter must be used for the fine adjustment of max. flow rates to the working ports A and B. (see section “Main spool and pressure compensator”).

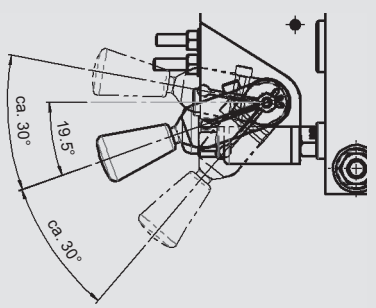
Dimension X for max. spool stroke: See section “Dimensions”

Electrical supply voltage, connector type 5.3

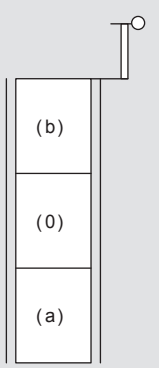
1_	12 V
2_	24 V
_A	AMP Junior Timer
_D	Deutsch DT04-2P

⚠ Electrohydraulic operation can be overruled by mechanical operation . The hand lever is directly connected to the main spool and follows the movement of the spool.

Hand lever 5.4



1 / 2 / 3 / 3_



-	w/o hand lever *(n/a)*
1	Standard lever
2	Standard lever, short for emergency operation
3	Universal clamp without hand lever
3_	Universal clamp with hand lever (standard length)

Interface of hand lever axis and hand lever: Hexagon WAF9

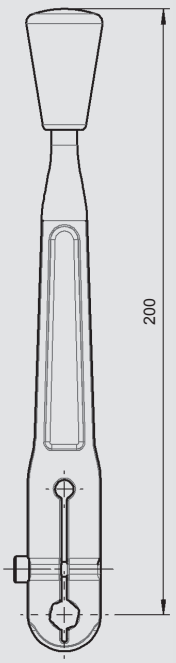
⚠ The hand lever is directly connected to the main spool and follows the movement of the spool.

A hand lever can only be specified in combination with a hand lever axis type H 5.2 .

Operation units

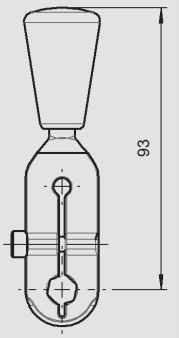
Standard lever

1



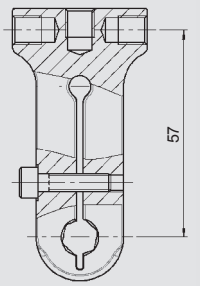
Standard lever, short
(Emergency operation)

2



Universal clamp

3

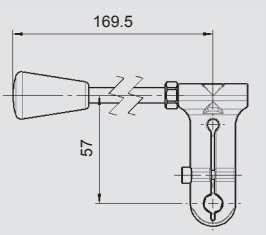


3x M8x1.25 / 8 deep

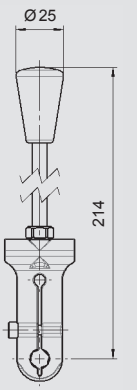
Universal clamp with hand lever

3_

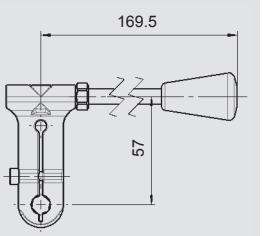
31
Left



32
Top



33
Right



Possible hand lever positions: see section “Dimensions”

Actuating torque on execution: - Hydraulic: min. 5 – 19 Nm
- Electrohydraulic: min. 3 – 19 Nm

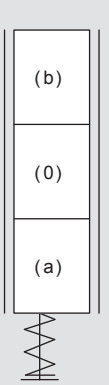
Spring caps

Type code

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

C1 (6.1) **E** (6.2)

C1_



6.1	**Basic type**	
	C1	Type 1 (standard) w/o pilot pressure measuring port MX: spool position (a)
6.2	**Main spool spring package**	
⚠	The spring package must be specified according to the operation unit 5.1.	
	H	Hydraulic operation type HY
	E	Electrohydraulic operation type E1Y, EY

Option blocks for working section LS6F

Type code

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRV2D

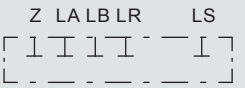
LW	R	V	2D
7.1	7.2	7.3	7.4

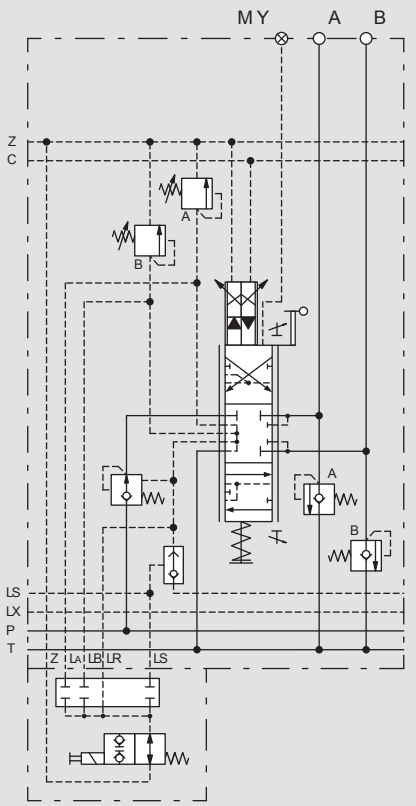
⚠ The LS option blocks can be used only in combination with the sectional pressure compensator type R

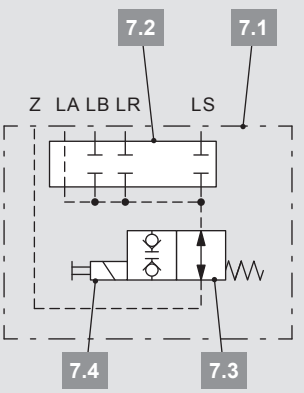
Flange channels

Z	Pilot drain
LA	Load signal port A
LB	Load signal port B
LR	Load signal port A and B
LS	Load-Sensing (LS circuit)

LD1







Dummy plate	
LD	Basic type
1	Version 1

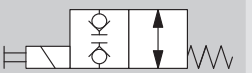
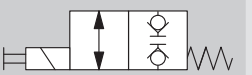
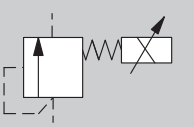
LS option valves[1)]

⚠ Unloading the load signal or LS circuit with the option valves V and W will not block the flow to the working ports A and B completely when the main spool is out of neutral position.

Regardless of viscosity or parallel operation, the working pressure during blocking can be up to 15 bar depending on the selected pressure compensator spring type.

7.1	Basic type LW

7.2	Flange channel
A	Load signal port A
B	Load signal port B
R	Load signal port A and B
S	Load-Sensing (LS circuit)

7.3	Solenoid valve	
V	LS unloading Normally open (Manual emergency operation)	
W	LS unloading Normally closed (Manual emergency operation)	
P0A	Electro-proportional pressure adjustment Pressure stage A: 350 bar 12 V: I_{max} = 1,500 mA 24 V: I_{max} = 750 mA	

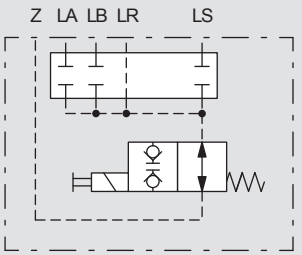
⚠ The electro-proportional pressure relief valve P0A is not suitable for acting as an unloading valve[1)]

7.4	Solenoid (supply voltage, connector type)
1_	12 V
2_	24 V
_A	AMP Junior Timer
_D	Deutsch DT04-2P

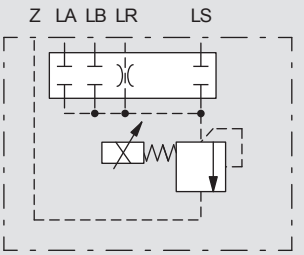
[1)] See section “Solenoid valves and coils”

Option blocks for working section LS6F

LWRV2A



LWRP0A1D



Example configurations

LWRV2A

- Basic type LW
- Load signal port A and B
- LS option valve type V, normally open
- 24 V solenoid and connector type AMP Junior Timer

LWRP0A1D

- Basic type LW
- Load signal port A and B
- LS option valve type P0A, electro-proportional pressure adjustment (pressure stage A: 350 bar)
- 12 V solenoid and connector type Deutsch DT04-2P

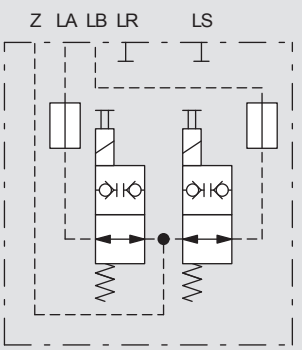
Type code

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LW1V-V2D

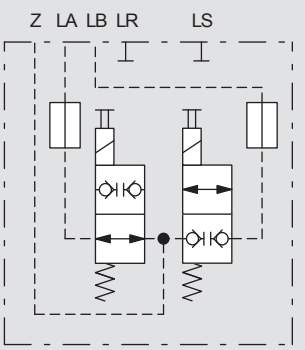
LW1	V	-	V	2D
7.1	7.2		7.3	7.4

⚠ The LS option blocks can be used only in combination with the sectional pressure compensator type R

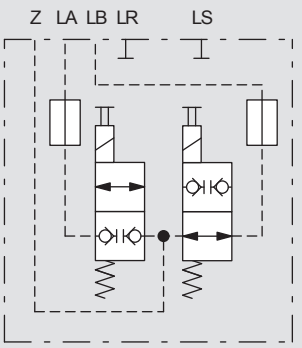
LW1 V - V_ _



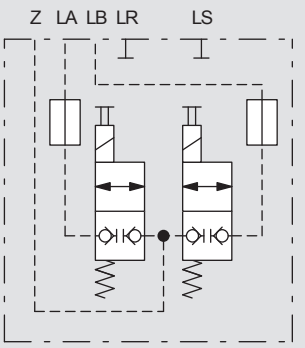
LW1 V - W_ _



LW1 W - V_ _



LW1 W - W_ _



7.1	Basic type LW1	
7.2	Solenoid valve for load signal port A	
7.3	Solenoid valve for load signal port B	
	V	LS unloading Normally open (Manual emergency operation)
	W	LS unloading Normally closed (Manual emergency operation)
7.4	Solenoid (supply voltage, connector type)	
	1_	12 V
	2_	24 V
	_A	AMP Junior Timer
	_D	Deutsch DT04-2P

Option blocks for working section LS6F

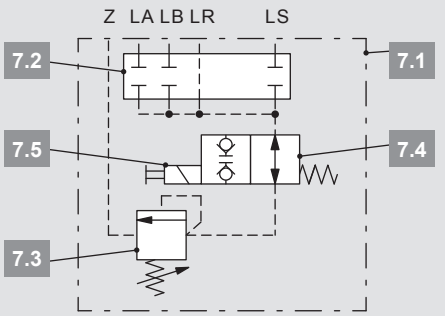
Type code

LS6F / CR160-160RN / 250 – P / 300 – P / EYHS2D-1 / C1E / LWRM100-V2D

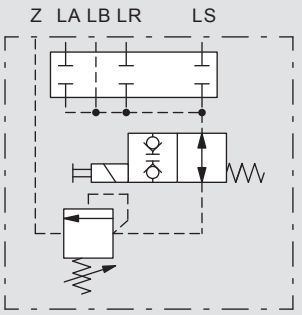
LW	R	M_ _ _	-V	2D
7.1	7.2	7.3	7.4	7.5

⚠ The LS option blocks can be used only in combination with the sectional pressure compensator type R

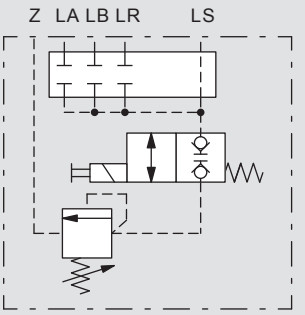
LWRM_ _ _-V_ _



LWBM200-V1A



LWSM250-W2D



Switchable LS pressure limitation (2. pressure stage)[1]	
7.1	**Basic type LWM**
7.2	**Flange channel**
A	Load signal port A
B	Load signal port B
R	Load signal port A and B
S	Load-Sensing (LS circuit)
7.3	**LS pressure limitation**
_ _ _	LS pressure setting in bar, 3-digit Minimum setting: 050 bar Maximum setting: 320 bar
7.4	**Solenoid valve**
V	Normally open (Manual emergency operation)
W	Normally closed (Manual emergency operation)
7.5	**Solenoid (supply voltage, connector type)**
1_	12 V
2_	24 V
_A	AMP Junior Timer
_D	Deutsch DT04-2P

Example configurations

LWBM200-V1A

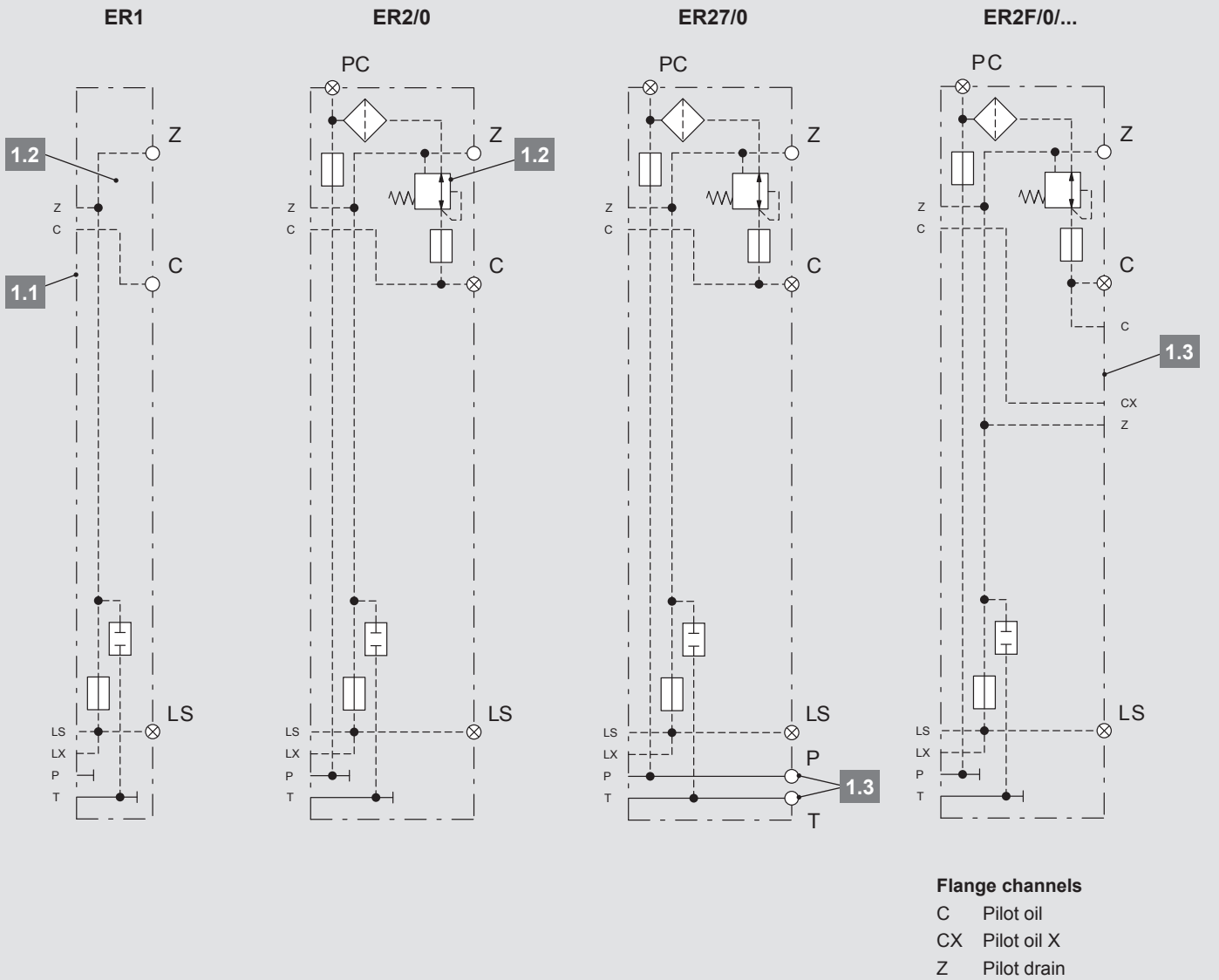
- Basic type LWM
- Load signal port B
- LS pressure limitation set to 200 bar
- LS option valve type V, normally open
- 12 V solenoid and connector type AMP Junior Timer

LWSM250-W2D

- Basic type LWM
- Load-Sensing (LS circuit)
- LS pressure limitation set to 250 bar
- LS option valve type W, normally closed
- 24 V solenoid and connector type Deutsch DT04-2P

[1] See section “Solenoid valves and coils”

End plates



Flange channels

C	Pilot oil
CX	Pilot oil X
Z	Pilot drain

Type code

ER1	...			
ER2	...	/ 0		
ER27	...	/ 0		
ER2F	...	/ 0 /	E1C2D	/ *
1	2	3	4	5

ER	1	
ER	2	F
1.1	1.2	1.3

1	Basic type	
1.1	ER	End plate, right hand side
1.2	1	w/o or external pilot oil supply
	2	Internal pilot oil supply (channel P)
1.3	7	Port size P / T
	F	Flange interface for option blocks
2	Configuration [1]	
3	Options [1]	
4	Option block for basic type ER2F	
5	Reference to clear text Special, customer-specific information	

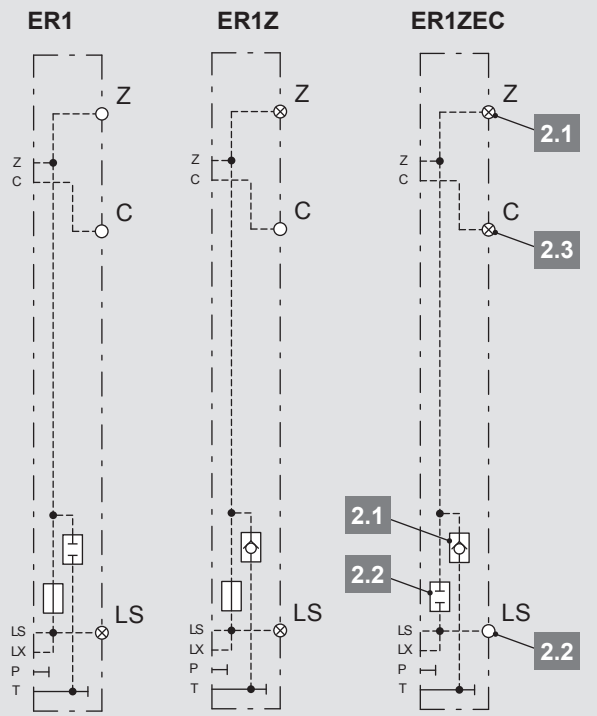
[1] Can also be retrofitted

End plate ER1

Type code

ER1 ...

1 2



1	**Basic type**	
	ER1	End plate, right hand side w/o or external pilot oil supply
2	**Configuration**	
	-	Standard *(n/a)*
2.1	Z	Internal connection Z → T with check valve Port Z with plug screw
	⚠	For configuration Z, the max. permitted operating pressure at port T is 10 bar.
2.2	E	External LS signal input Port LS open Internal LS-unloading with plug screw
2.3	C	Port C with plug screw w/o pilot oil supply for manual and hydraulic operation units only

The individual configurations Z, E and C can be combined as follows: ZE, ZC, EC, ZEC

Example configurations

ER1
- Basic type ER1
- Standard configuration

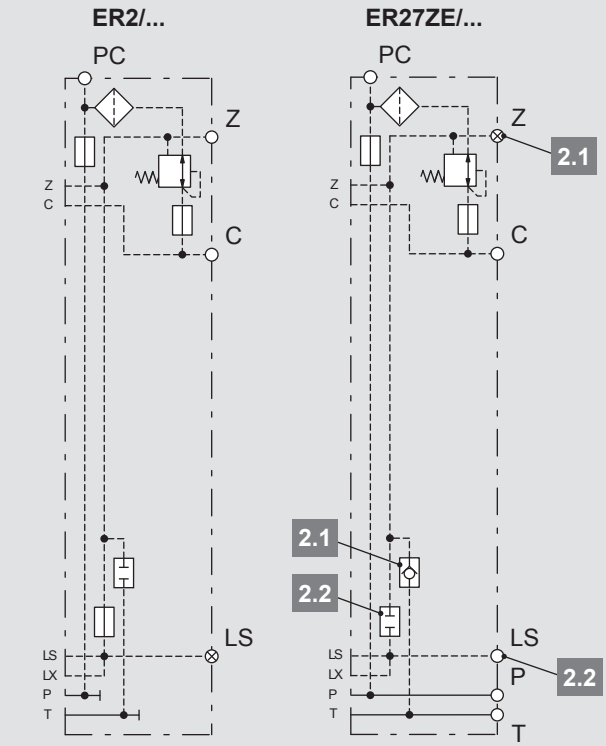
ER1Z
- Basic type ER1
- Internal connection Z → T with check valve
  Port Z with plug screw

End plates ER2, ER27, and ER2F

Type code

ER2 ... / 0

1 2 3



1	**Basic type**	
	ER2	End plate, right hand side Internal pilot oil supply (channel P)
	ER27	Same as ER2, with additional P / T ports Port size 7
	ER2F	Same as ER2, with flange interface for option blocks
2	**Configuration**	
	-	Standard *(n/a)*
2.1	Z	Internal connection Z → T with check valve Port Z with plug screw
	⚠	For configuration Z, the max. permitted operating pressure at port T is 10 bar.
2.2	E	External LS signal input Port LS open Internal LS-unloading with plug screw

The individual configurations Z and E can also be combined: ZE

Example configurations (Options 3 see next page)

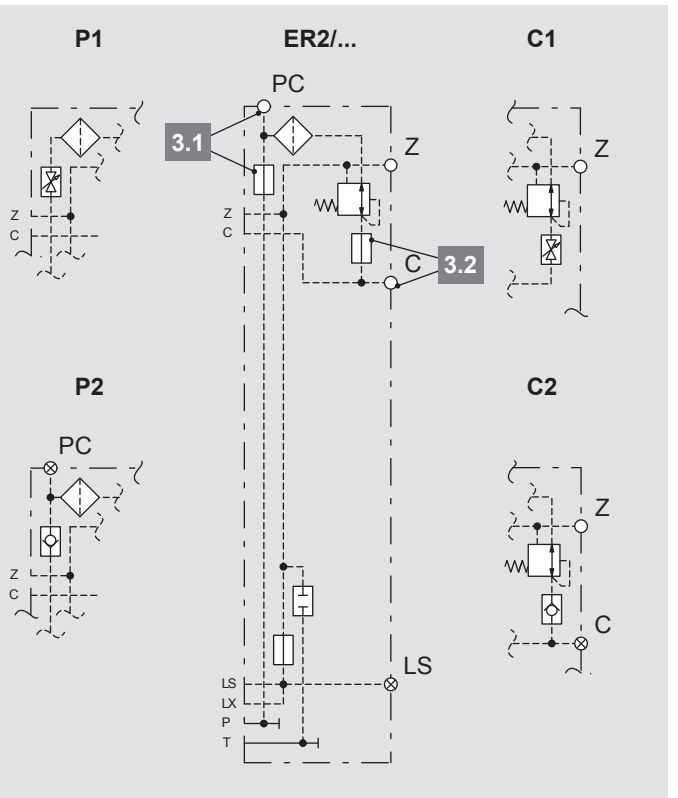
ER2/...
- Basic type ER2
- Standard configuration

ER27ZE/...
- Basic type ER27
- Internal connection Z → T with check valve
  Port Z with plug screw
- External LS signal input, Port LS open
  Internal LS-unloading with plug screw

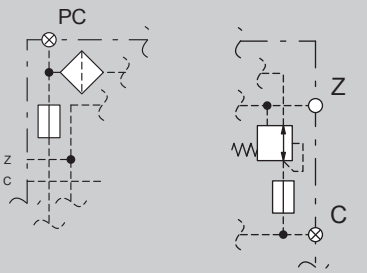
End plate ER2

Type code

ER2	...	/ 0
1	2	3



3	Options at port PC and C
0	w/o options (standard) Port PC and C with plug screw



3.1	Options at port PC (Port C with plug screw)
P1	Cut-off valve, mechanical with knurled screw
⚠	Port PC not usable. Operation of cut-off valve < 50 bar system pressure.
P2	Check valve Port PC with plug screw

3.2	Options at port C (Port PC with plug screw)
C1	Cut-off valve, mechanical with knurled screw
⚠	Port C not usable.
C2	Check valve Port C with plug screw

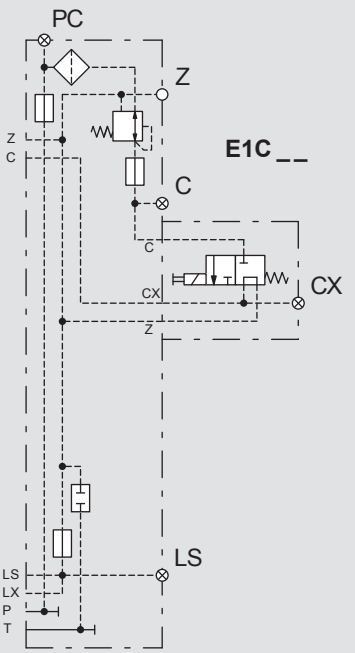
The individual options can be combined as follows:
P1C2, P2C1, P2C2

Example: ER2/P1C2

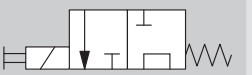
Option blocks for end plate ER2F

Type code

ER2F	...	/ 0 / E1C2D



Pilot oil option valve[1]	
E1	Basic type
C_ _	Pilot oil unloading Normally open (Manual emergency operation)



Solenoid (supply voltage, connector type)	
1_	12 V
2_	24 V
_A	AMP Junior Timer
_D	Deutsch DT04-2P

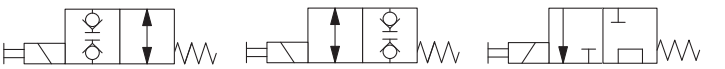
[1] See section “Solenoid valves and coils”

Solenoid valves and coils

Electrohydraulic pilot valves (on/off and proportional): see section “Operation units”

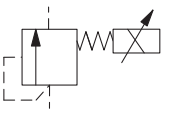
Option valves for connecting plate CL17 and option blocks:

On/Off valves:
With manual emergency operation (push-button)



Valve type		V		W		C	
Design		Poppet valve		Poppet valve		Spool valve	
Nominal voltage U_N	V DC	12	24	12	24	12	24
Nominal current I_N	A	1.50	0.80	2.20	1.10	1.50	0.80
Min. current I_{min}	A	1.05	0.56	1.54	0.77	1.05	0.56
Nominal power P_N	W	18	19	26	26.7	18	19
Response time	On: ms	40		30		85	
	Off: ms	60		40		80	
Max. permitted voltage deviation from U_N	%	±15					
Duty cycle at 115% U_N	%	100					
Ambient temperature range[2]	°C	-20 to +60					
Max. permitted coil temperature[3]	°C	180					
Insulation class as per EN 60085		H					
Integrated free-wheeling diode		Yes		Yes		Yes	
Coil length X	mm	40		50		40	
Connector type and IP protection class (with mating connector mounted)		AMP Junior Timer, 2-pin – axial / up to IP6K6[4] Deutsch DT04, 2-pin – axial / up to IPX9K[4]					
Valve body and coil surface protection		Zinc-Nickel (ZnNi)					

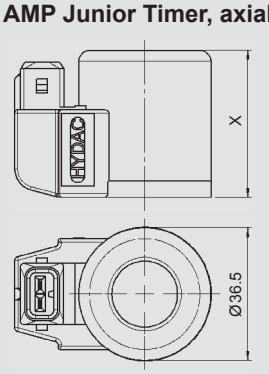
Proportional pressure relief valve: bleed screw below coil nut (torque 2.5 + 0.5 Nm)



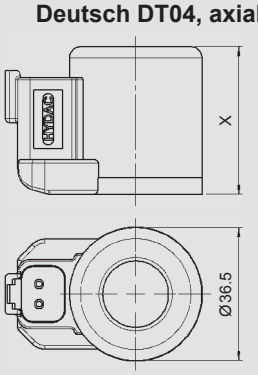
Valve type		P_ _	
Nominal voltage U_N	V DC	12	24
Coil resistance at +20 °C (±5%)	Ω	4.1	17.6
Max. control current I_{max}	mA	1,500	750
PWM frequency (recommended)[1]	Hz	150 – 200	
Duty cycle at I_{max}	%	100	
Ambient temperature range[2]	°C	-20 to +60	
Max. permitted coil temperature[3]	°C	180	
Insulation class as per EN 60085		H	
Coil length X	mm	50	
Connector type and IP protection class (with mating connector mounted)			
AMP Junior Timer, 2-pin – axial		up to IP6K6[4]	
Deutsch DT04, 2-pin – axial		up to IPX9K[4]	
Valve body and coil surface protection		Zinc-Nickel (ZnNi)	

⚠ In order to achieve optimal function, any trapped air should be vented with the bleed screw. Recommended installation position downwards (suspended for self-ventilation)

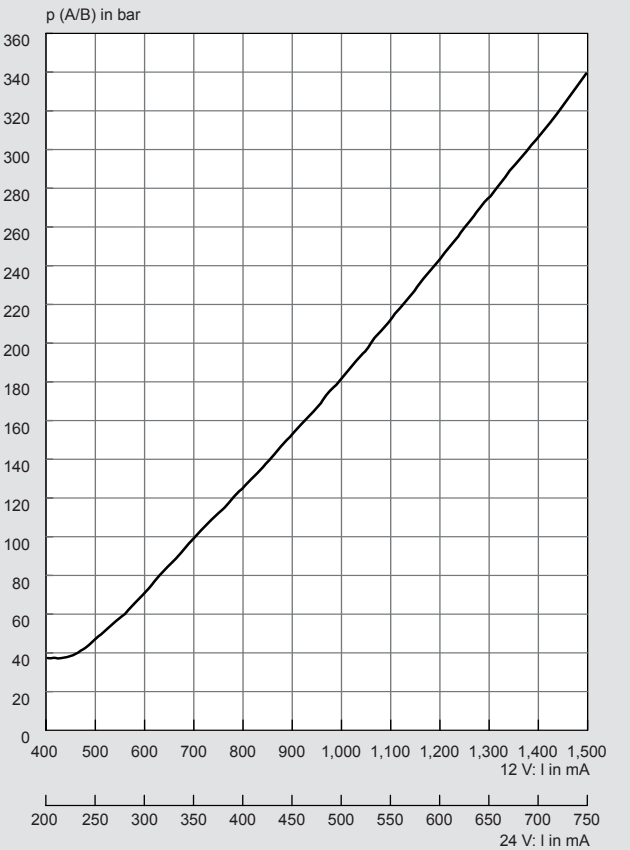
AMP Junior Timer, axial



Deutsch DT04, axial



Characteristic curve (measured at 32 mm²/s)
LS pressure limiting function p/I (rising curve)



⚠The electro-proportional pressure relief valve P_ _ is not suitable for acting as an LS unloading valve.

[1] The PWM frequency is to be optimized depending on the application
[2] Deviation of data on inquiry only
[3] Standards ISO 13732-1 and ISO 4413 must be observed in regard to the surface temperatures occurring on the coils
[4] Mating plug-in connectors are not included

Connection type, fastening and tie rods

Type code

LX-6 03 / B 0

1	2	3	4

⚠ Only use of fittings with deformable seal materials

1	**Valve type**	
2	**Specification type**	
	– –	Complete control block No. of working sections (01-08)
	0X	Single modules (inlet plate, working section, end plate, option block)
3	**Connection type**	
	B	BSPP acc. to ISO 1179-1
	S	SAE acc. to ISO 11926-1 or SAE J1626
4	**Valve series**	

Connection type				B	Countersink Ø in mm	S		Countersink Ø in mm
Inlet plate	CL17	P	Pump	G 1	50	1 5/16-12 UN	SAE 16	49
	UL17	T	Tank	G 1	50	1 5/16-12 UN	SAE 16	49
	UL17F	MP	Pump measuring port	G 1/4	25	9/16-18 UNF	SAE 6	25
		LS	Load-sensing	G 1/4	25	9/16-18 UNF	SAE 6	25
Working section	B6	A/B	Working ports	G 3/4	38	1 1/16-12 UN	SAE 12	38
	LS6	X	Hydraulic operation port (spool position a)	G 1/4	25	7/16-20 UNF	SAE 4	21
	LS6F	Y	Hydraulic operation port (spool position b)	G 1/4	25	7/16-20 UNF	SAE 4	21
		MY	Pilot pressure measuring port (spool position b)	G 1/8	15	G 1/8	-	15
End plate	ER1	PC	Pump measuring port (for options)	G 1/4	25	9/16-18 UNF	SAE 6	25
	ER2	C	Pilot oil supply	G 1/4	25	9/16-18 UNF	SAE 6	25
	ER27	Z	Tank, depressurized	G 1/4	25	9/16-18 UNF	SAE 6	25
	ER2F	LS	External Load-Sensing input	G 1/4	25	9/16-18 UNF	SAE 6	25
		P	Pump	G 1	50	1 5/16-12 UN	SAE 16	49
		T	Tank	G 1	50	1 5/16-12 UN	SAE 16	49
Option blocks	UW1…	LS	Load-sensing	G 1/4	25	9/16-18 UNF	SAE 6	25
	E1C…	CX	Pilot oil supply X	G 1/4	25	9/16-18 UNF	SAE 6	25

Fastening:

The control block must be mounted at three fixation points without tensioning.

see also section “Dimensions”

Fastening thread				B	S		
Inlet plate	CL17 UL17 UL17F	2 x	13 mm deep	M10x1.5	7/16-20 UNF	SAE 4	
End plate	ER1 ER2 ER27 ER2F	1 x	13 mm deep	M10x1.5	7/16-20 UNF	SAE 4	

Fastening screws:

- Minimum screw-in depth: 10 mm
- Recommended screw clamp length: ≥30 mm

Property class		10.9
Fastening torque	Nm	72
		±3

Tie rod:

M10 tie rod with flange nut WAF 16, M_Z = 40 ±2 Nm

⚠ Only use of genuine LX-6 tie rod kits.

Installation, usage, and maintenance information

Installation, adjustment, maintenance must be done by authorized and trained staff.
The use of this product outside the specified technical limits, use of non specified fluids and/or use of not genuine spare parts will cause the expiration of the warranty.

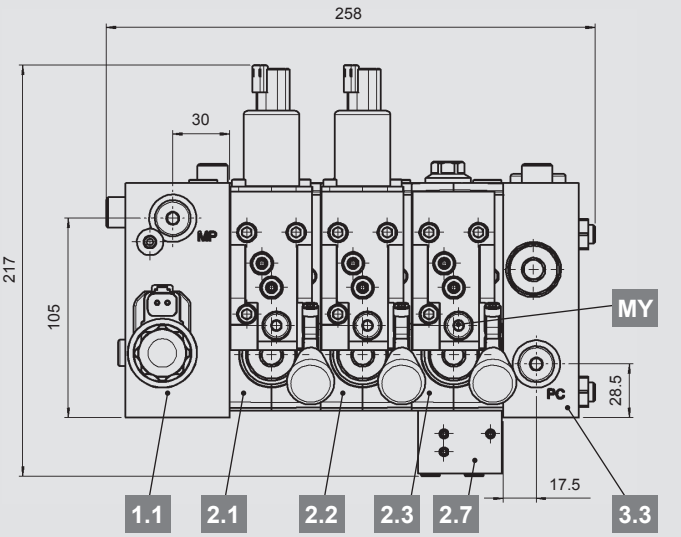
Dimensions

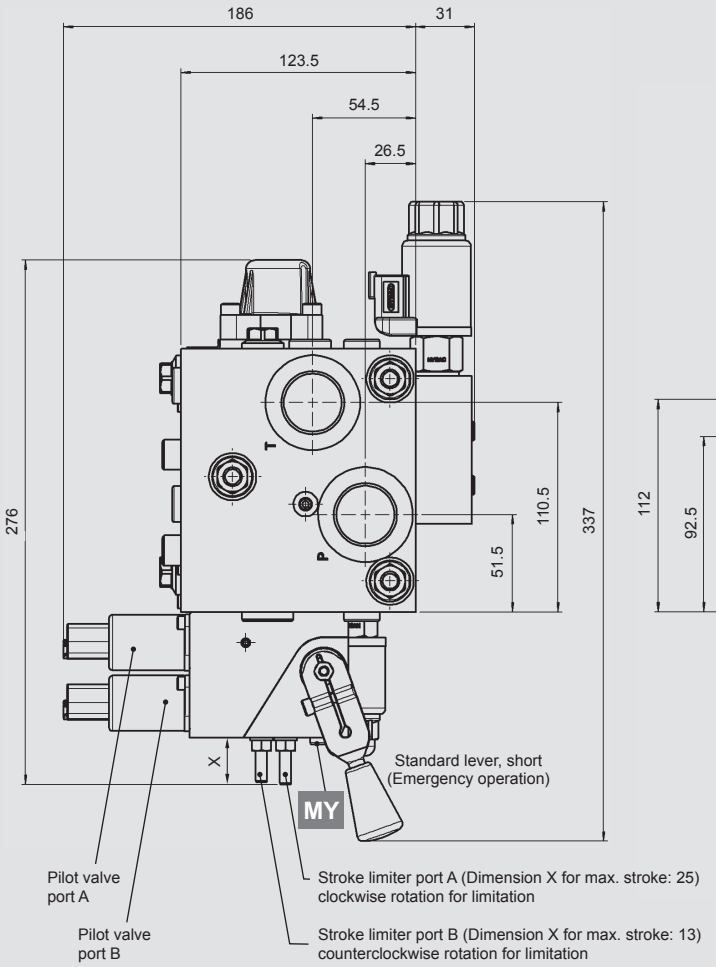
All dimensions in mm, subject to change.

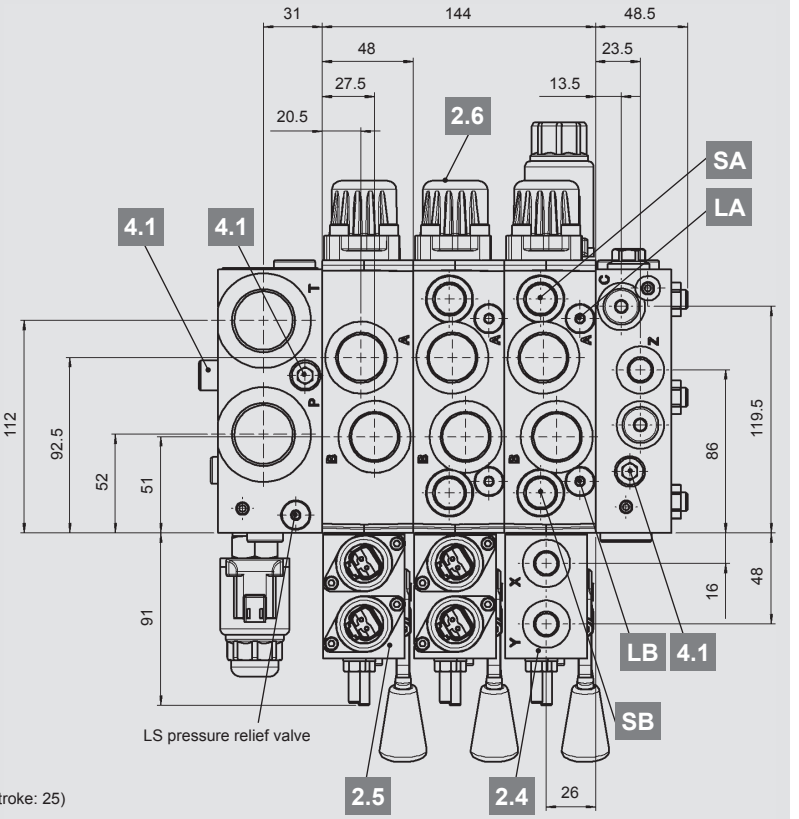
Example for control block with Closed Center inlet plate and end plate with P/T ports (see also section “Modular structure”)

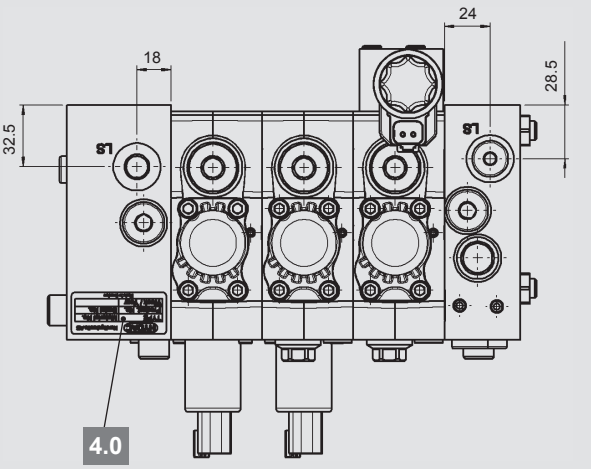
Connector types: Deutsch DT04, 2-pin, axial

1.1	Inlet plate CL17
2.1	Working section B6
2.2	Working section LS6
2.3	Working section LS6F
2.4	Hydraulic operation HY
2.5	Electrohydraulic operation E1Y, EY
2.6	Spring cap C1E
2.7	Option block LW.../LW...M...[1]
3.3	End plate ER27









LA	LS pressure limitation port A
LB	LS pressure limitation port B
SA	Secondary valves port A
SB	Secondary valves port B
4.0	Type plate
4.1	3x M10x1.5 – 12 deep for crane gear

[1] Option block LW1... not shown

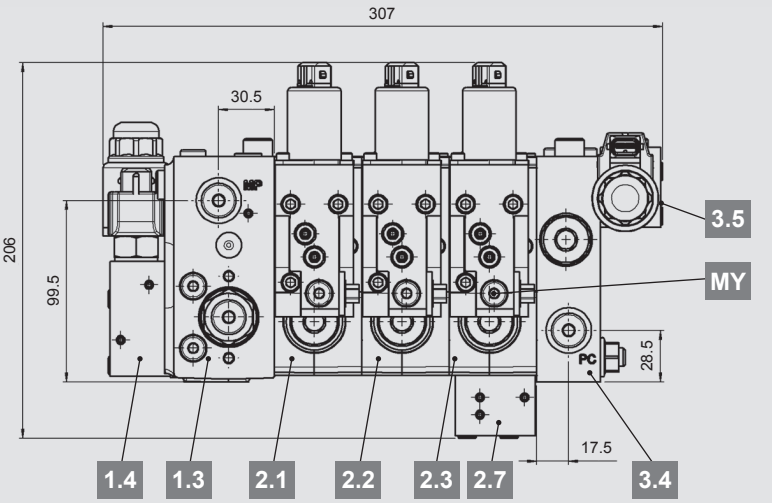
Dimensions

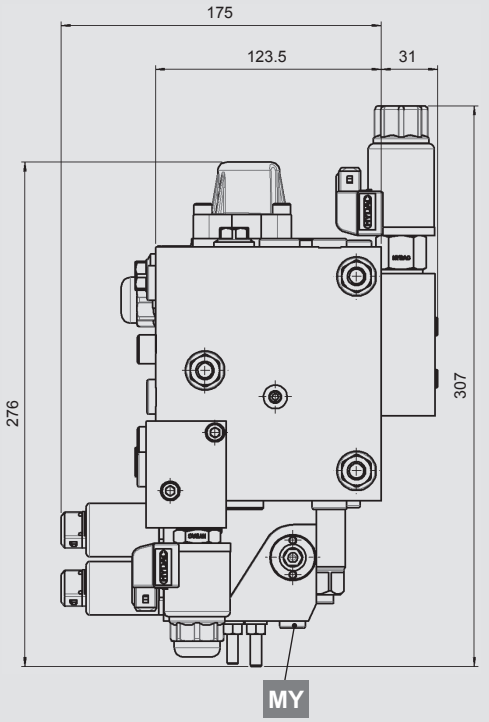
All dimensions in mm, subject to change.

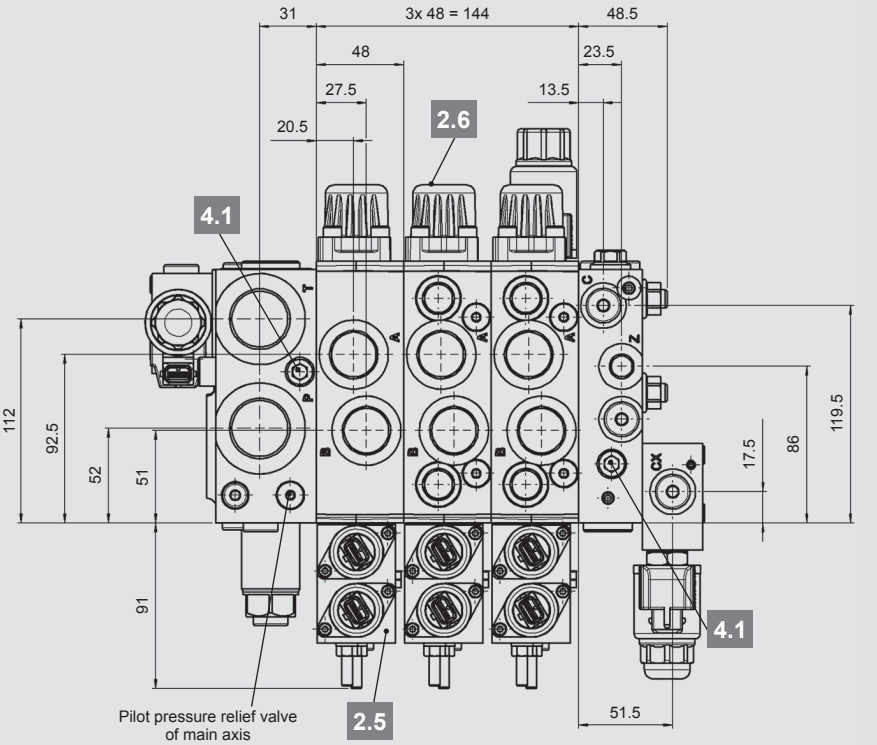
Example for control block with universal inlet plate and option blocks (see also section “Modular structure”)

Connector types: AMP Junior Timer, 2-pin, axial

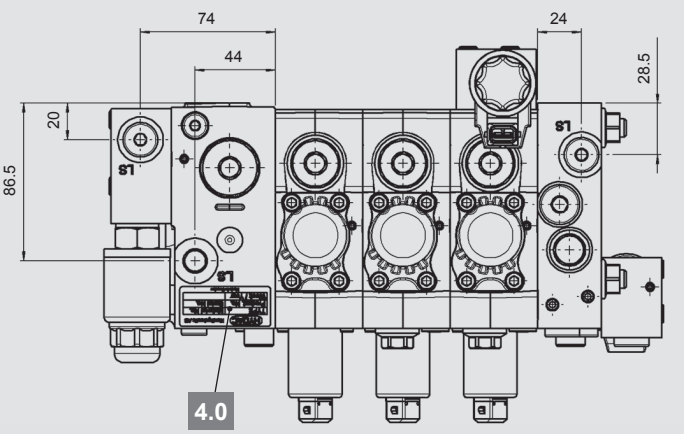
1.3	Inlet plate UL17F [1]
1.4	Option block UW1...
2.1	Working section B6
2.2	Working section LS6
2.3	Working section LS6F
2.5	Electrohydraulic operation E1Y, EY
2.6	Spring cap C1E
2.7	Option block LW.../LW...M... [2]
3.4	End plate ER2F [3]
3.5	Option block E1C...







4.0	Type plate
4.1	3x M10x1.5 – 12 deep for crane gear



[1] Inlet plates UL17F and UL17 have the same dimensions

[2] Option block LW1... not shown

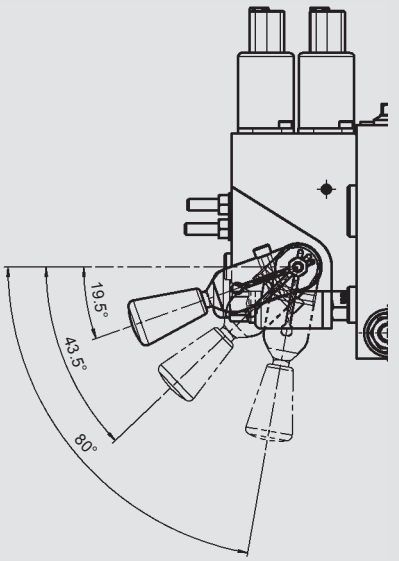
[3] End plates ER2F, ER2, and ER1 have the same dimensions

Dimensions

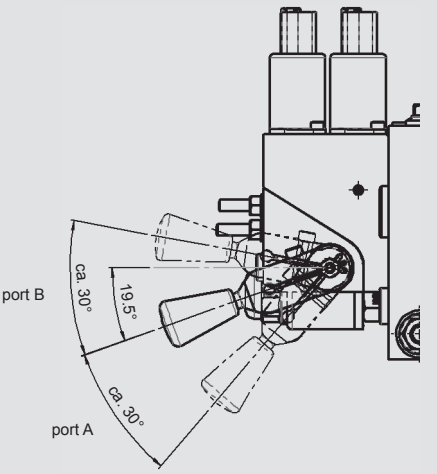
All dimensions in mm, subject to change.

Hand lever: neutral positions and max. travel (see also section “Operation units”)

Neutral positions: for all hand lever types 1 – 3:



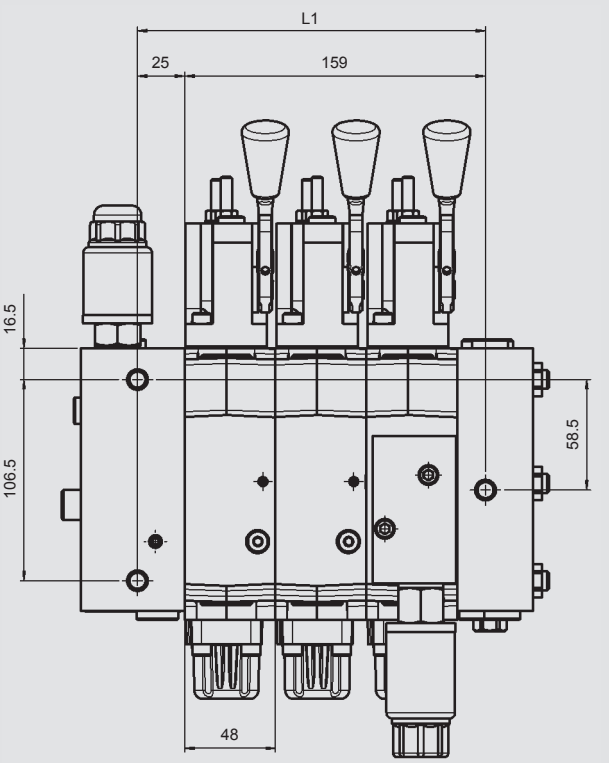
Max. travel for port A / port B



Shown: Standard lever, short (emergency operation) – Type 2

Control block fastening points (3x M10x1.5 – 13 deep)

The fastening points are equal for all types of inlet and end plates



No. of working sections	1	2	3	4	5	6	7	8
L1 mm	88	136	184	232	280	328	376	424

Type code

Structure and sequence:				
	1.		**General**	(control block always defined from left to right)
	2.		**Inlet plate**	
	3.		**Working section 1**	
			Working section 2	
			Working section n	
	4.		**End plate**	

1.	**General**								
	Valve type:		**LX-6**	**03**	**/**	**B**	**0**		
	Pos.		**1**	**2**		**3**	**4**		

	Pos./designation:			**Type code:**	**Description/function**	**Comment:**
	1	Load-sensing valve series		**LX-6**	**L**oad-sensing **X**-series Size **6**	
	2	No. of working sections	1)	**_ _**	2-digit, 01–08	Max. 8 working sections
		Specification/identification of single modules		**0X**	Inlet plate, working section, end plate or option block	
	3.	Connection thread		**B**	**B**SPP acc. to ISO 1179-1	
				S	**S**AE acc. to ISO 11926-1 or SAE J1626	
	4	Valve series		**0**	Unchanged installation and connection dimensions	

2.	**Inlet plate**										
	Type:		**CL17**	**/**	**P**	**/**	**V2D**				
			UL17	**/**	**250**	**/**	**F**				
			UL17F	**/**	**350**	**/**	**P**	**/**	**UW1V2A**		
	Pos.		**1**		**2**		**3**		**4**		

	Pos./designation:			**Type code:**	**Description/function**	**Comment:**
	1	**Basic type**				
		Standard for variable displacement pump		**CL17**	**C**C system **L**eft **1** version **7** port size P/T	Port size 7:
		Universal for fixed and variable displacement pump		**UL17**	**U**niversal **L**eft **1** version **7** port size P/T	BSPP: G1; SAE: 1 5/16-12 UN
		Universal like UL17 with option block		**UL17F**	**F**lange interface for option block	
	2	**Pressure relief valve**				
				_ _ _	Pressure setting in bar, 3-digit (mechanically adjustable)	Max. 350 bar
				P	**P**lug screw	w/o pressure relief valve
	3	**LS option valves**				
⚠		For basic type **CL17** only		**P**	**P**lug screw	w/o LS option valve
				V _ _	LS unloading Valve type: **V**	Normally open
				W _ _	LS unloading Valve type: **W**	Normally closed
				P0A _ _	Electro-prop. pressure adjustment Valve type: **P** Orifice setup: 1.**0** mm Pressure stage **A**: 350 bar	Rising curve
		Supply voltage DC		**1 _**	**1**2 V	
				2 _	**2**4 V	
		Connector type		**_ A**	**A**MP – Junior Timer, 2-pin, axial	
				_ D	**D**eutsch – DT04, 2-pin, axial	
		Logic of main axis				
⚠		For basic types **UL17** and **UL17F** only		**F**	**F**low controller (3-way)	For fixed displacement pump
				P	**P**ump pressure relief valve (pilot-operated)	For variable displacement pump
	4.	**Option blocks**				
⚠		For basic type **UL17F** only		**UD1**	**D**ummy plate **1** version	
		For logic of main axis **F** or **P**		**UW1V _ _**	LS unloading L**1** channel Valve type **V**	Normally open
		For channel:		**UW1W _ _**	LS unloading L**1** channel Valve type **W**	Normally closed
		L1 Load signal 1		**UW1P0A _ _**	Electro-proport. press. adjust. L**1** channel Valve type **P** Orifice setup: 1.**0** mm Pressure stage **A**: 350 bar	Rising curve
				UW1M _ _ _V _ _	Second pressure stage (On/Off) L**1** channel Valve type **V** **M**echanically adjust. in bar, 3-digit	Second pressure level when de-energized
				UW1M _ _ _W _ _	Second pressure stage (On/Off) L**1** channel Valve type **W** **M**echanically adjust. in bar, 3-digit	Second pressure level when energized
		Supply voltage DC		**1 _**	**1**2 V	
				2 _	**2**4 V	
		Connector type		**_ A**	**A**MP – Junior Timer, 2-pin, axial	
				_ D	**D**eutsch – DT04, 2-pin, axial	

[1] Deviation of data on inquiry only

Type code

3.	Working sections																		
	Type	Working section 1	B6	/	CR	160 – 160	RN					/	EYHS2A	-	1	/	C1E		
		Working section 2	LS6	/	CS	150 – 035	RN	/	300 – 200	/	P – P	/	EYHS2A			/	C1E		
		Working section 3	LS6F	/	CR	060 – 060	RY	/	300 – 300	/	350 – 350	/	HYHS	-	1	/	C1H	/	LWRV2A
		Working section 4		/		–		/	–	/	...								
	Pos.		1		2	3	4		5		6		7		8		9		10

		Pos./designation:		Type code:	Description/function	Comment:
	1.	**Basic type**				
		Basic section w/o option valves		**B6**	**B**asic section **6** port size A/B	Port size 6:
		Section like B6 with option valves		**LS6**	Like B6 with **LS** pressure limitation and **S**hock/anti-cavitation valves	BSPP: G3/4, SAE: 1 1/16-12 UN
		Section like LS6 with option block		**LS6F**	Like LS6 with **F**lange interface for option block	
	2	**Main spool**				
				CS	**C**ylinder spool **S**tandard **Pos. 0:** A, B closed	
				CR	**C**ylinder spool **R**eleased **Pos. 0:** A, B unloaded to T	
				MS	**M**otor spool **S**tandard **Pos. 0:** A, B open to T	
				...	For other types, see section “Main spool and pressure compensator”	
	3	**Max. flow rate to actuator**		**A** **B**		See section “Main spool valve and pressure compensator”
			1)	___ - ___	Maximum flow to port A / B in l/min, 3-digit	
	4	**Pressure compensator axis (spool + spring)**				
		Pressure compensator – released with load holding function (standard)		**RY**	**R**eleased pressure compensator **Y** spring identifier yellow	9.5 – 11.5 bar
				RB	**B** spring identifier blue	8.0 – 10.0 bar
				RN	**N** spring identifier unmarked	7.0 – 9.0 bar (nominal)
				RG	**G** spring identifier green	5.5 – 7.5 bar
		Load holding function		**L**	**L**oad holding function only w/o pressure compensation	Use of compensator spring type G
	5.	**LS pressure limitation**		**A** **B**		
⚠		For basic types **LS6** and **LS6F** only		___ - ___	Pressure setting for port A / B in bar, 3-digit (mechanically adjustable)	Min. 050 bar, max. 320 bar
				P	**P**lug screw	w/o LS pressure limitation
				U	**U**nloading - permanent	3/3 directional valve function
	6	**Workport valves**		**A** **B**		
⚠		For basic types **LS6** and **LS6F** only		___ - ___	Shock/anti-cavitation valve for port A / B in bar, 3-digit	See section “Workport valves”
				A	**A**nti-cavitation valve	
				P	**P**lug screw	w/o workport valves
	7	**Operation units**				
				HY	**H** hydraulic **MY** port	Pilot pressure MY – spool position (b)
				E1Y	**E1** electrohydraulic on/off, orifice setup 1 **MY** port	orifice 1.0 mm
				EY	**E** electrohydraulic proportional **MY** port	
		Other options:		*n/a*	w/o hand lever axis - w/o stroke limiter	
				_ H	**H**and lever axis	
				_ S	**S**troke limiter	
				_ HS	**H**and lever axis and **S**troke limiter	
⚠		For operation unit **E...** only				
		Supply voltage DC		**1 _**	**1**2 V	
				2 _	**2**4 V	
		Connector type		**_ A**	**A**MP – Junior Timer, 2-pin, axial	
				_ D	**D**eutsch – DT04, 2-pin, axial	
	8.	**Hand lever type**				Hand lever does not come assembled
⚠		For operation option **_H** only		*n/a*	No hand lever	
		Standard lever		**1**	Standard	See section “Operation units”
		Standard lever, short		**2**	Standard for emergency operation	
		Universal clamp without hand lever		**3**	For application-specific solutions	
		Universal clamp with standard lever		**31**	Lever orientation: left	
				32	Lever orientation: top	
				33	Lever orientation: right	
	9.	**Spring caps**				
		Standard for operation unit **H...**		**C1H**	**C** standard cap **1** version **H** hydraulic	Pilot pressure range: 6.5 – 20 bar
		Standard for operation unit **E...**		**C1E**	**C** standard cap **1** version **E** electrohydraulic	Pilot pressure range: 4.5 – 20 bar

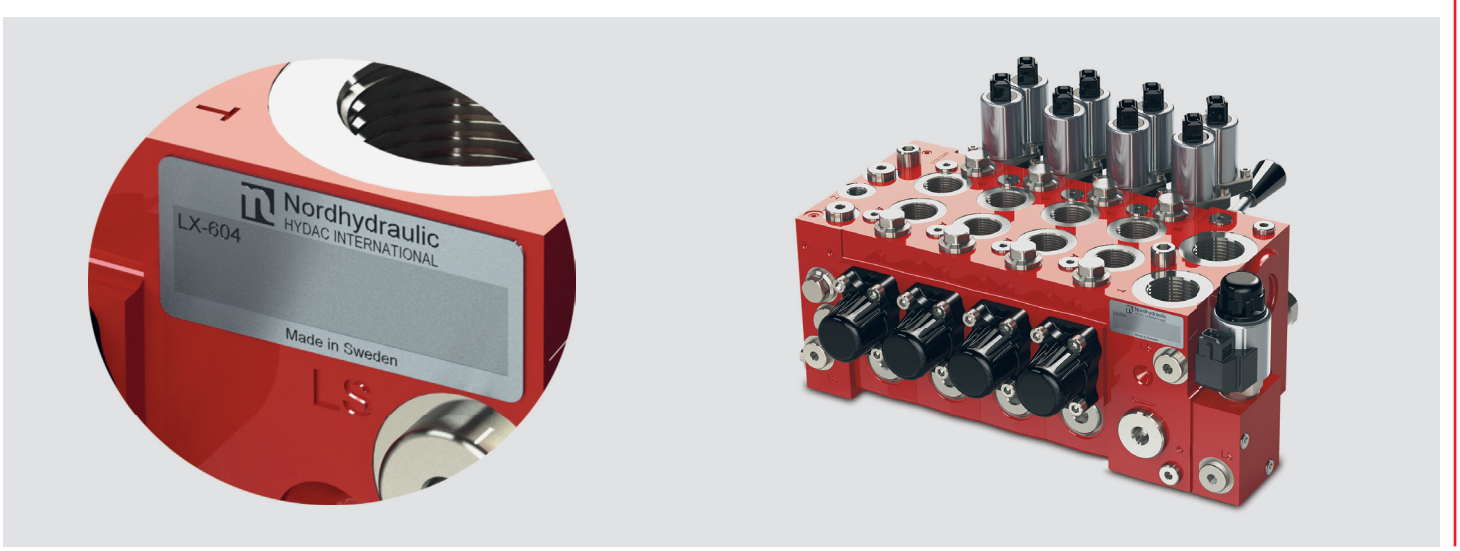
[1] Deviation of data on inquiry only

Type code

	10	**Option blocks**				
⚠		For basic type LS6F only For channel: LA Load signal port A LB Load signal port B LR Load signal port A and B or LS Load Sensing (LS circuit)		**LD1**	**D**ummy plate **1** version	
				LW _ V _ _	LS unloading LWA, LW**B**, LW**R** or LW**S** channel Valve type **V**	Normally open
				LW _ W _ _	LS unloading LWA, LW**B**, LW**R** or LW**S** channel Valve type **W**	Normally closed
				LW _ P0A _ _	Electro-prop. pres. adj. LWA, LW**B**, LW**R** or LW**S** channel Orifice setup: 1.**0** mm Pressure stage **A**: 350 bar Valve type **P**	Rising curve
				LW _ M _ _ _ V _ _	Second pressure stage LWA, LW**B**, LW**R** or LW**S** channel (On/Off) **M**ech. adjustable in bar, 3-digit Valve type **V**	Second pressure level when de-energized
				LW _ M _ _ _ W _ _	Second pressure stage LWA, LW**B**, LW**R** or LW**S** channel (On/Off) **M**ech. adjustable in bar, 3-digit Valve type **W**	Second pressure level when energized
		For channel: LA and LB		**LW1 V - V _ _**	**LW1** basic type Load signal port **A** - Load signal port **B** Valve type **V** – normally open Valve type **W** – normally closed	Valve type **V** and **W** selected as desired
		Supply voltage DC		**1 _**	**1**2 V	
				2 _	**2**4 V	
		Connector type		**_ A**	**A**MP – Junior Timer, 2-pin, axial	
				_ D	**D**eutsch – DT04, 2-pin, axial	

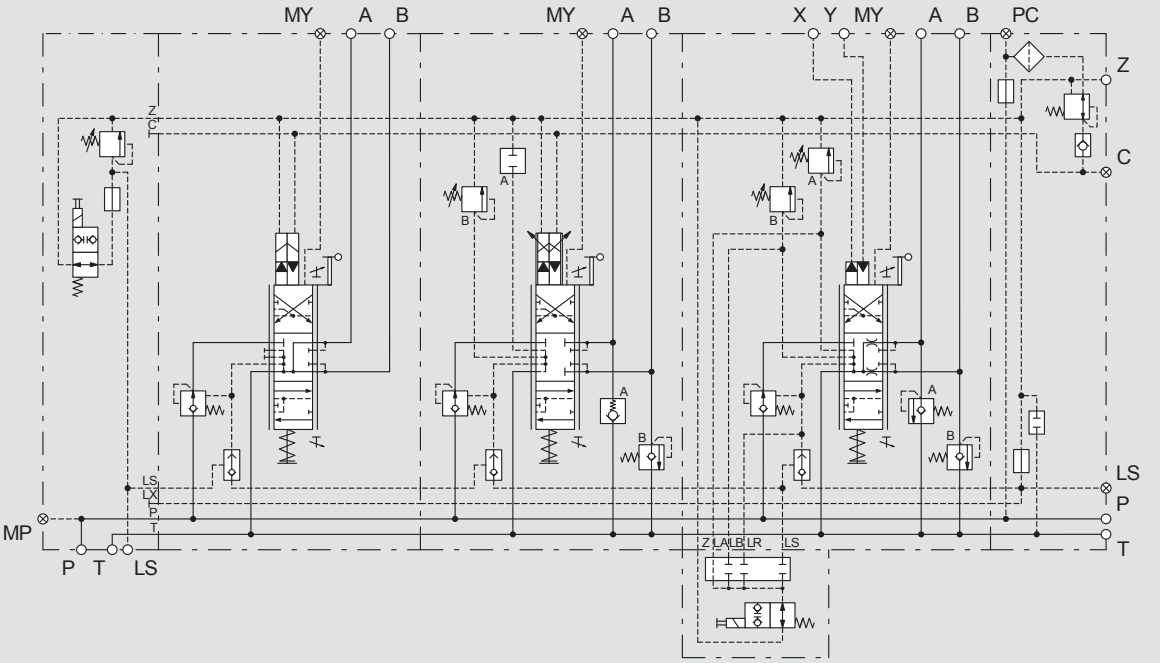
4.	**End plate**										
	Type:		**ER2**		/	**0**					
			ER2F	**ZE**	/	**0**	/	**E1C2A**	/	*	
	Pos.		**1**	**2**		**3**		**4**		**5**	

	Pos./designation:		**Type code:**			**Description/function**	**Comment**
	1	**Basic type**					
		Standard with/without external pilot oil supply		**ER1**	End plate **R**ight	**1** external pilot oil supply	
		Standard with internal pilot oil supply		**ER2**		**2** internal pilot oil supply from channel P	
		End plate like ER2 with ports P/T		**ER27**		**7** port size P/T	Port size 7: BSPP: G1; SAE: 1 5/16 - 12 UN
		End plate like ER2 with option block		**ER2F**		**F** flange interface for option block	
	2	**Configuration**					
		For all basic types For ports: Z, LS		*n/a*	Standard	External depressurized drain line to Tank No external LS signal input	Port Z open Port LS closed
				Z	Internal connection **Z** → T with check valve		Port Z closed
				E	**E**xternal LS signal input / internal LS-unloading with plug screw		Port LS open
		For basic type **ER1** only		**C**	w/o external pilot oil supply for manual and hydraulic operations only		Port C closed
	3	**Options**					
⚠		For basic type **ER2...** only For ports: PC and C		**0**	Standard w/o options		Ports PC and C closed
				P1	Port PC:	Cut-off valve, mechanical with knurled screw	Port PC not usable
				P2	Port PC:	Check valve	Port PC closed ex works
				C1	Port C:	Cut-off valve, mechanical with knurled screw	Port C not usable
				C2	Port C:	Check valve	Port C closed ex works
	4	**Option blocks**					
⚠		For basic type **ER2F** only		**E1C _ _**	**E1** Basic type	Pilot oil unloading Valve type **C**	Normally open
		Supply voltage DC		**1 _**	**1**2 V		
				2 _	**2**4 V		
		Connector type		**_ A**	**A**MP – Junior Timer, 2-pin, axial		
				_ D	**D**eutsch – DT04, 2-pin, axial		
	5	**Reference to clear text**		*	Special, customer-specific information / data in attached clear text		



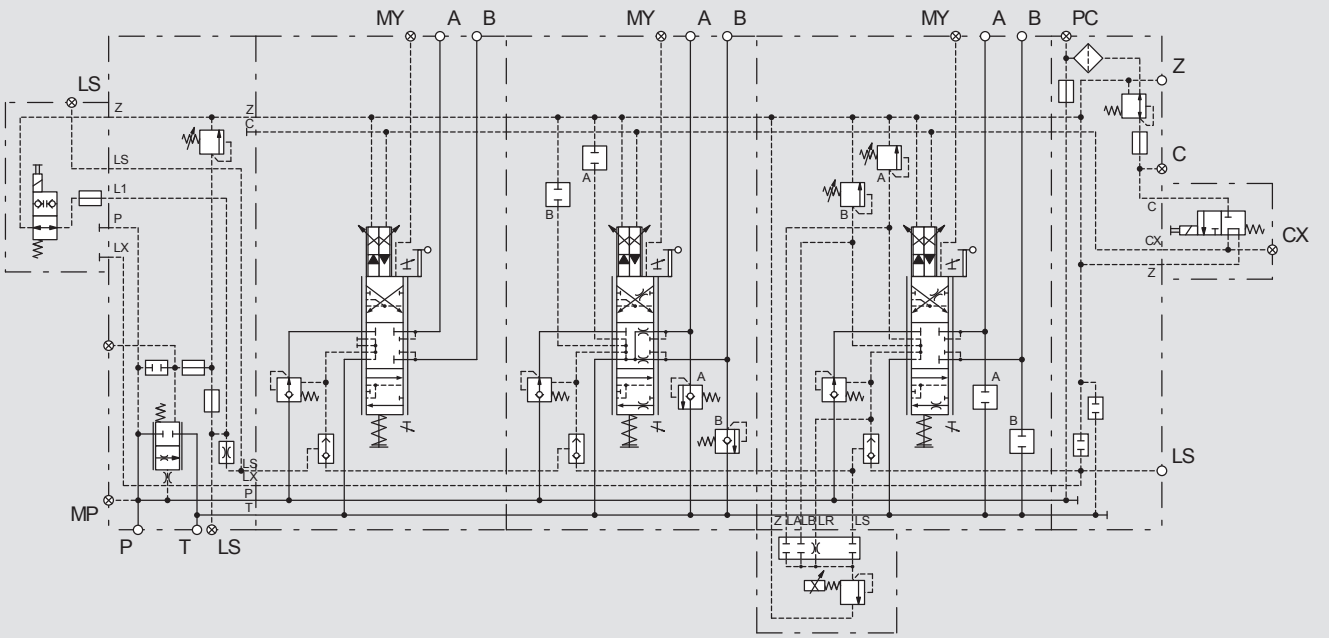
Ordering examples

Example for control block with Closed Center inlet plate and end plate with P/T ports
(see also section “Dimensions”)



General	LX-603/B0
Inlet plate	CL17/300/V1D
Working section 1	B6/MS100-100RG/E1YHS1D-2/C1E
Working section 2	LS6/CS160-160RN/P - 200/A - 250/EYHS1D-2/C1E
Working section 3	LS6F/CR135-040RB/250 - 250/280 - 280/HYHS-2/C1H/LWAV1D
End plate	ER27/C2

Example for control block with universal inlet plate and option blocks (see also section “Dimensions”)



General	LX-603/B0
Inlet plate	UL17F/300/F/UW1V2A
Working section 1	B6/CS070-070RG/EYHS2A/C1E
Working section 2	LS6/CC160-055RN/P - P/350 - 350/EYHS2A/C1E
Working section 3	LS6F/CT150-150RY/250 - 250/P - P/EYHS2A/C1E/LWRP0A2A
End plate	ER2FE/0/E1C2A

Note

The information in this brochure relates to the operating conditions and applications described.

For applications and operating conditions not described. please contact the relevant technical department.

Subject to technical and other changes.

Nordhydraulic
HYDAC INTERNATIONAL

Head Office
HYDAC INTERNATIONAL
GMBH

Industriegebiet
66380 Sulzbach/Saar
Germany

Tel.: +49 6897 509-01
Fax: +49 6897 509-300

E-mail: mobilevalves@hydac.com
Internet: www.hydac.com