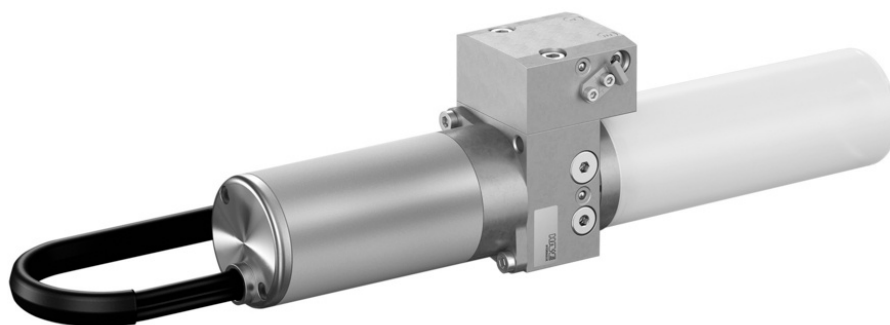


Mini hydraulic power pack type HR 050

Product documentation



Operating pressure p_{\max} :	200 bar
Usable volume (tank):	0.11 l



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1**Overview of the mini hydraulic power pack type HR 050**

Compact hydraulic power packs are a type of hydraulic power pack. They are characterised by a highly compact design, since the motor shaft of the electric motor also acts as the pump shaft. Compact hydraulic power packs are used to supply hydraulic oil in hydraulic systems.

The mini hydraulic power pack HR 050 is particularly compact by pressurising the radial piston pump internally. The reversing function is activated by reversing the motor's direction of rotation. No directional valve is required. The motor is protected from overloads by a built-in temperature switch.

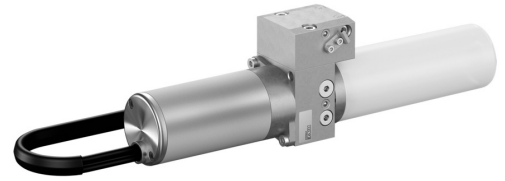
- Radial piston pump integrated directly into pump frame
- round, transparent tank with M8x1 filling screw

Features and advantages

- Suitable for intermittent operation
- 12 V and 24 V DC
- Suitable for various different installation positions
- Protection class IP 67

Applications

- Automotive technology
- Speedboats, jet skis
- Agricultural equipment, construction machines, commercial vehicle equipment
- Industry
- not suitable for ATEX applications, not suitable for exposure to direct sunlight



Mini hydraulic power pack type HR 050

2 Available versions

Ordering example

HR 050 -R 1 02 -D 3 0 N W 7 W - ... / ... -C050 1/8

2.5 "Connection block"

**Pressure setting B-side
(can only be set at factory)**

20 to 200 bar pump side
(minimum value specified in 10 bar
increments; tolerance +10 bar)

**Pressure setting A-side
(can only be set at factory)**

20 to 200 bar consumer side (minimum
value specified in 10 bar increments;
tolerance +10 bar)

coating W without

ingress protection class 7 IP 67

tank W no tank mounted
K tank made of plastic

2.3 "Installation position"

2.2 "Tank size"

motor power supply 3 12 V DC
4 24 V DC

motor type D brush-type DC motor

2.4 "Pump"

design 1 BASIC: Connection thread G 1/8"
2 COMFORT: Flange design, protection from overpressure in the event of temperature increase

flow direction R Reversible, with doubly releasable check valve
U Unidirectional, check valve

2.1 "Basic type and size"

2.1 Basic type and size

Type	Motor version	Pressure p_{\max} (bar)
HR 050	Brushed DC motor	200

2.2 Tank size

Coding	Fill volume (l)	Optimal fill quantity (l)	Maximum removable quantity (usable volume) (l)
0 (no tank mounted)			
N (horizontal installation position)			
1	0.1	0.046	0.034
2	0.2	0.082	0.063
3	0.3	0.128	0.098
V (vertical installation position)			
1	0.1	0.042	0.037
2	0.2	0.075	0.070
3	0.3	0.116	0.111

2.3 Installation position

Coding	Description
N	horizontal, (R1: Ports on top) (R2: Connection block on top)
V	vertical, tank on top

2.4 Pump

Coding	Flow rate when idling Q_{\max} (l/min)		maximum output P_{\max} (W)
	12 V	24 V	
02	0.52	0.54	372
03	0.70	0.73	460
04	0.90	0.96	540

2.5 Connection block

Type	Description																																																							
without coding	without connection block																																																							
C050 1/8	G 1/8" port for A and B, with manual override, for reversible variant																																																							
C050 A	G 1/8" port, with seated valve and throttle, additional measurement fitting G 1/4", for unidirectional variant <table border="1" data-bbox="343 526 1276 1041" style="margin-left: 20px;"> <thead> <tr> <th>C050 A</th> <th>R</th> <th>D</th> <th>-MA/G 8 MA</th> <th>-FEP 12</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: right;">Control voltage for solenoid valve</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>FEP12 12 Volt (FEP 1J0 973 702)</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>FEP24 24 Volt (FEP 1J0 973 702)</td> </tr> <tr> <td colspan="5" style="text-align: right;">measurement fitting</td> </tr> <tr> <td></td> <td></td> <td></td> <td>MA/G 8 MA</td> <td>Measuring coupling G 8 MA</td> </tr> <tr> <td></td> <td></td> <td></td> <td>MA/DT 2-2</td> <td>Pressure sensor DT 2-2</td> </tr> <tr> <td></td> <td></td> <td></td> <td>MA/DT 2 V-2</td> <td>Pressure sensor DT 2 V-2</td> </tr> <tr> <td colspan="5">Throttle Throttle type Q 20 in A-port before seated valve after D 7730</td> </tr> <tr> <td colspan="5">Seated valve in the reflux of A (normally closed)</td> </tr> <tr> <td colspan="5">Type</td> </tr> </tbody> </table>	C050 A	R	D	-MA/G 8 MA	-FEP 12	Control voltage for solenoid valve									FEP12 12 Volt (FEP 1J0 973 702)					FEP24 24 Volt (FEP 1J0 973 702)	measurement fitting								MA/G 8 MA	Measuring coupling G 8 MA				MA/DT 2-2	Pressure sensor DT 2-2				MA/DT 2 V-2	Pressure sensor DT 2 V-2	Throttle Throttle type Q 20 in A-port before seated valve after D 7730					Seated valve in the reflux of A (normally closed)					Type				
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Type																																																								

i INFORMATION

If no measurement fitting is selected, a tapped plug is mounted.

3 Parameters

3.1 General data

Weight	1.5 kg without hydraulic fluid (depends on version)
Installation position	<ul style="list-style-type: none"> ▪ horizontal (R1: ports top) (R2: Connection block on top) ▪ vertical (tank on top)
Attachment	two fastening holes M6 (G 1/8") with 10 mm thread depth and 36 mm spacing
Hydraulic connection	U1, R1: 2 x G 1/8" internal thread for banjo bolts U2, R2: see Chapter 4.2, "COMFORT flange design"
Ambient temperature	-25 to +80°C
Running noise	64 dB (A)

3.2 Hydraulic data

Hydraulic fluid: mineral oil according to DIN 51524, other media on request

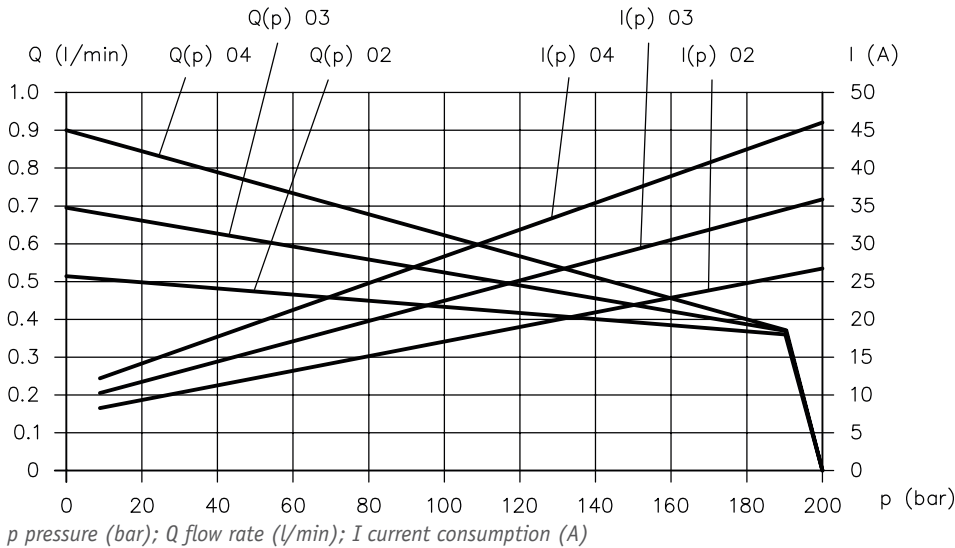
Operating pressure	200 bar
Pump design	Radial piston pump with variable displacement
Reversible	Flow selectable through A or B; for oil return, hydraulic power pack must be running so that check valve allows passage.
Temperature Hydraulic fluid	<ul style="list-style-type: none"> ▪ -40 to +70°C depending on hydraulic fluid ▪ Operating temperature depends on oil (note viscosity)
Tank pressure	-0.5 to 2 bar
Bursting pressure	500 bar
Viscosity	10 - 500 mm ² /s
Cleanliness level	ISO 4406 <u>21/18/15</u>
Holding function	The unlockable check valves allow for a holding function that maintains the built-up pressure in the system. To unlock the check valves, the hydraulic power pack must produce around 1/5 of the pressure contained in the system when running in reverse.

3.3 Characteristic lines

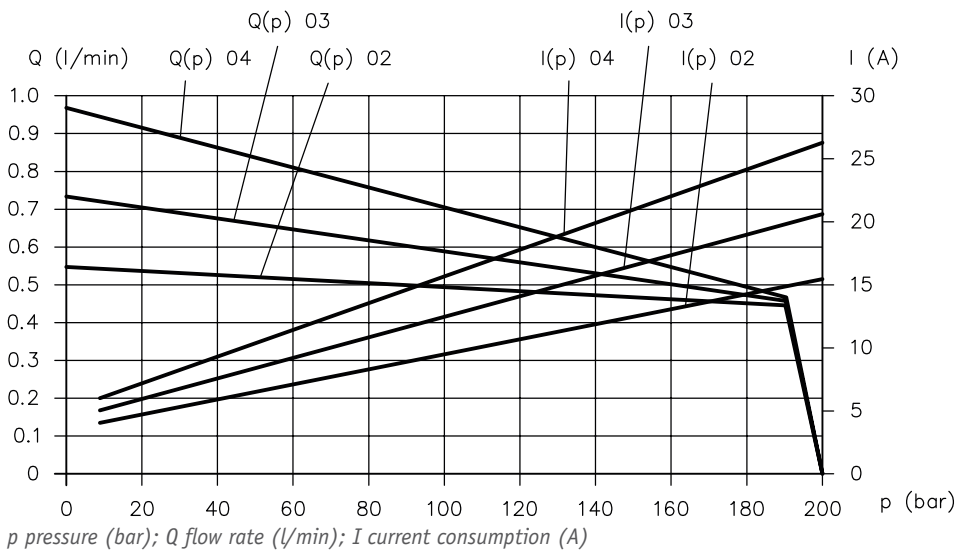
Viscosity of the hydraulic fluid approx. 46 mm²/s

At room temperature, tolerance ± 10%

12 V DC



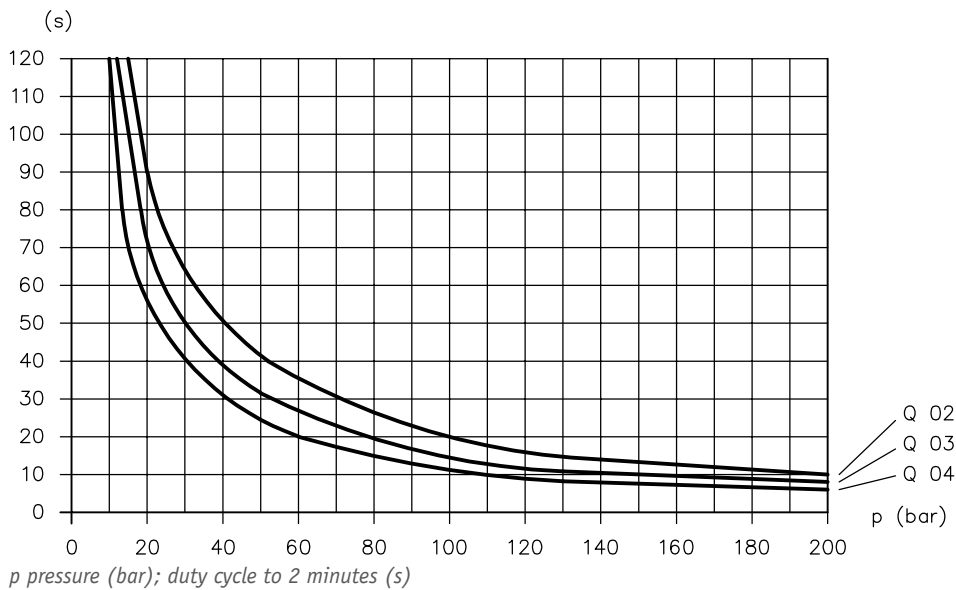
24 V DC



Duty cycle

In operating mode: Periodic intermittent operation (S3)

Duty cycle can be extended by reducing pressure (bar).



3.4 Electrical data

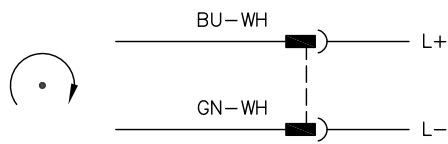
Motor 12 V DC or 24 V DC

Voltage	12 V or 24 V DC
Current consumption	<p>see Chapter 3.3, "Characteristic lines"</p> <ul style="list-style-type: none"> ▪ 12 V DC - max. 45 A ▪ 24 V DC - max. 26 A <p>Startup current max.</p> <ul style="list-style-type: none"> ▪ 12 V DC - max. 80 A ▪ 24 V DC - max. 40 A
Overload protection	Temperature switch, see "Connection example"
Power	see Chapter 2.4, "Pump"
Duty cycle	Periodic intermittent operation: S3-10% 2 min
Electrical connection	Free cable end (ferrules) with 0.7 m cable
Protection class	IP 67 according to DIN EN 60529

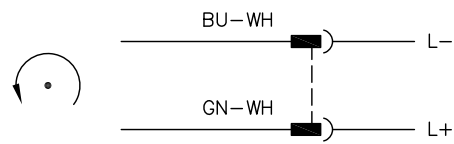
Terminal assignment 12 V DC/24 V DC

R1 / R2 (reversible)

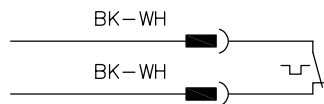
Flow at A and reflux at B



Flow at B and reflux at A



Temperature switch

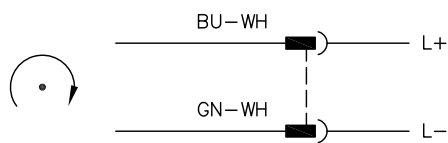


Temperature switch



U1 / U2 (unidirectional)

Flow at A and reflux at T

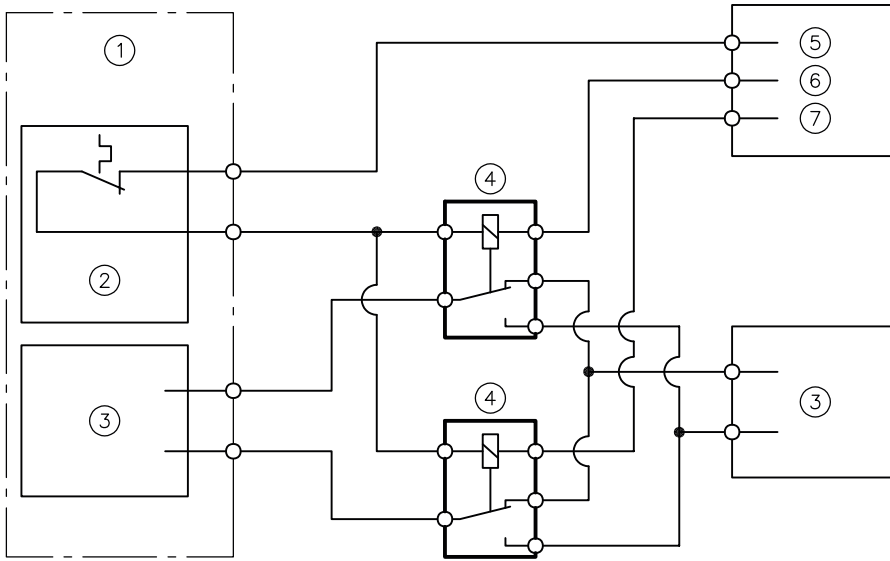


Temperature switch



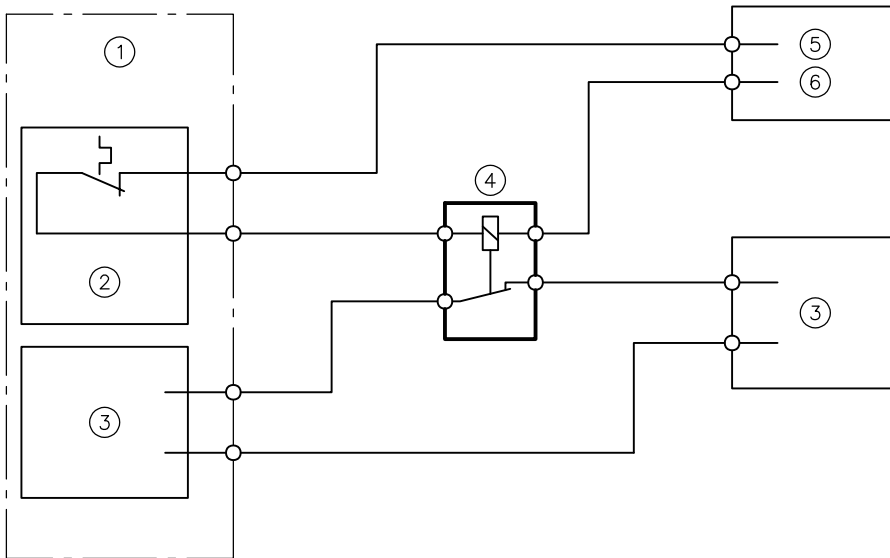
Connection example

Example shows connection of electric motor in reverse mode including integration of temperature switch



- 1 Motor
- 2 Temperature switch
- 3 Power cable
- 4 Relay
- 5 Signal earth line
- 6 Signal 1 line
- 7 Signal 2 line

Connection example U1 / U2 (unidirectional)



- 1 Motor
- 2 Temperature switch
- 3 Power cable
- 4 Relay
- 5 Signal earth line
- 6 Signal line

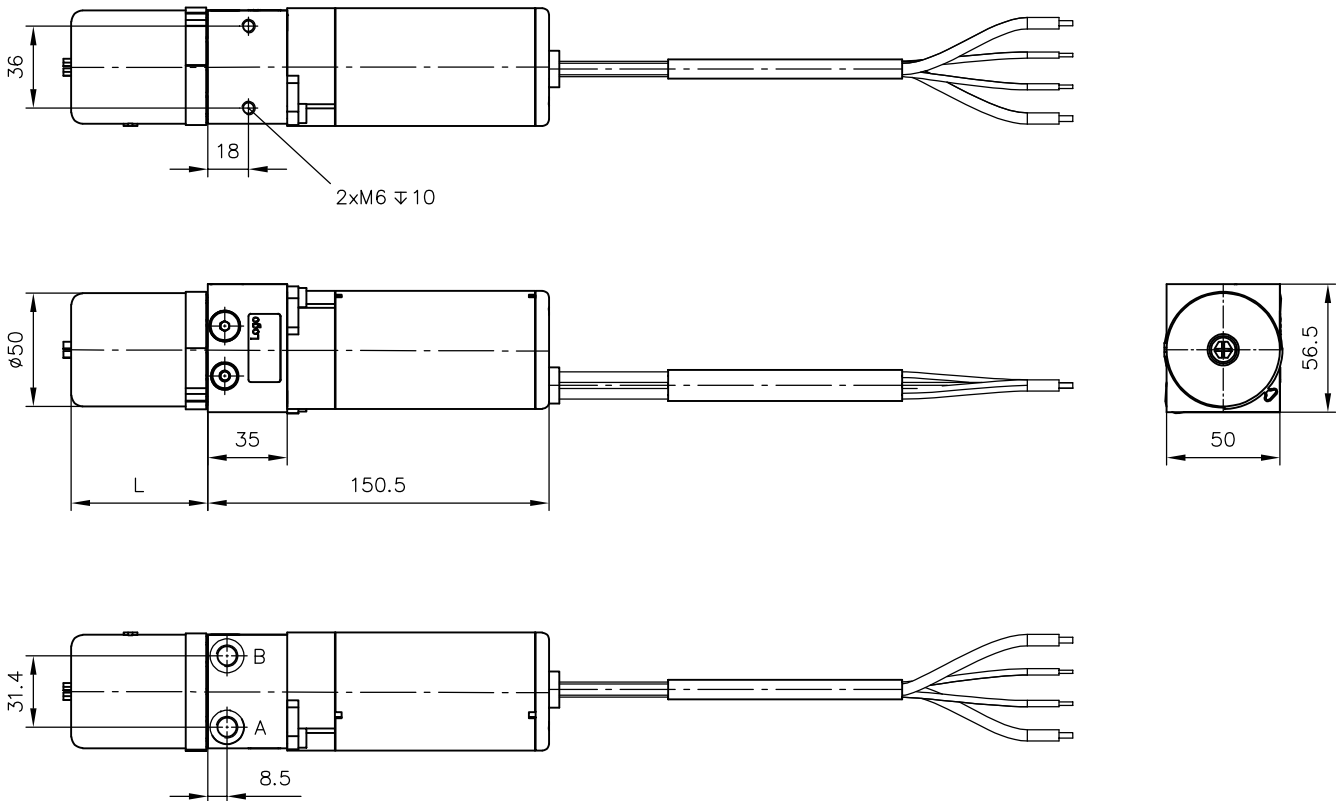
4 Dimensions

All dimensions in mm, subject to change.

4.1 BASIC

R1 (reversible)

HR050-R1..

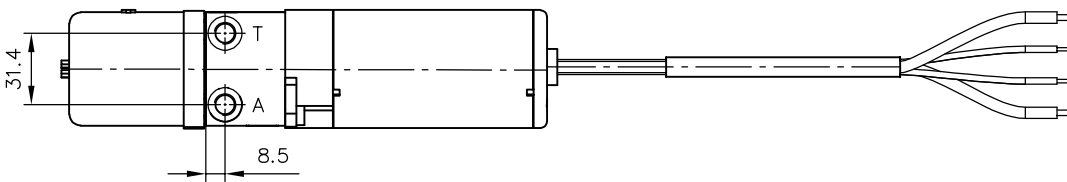
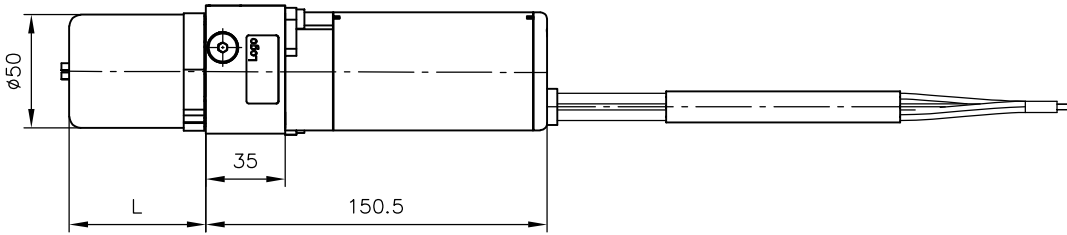
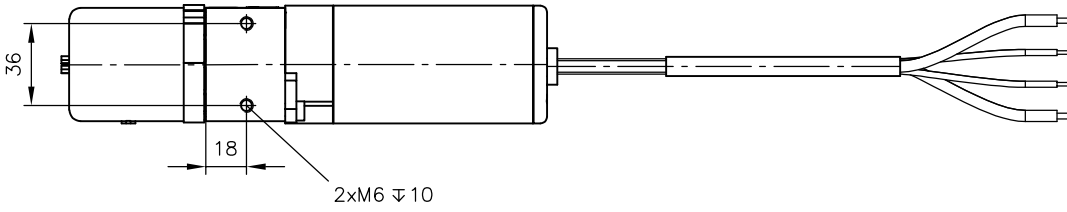


Coding Tank	L
1	60
2	100
3	150

Ports (ISO 228-1)
A, B
G 1/8

U1 (unidirectional)

HR050-U1..



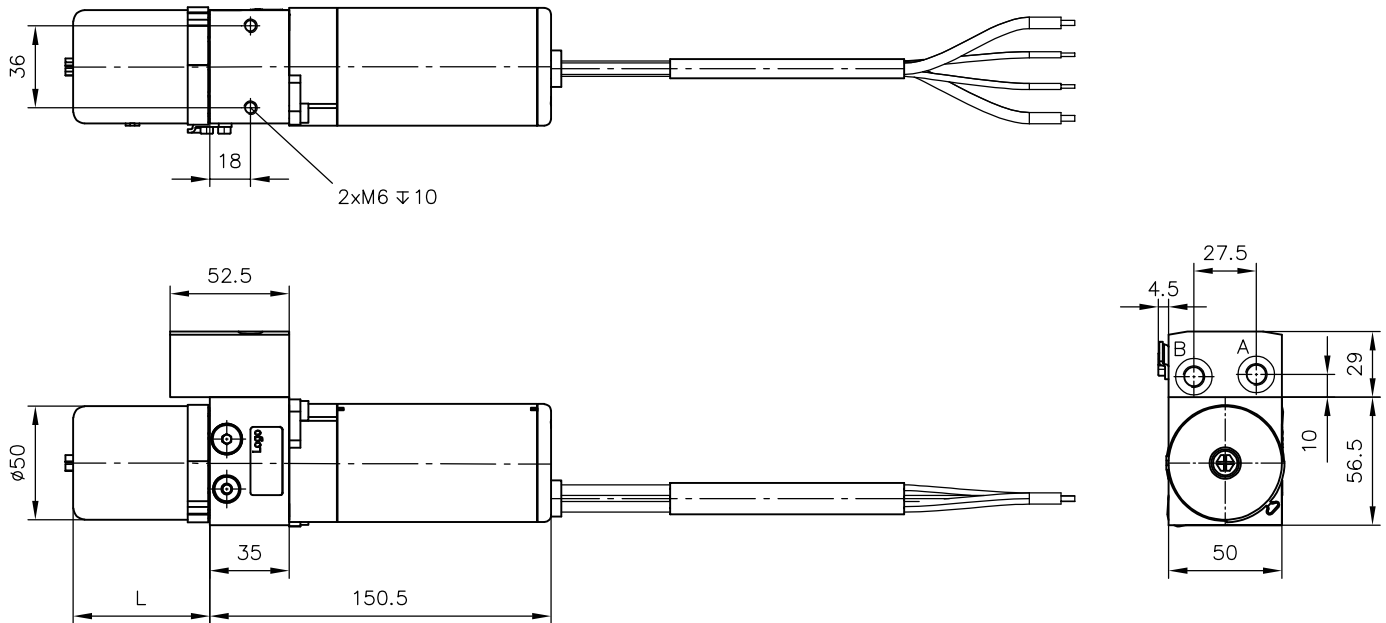
Coding Tank	L
1	60
2	100
3	150

Ports (ISO 228-1)	
A, T	G 1/8

4.2 COMFORT flange design

R2 (reversible) with connection block C050 1/8

HR050-R2...-C050 1/8

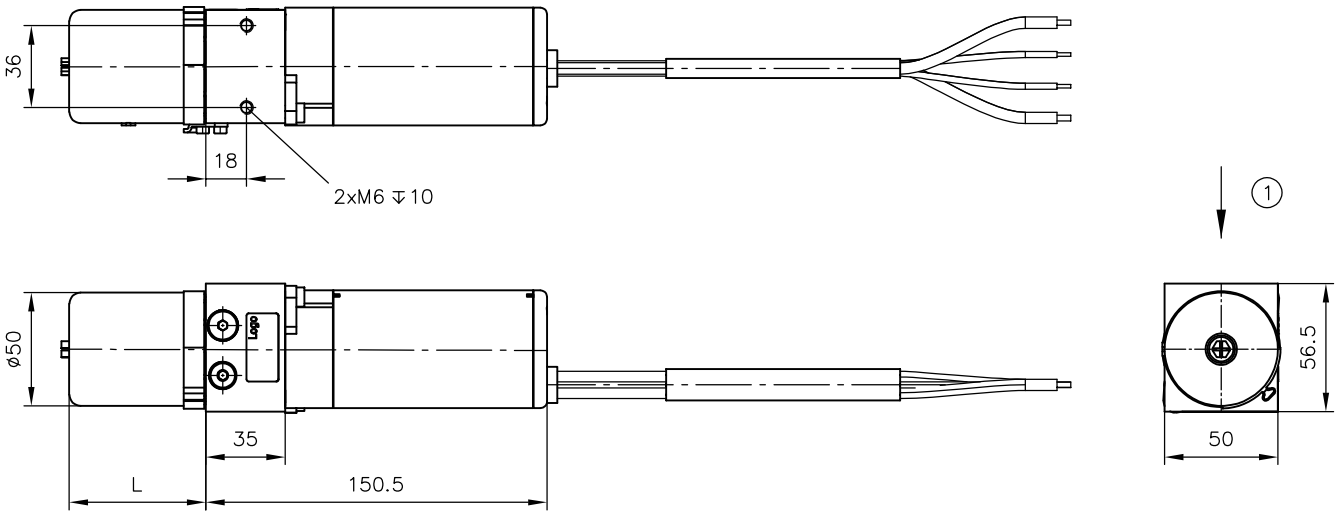


Coding Tank	L
1	60
2	100
3	150

Ports (ISO 228-1)
A, B
G 1/8

R2 (reversible) without connection block

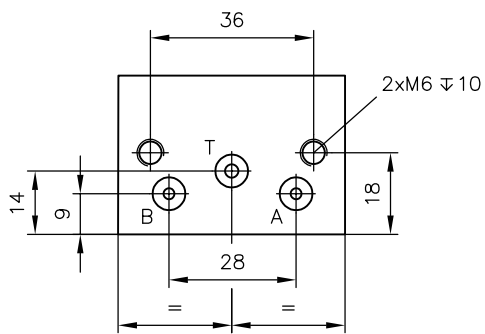
HR050-R2..



1 View X

Coding Tank	L
1	60
2	100
3	150

View X

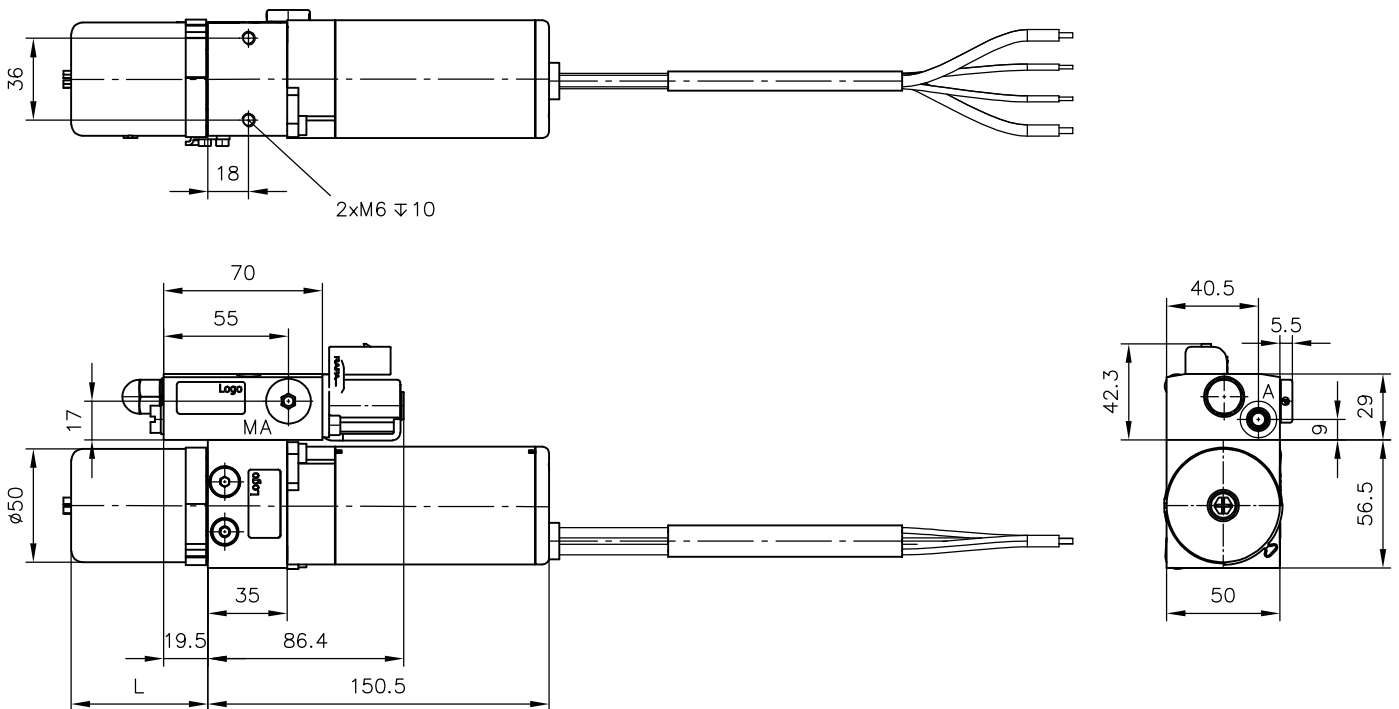


Connections

A, B, T	O-ring 4.5x1.5 NBR 90 Sh
---------	--------------------------

U2 (unidirectional) with connection block C050 A

HR050-U2...-C050 A

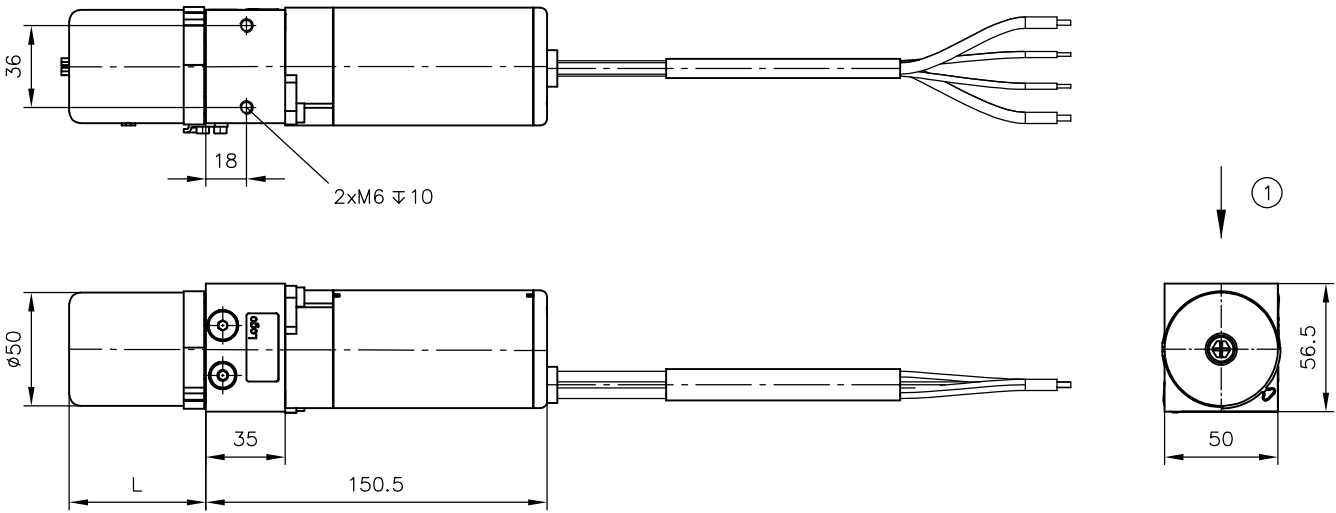


Coding Tank	L
1	60
2	100
3	150

	Ports (ISO 228-1)
A	G 1/8
MA	G 1/4

U2 (unidirectional) without connection block

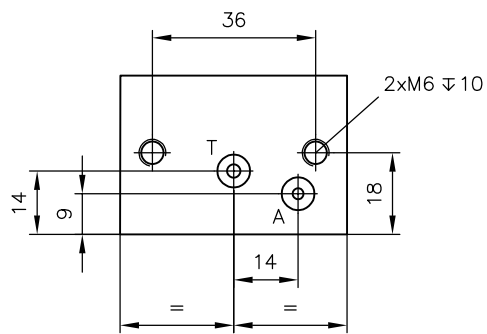
HR050-U2..



1 View X

Coding Tank	L
1	60
2	100
3	150

View X



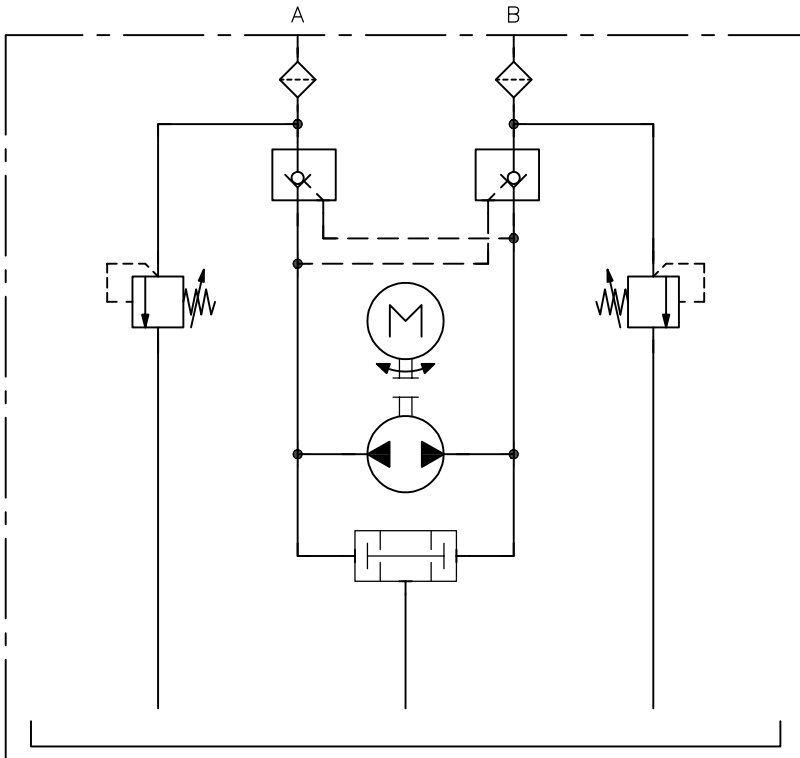
Connections

A, T	O-ring 4.5x1.5 NBR 90 Sh
------	--------------------------

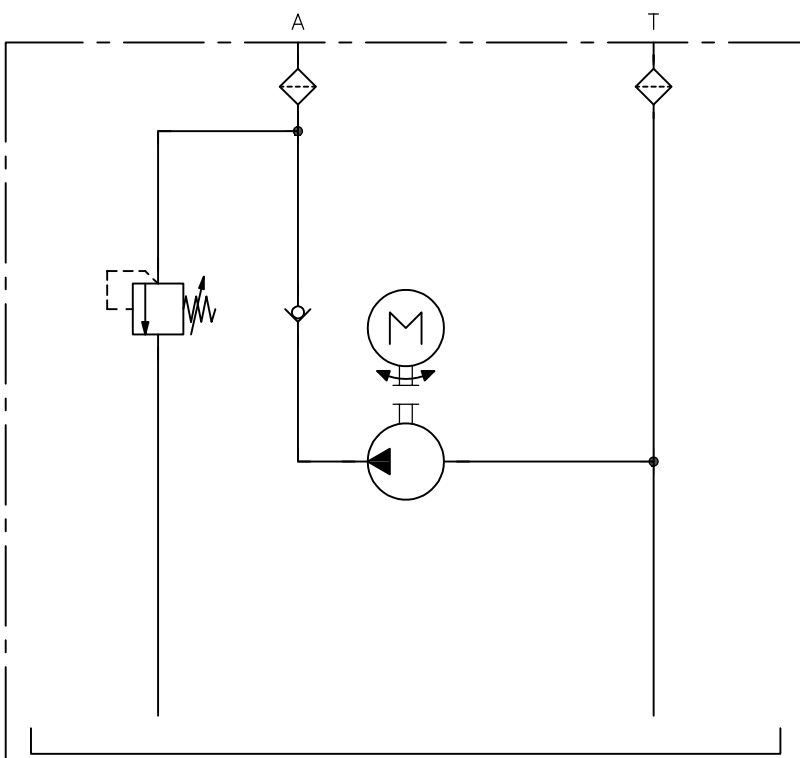
5 Other information

BASIC

R1

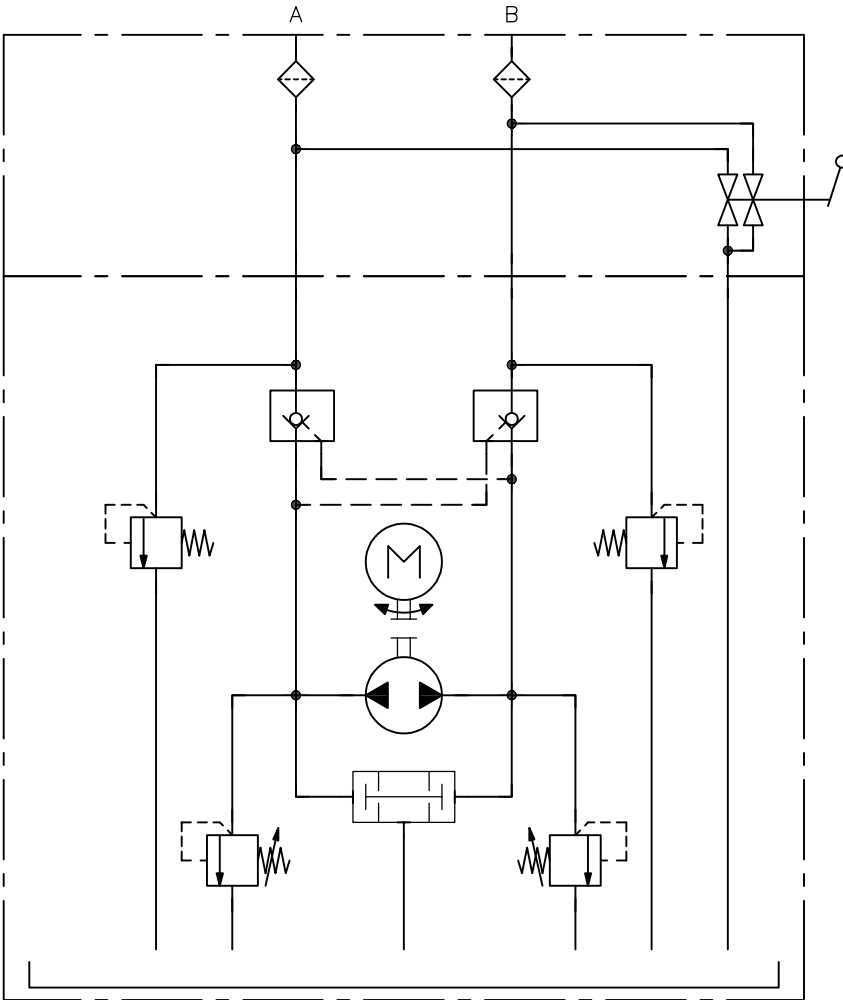


U1

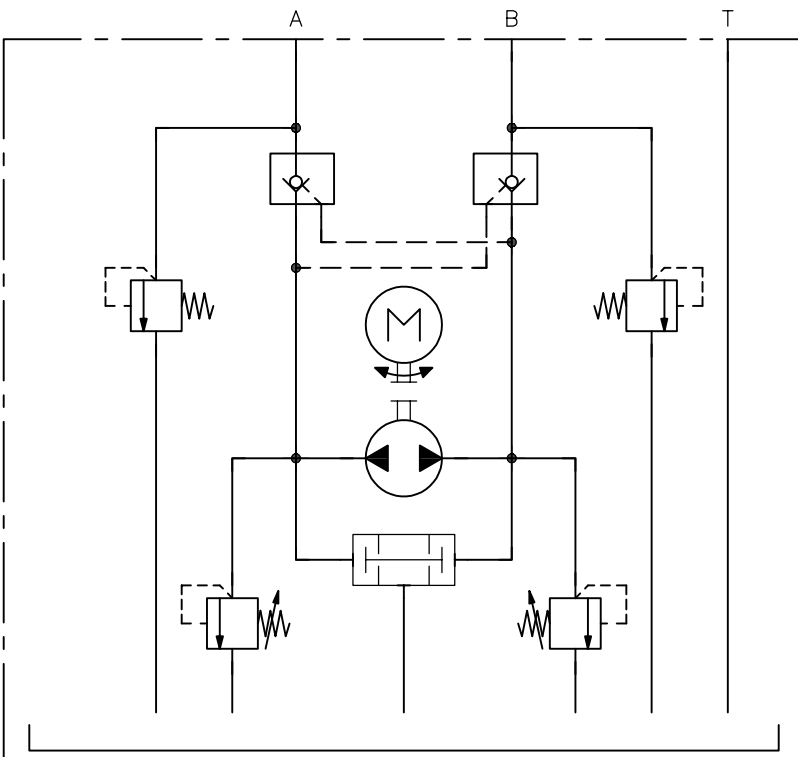


COMFORT

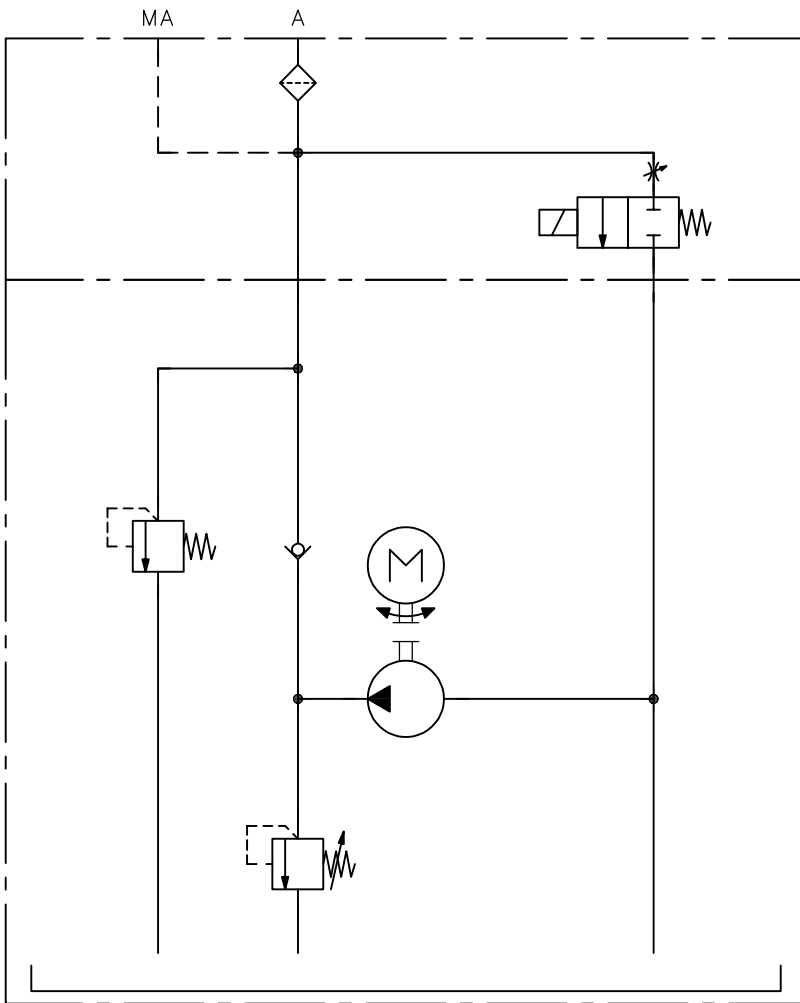
R2 with connection block C050 1/8



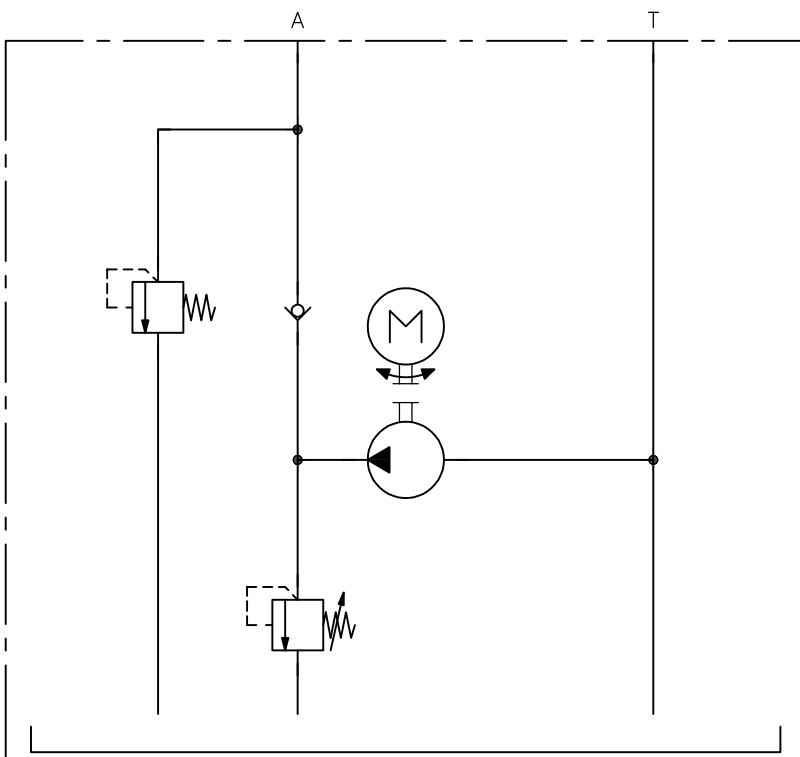
R2 without connection block



U2 with connection block C 050 A



U2 without connection block



References

Additional versions

- Mini hydraulic power pack type HR 080: D 6342
- Mini hydraulic power pack type HR 120: D 6343

Valves

- Throttle valve and throttle check valve type Q, QR and QV: D 7730

Application

- Recommendation for hydraulic fluid: D 5488/1

Assembly instructions

- Assembly instructions: Mini hydraulic power pack type HR 050: B 6014

