



Mobile Hydraulics Solutions

Fan Drives

Hydraulically Driven Lube Oil

PTO Gear Pumps KP

Asphalt Gear Pumps BTH

KRACHT

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Hydraulic motors KM

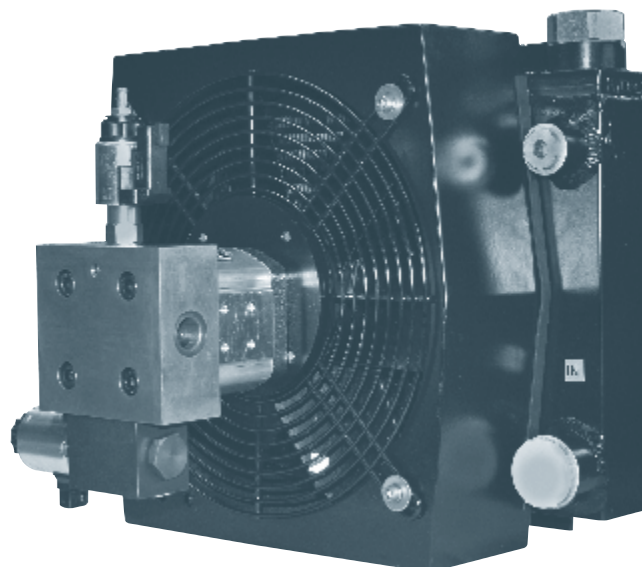
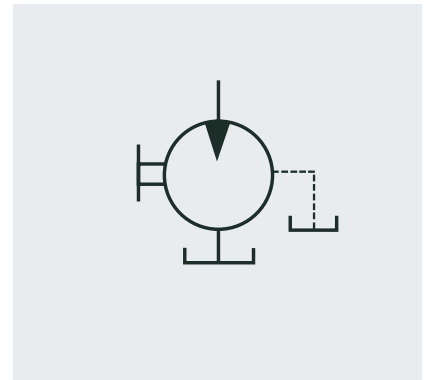
The demand for reduced noise, reduced emissions and energy savings on mobile machines require alternative solutions for cooling systems.

Beside the standard series of hydraulic gear motors KRACHT designs solutions for these demands together with the vehicle engineers.

The KRACHT solutions offers the system designer the best options due the individual cooling.

Fan drive motors can be adapted or modified to every cooler brand in the market.

Available in ATEX II 2GD c IIC (T3) on request.



Fan drive

KM 1 „space optimized“ proportional valve and reversible unit

For cooler combinations of water and oil cooler the use of a proportional valve is the best choice.

The shown proportional valve includes a mechanical adjustable pressure relief valve and an electrical adjustment of the flow and the reversible function.

The proportional valve is acting due to the signal of the temperature sensor of the vehicle - different solenoids are available.

KRACHT always recommends to use the version which is without current fully open - in the case of a broken cable the motor will run with the maximum speed to avoid an overheating of the machine - fail-safe function.

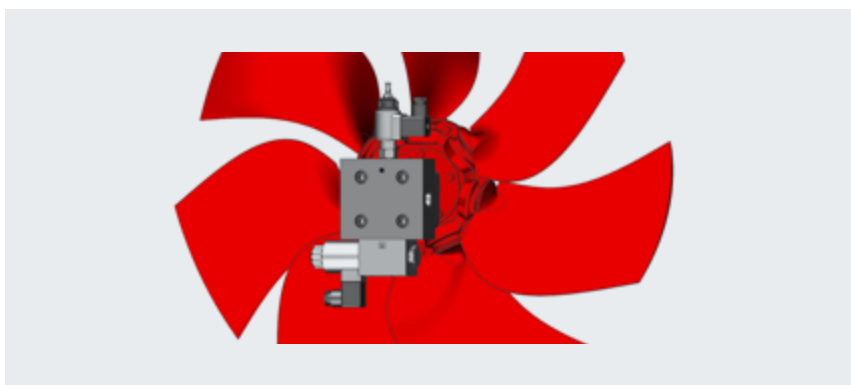
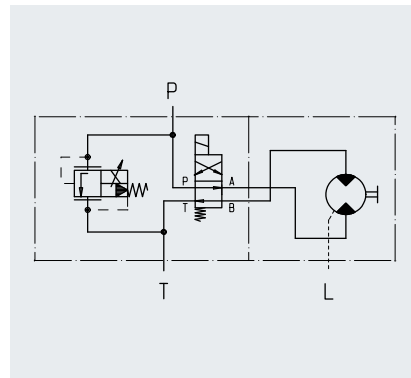
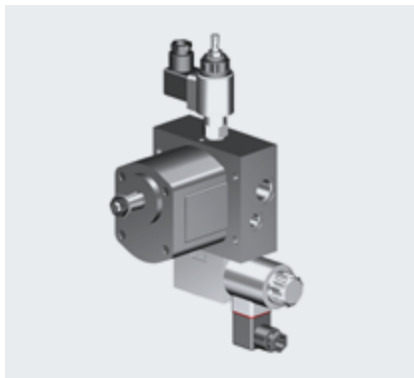
The reverse function can be acting independent from the temperature.

Different solenoid function are available due to the rotation.

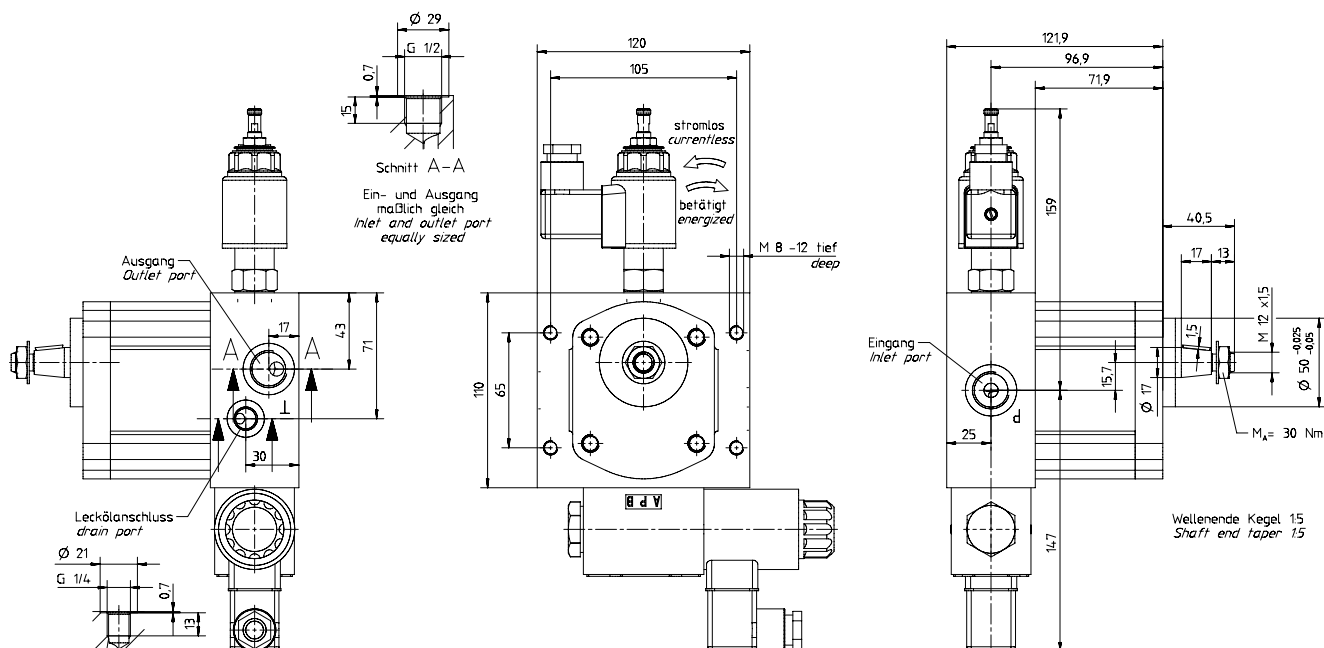
Optional with anti-cavitation valve.

TYPE code:

KM1/... + SOV 4 . 0222 A



Dimensions (in mm)



Fan drive

KM 1 "standard" proportional valve and reversible unit

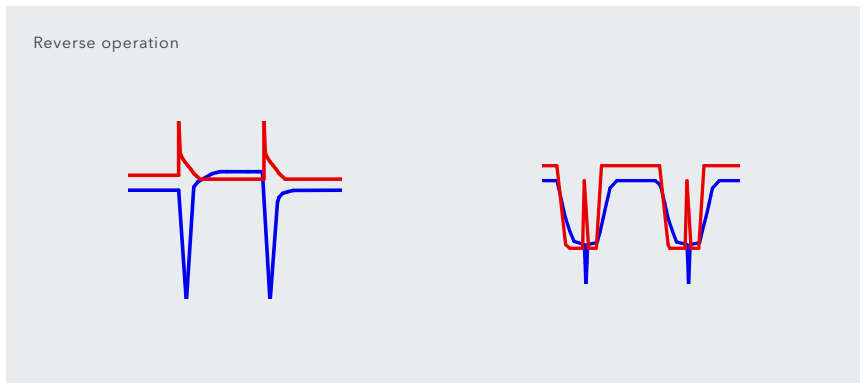
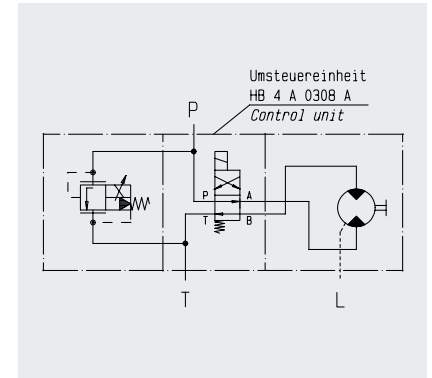
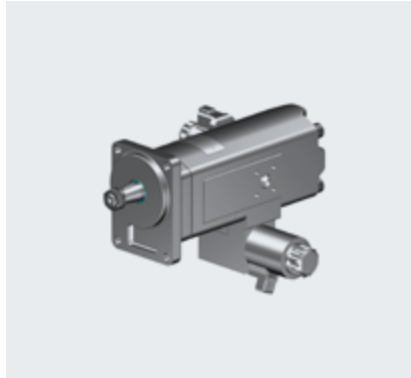
The KM 1 version with proportional valve can be combined with the reverse function.

The reverse function can be acting independent from the temperature.

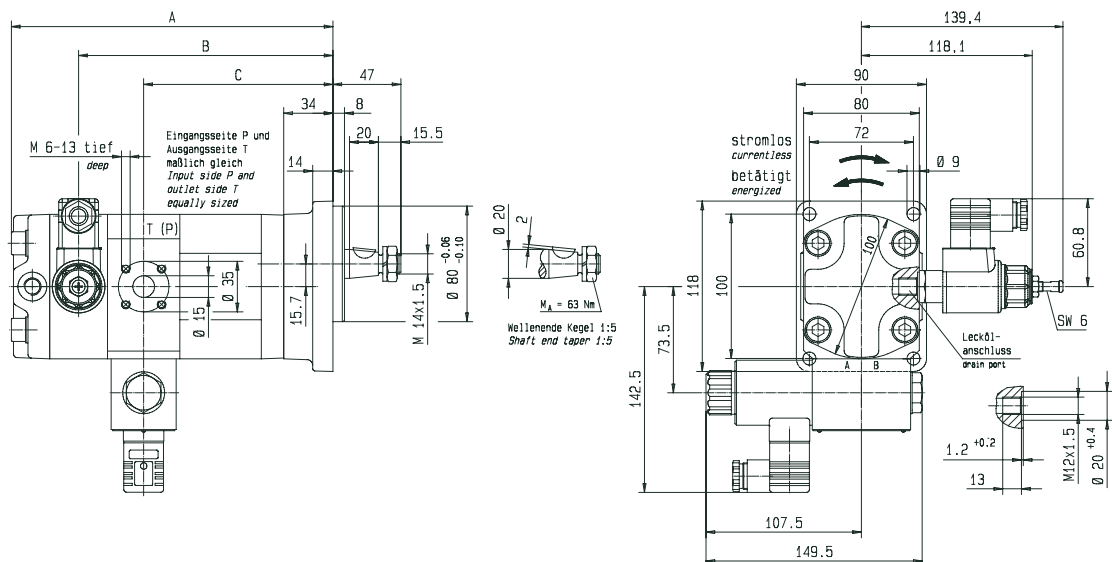
Different solenoid function are available due to the rotation.

TYPE code:

KM 1/... + HB 4 A 308 A + SOV 4 . 0216 A



Dimensions (in mm)



Nominal motor displacement (cm ³ /r)	5.5	6.3	8	9.6	11	14	16	19	22
A	213.2	214.6	217.4	220.2	222.4	227.4	230.8	235.8	241.6
B	166.7	168.1	170.9	173.7	175.9	180.9	184.3	189.3	195.1
C	121.7	123.1	125.9	128.7	130.9	135.9	139.3	144.3	150.1

KM 1 "standard" proportional valve and reversible unit

Ordering example: KM1/ L3LWX0B 4N.1 + HB4 A 0308 A + SOV 4 B 0216 A

Fan drive

KM 1 "space optimized" proportional valve

For cooler combinations of water and oil cooler the use of a proportional valve is the best choice.

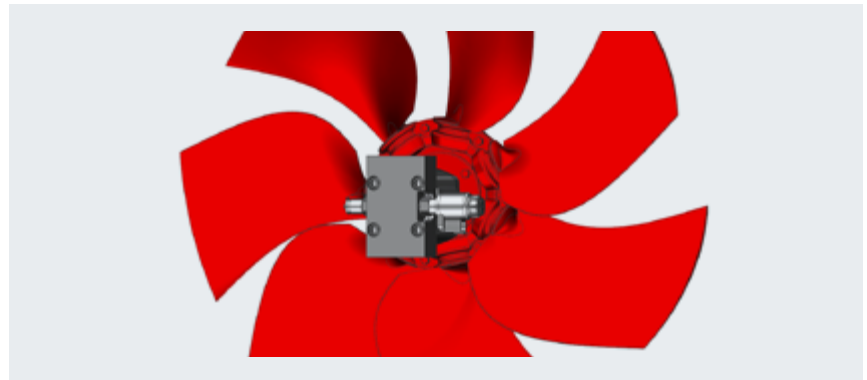
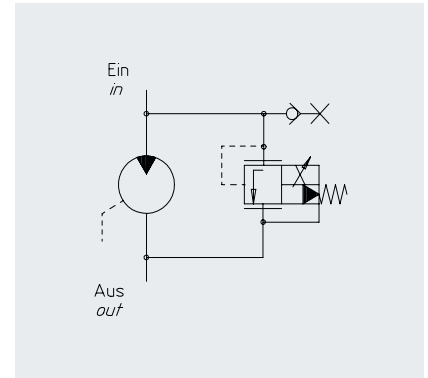
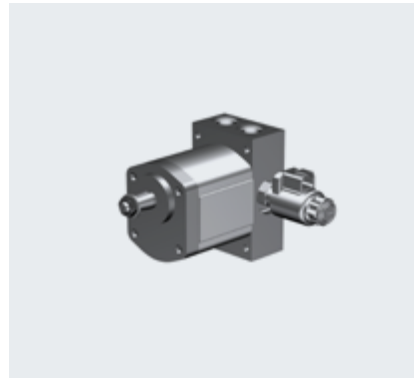
The shown proportional valve includes a mechanical adjustable pressure relief valve and an electrical adjustment of the flow.

The proportional valve is acting due to the signal of the temperature sensor of the vehicle - different solenoids are available.

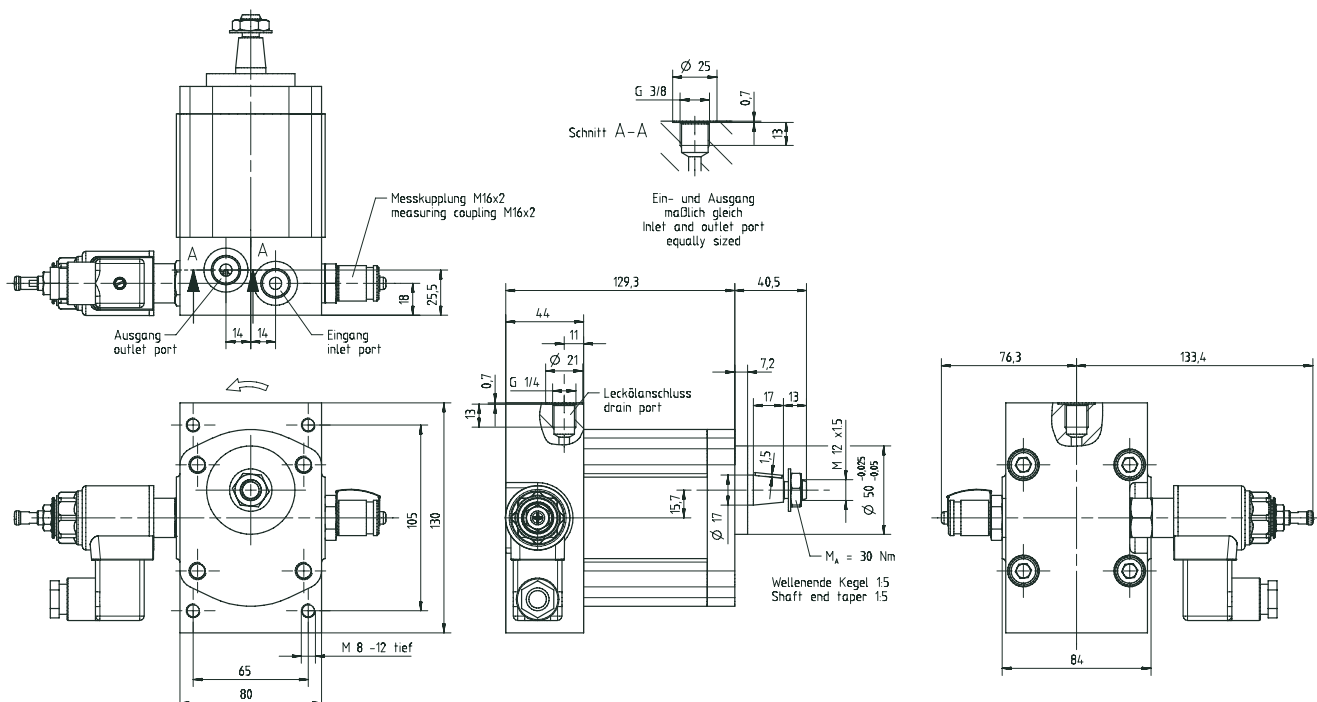
KRACHT always recommends to use the version which is without current fully open - in the case of a broken cable the motor will run with the maximum speed to avoid an overheating of the machine - fail-safe function.

TYPE code:

KM1/... + SOV 4 . 0217 A



Dimensions (in mm)



KM 1 "space optimized" proportional valve

Ordering example: KM1/19 F20W K00 4NM1/433 + SOV 4 A 0217 A

Fan drive

KM 1 "standard" proportional valve

For cooler combinations of water and oil cooler the use of a proportional valve is the best choice.

The shown proportional valve includes a mechanical adjustable pressure relief valve and an electrical adjustment of the flow.

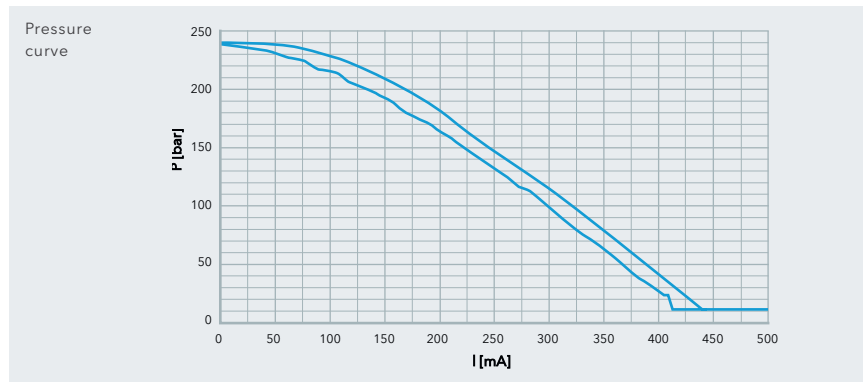
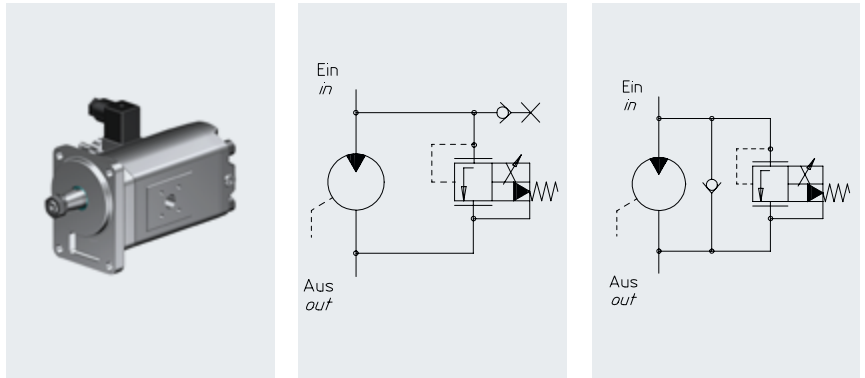
The proportional valve is acting due to the signal of the temperature sensor of the vehicle - different solenoids are available.

KRACHT always recommends to use the version which is without current fully open - in the case of a broken cable the motor will run with the maximum speed to avoid an overheating of the machine - fail-safe function.

Optional with anti-cavitation valve.

TYPE code:

KM1/... + SOV 4 . 0216 A



Dimensions (in mm)

Nominal motor displacement (cm ³ /r)	5.5	6.3	8	9.6	11	14	16	19	22
A	163.2	164.6	167.4	170.2	172.4	177.4	180.8	185.8	191.6
B	116.7	118.1	120.9	123.7	125.9	130.9	134.3	139.3	145.1
C	73.1	73.8	75.2	76.6	77.7	80.2	81.9	84.4	87.3

KM 1 "standard" proportional valve

Ordering example: KM1/ L.LA (X)0A 4N.. + SOV 4 B 0216 A

Fan drive

KM 1 thermostatic valve and pressure relief valve

The thermostatic valve is a precontrolled pressure relief valve with temperature dependent pressure control and mounted on the KM 1 motor.

The basic principle is that the pressure setting of the valve automatically changes depending on the temperature via a built-in flexible material element which controls the motor speed.

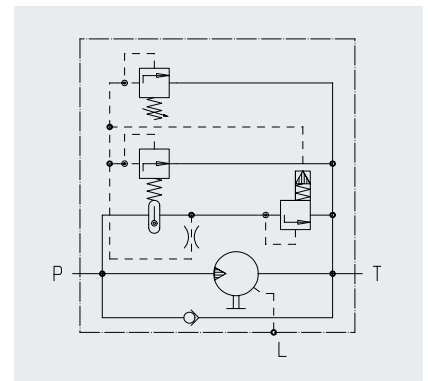
The speed of the motor follows the oil temperature, different starting points can be chosen.

Cooling only when it's needed.

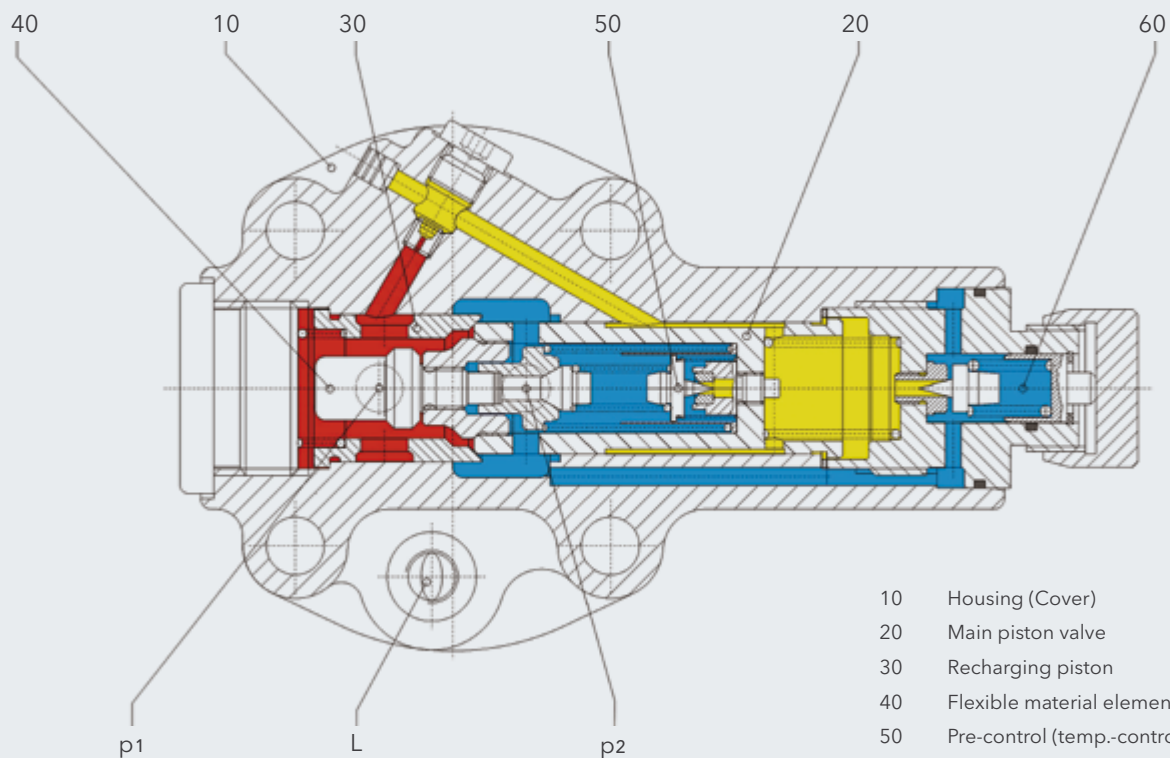
Thermostatic valve type TKM is used for oil-air coolers - for combi coolers proportional version is available.

TYPE code:

KM 1/... + TKM 1 D1D..



Construction



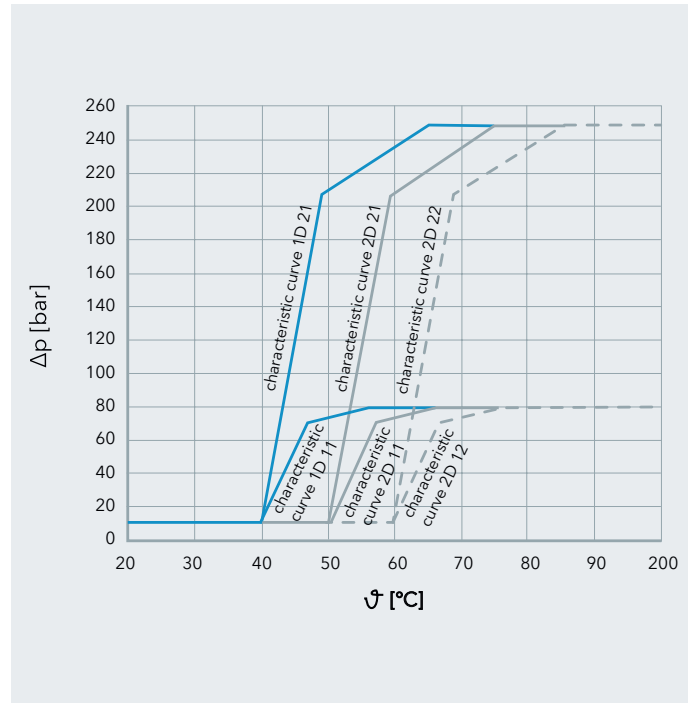
- | | |
|----|------------------------------------|
| 10 | Housing (Cover) |
| 20 | Main piston valve |
| 30 | Recharging piston |
| 40 | Flexible material element |
| 50 | Pre-control (temp.-controlled) |
| 60 | Pre-control (pmax permanently set) |

Type code

Pressure temperature characteristic curve

TKM	Thermostatic valve for KM hydraulic motor	
1	Size	
	1	for KM 1
	2	for KM 2
D	Function	
	D	Diagram 1 Pressure-temperature control
1D	Control	
	1D	Flexible material element 40 ... 60°C
	2D	Flexible material element 50 ... 70°C
11	Pressure temperature characteristic curve	
	1D	2D
	11	40°C low pressure 50°C low pressure
	12	60°C low pressure
	21	40°C high pressure 50°C high pressure
	22	60°C high pressure
A	Design code number	
	A	(internally allocated)
.	max. pressure control (mechanically set)	
	020 to 200 p max. in bar	
E	Oil discharge	
	A	internal
	E	external
00/	Rate of flow (l/min)	
	00 for TKM.D..	
S	Modification	
	S...	

Control	40 ... 60°C control range max. 90°C
1D	
2D	50 ... 70°C control range max. 100°C



Dimensions (in mm)

The technical drawings show the valve from three perspectives: a side view of the inlet port (Eingang) with dimensions E, F, and 38; a front view of the outlet port (Ausgang) with dimensions LK and Ø 15; and a top view of the valve body with dimensions 182, 105, 52, 100, 120, Ø 9, 72, 84, and 92. The inlet port has a diameter of Ø 15 and a depth of 15.5 mm. The outlet port has a diameter of Ø 15 and a depth of 15.5 mm. The valve body has a diameter of Ø 80 and a depth of 16.5 mm. The nominal motor displacement is given in cm³/r for three different valve sizes: 4, 5.5, and 8.

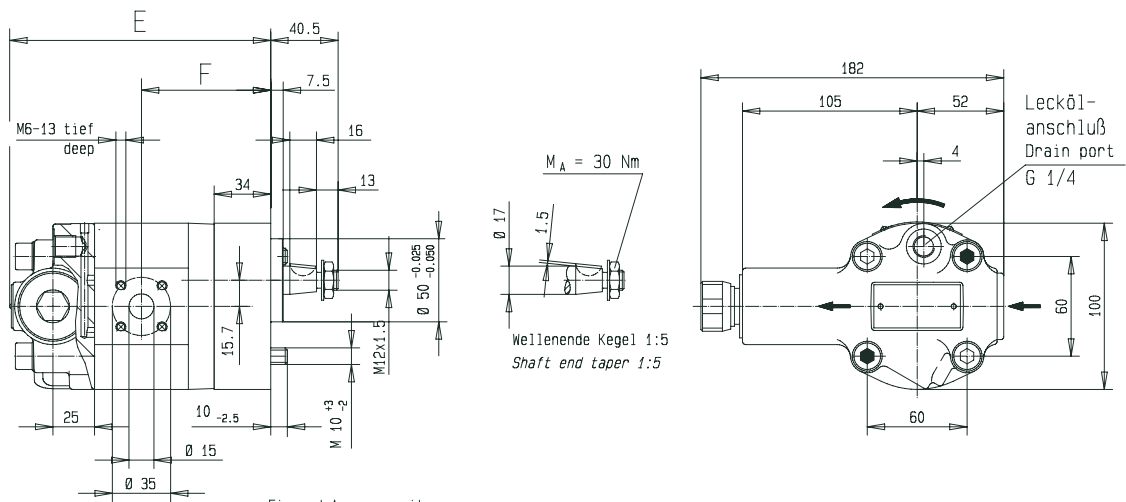
Nominal motor displacement (cm³/r)	4	5.5	8
E	137.0	147.0	147.0
F	69.0	74.0	74.0
LK	35.0	40.0	40.0

KM 1 thermostatic valve and pressure relief valve

Ordering example: KM1/ F . LA L00 2ML./339 + TKM 1 D.D..A..A../S03



Dimensions (in mm)



Ein- und Ausgangsseite
maßlich gleich
Input and outlet side
equally sized

Nominal motor displacement (cm ³ /r)	5.5	8	11	14	16	19	22
E	147.7	151.9	156.9	161.9	165.3	170.3	176.1
F	73.1	75.2	77.7	80.2	81.9	84.4	87.3

KM1 thermostatic valve and pressure relief valve

Ordering example: KM1/.L.LA .00 4N../375 + TKM1 D.D..A..E..

Fan drive

KM 1 thermostatic valve and pressure relief valve with reversible unit

The version with thermostatic valve type TKM can be added with the reversible unit. The reverse function is used to clean the cooler by blowing against the cooler.

The temperature control is working independent from the rotation.

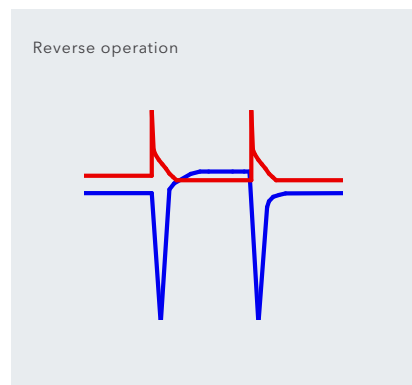
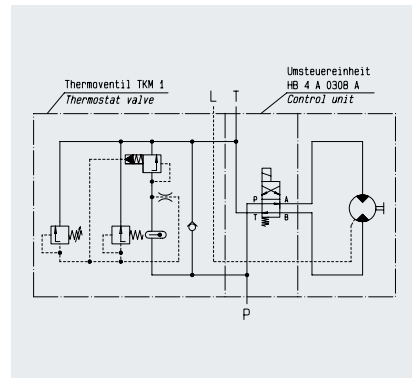
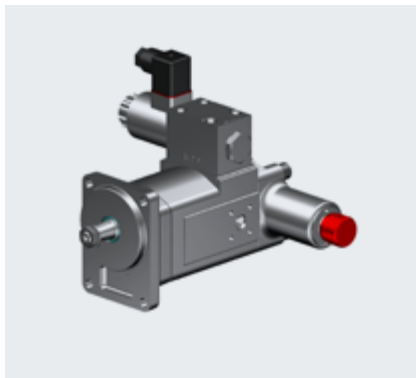
To reverse the unit the solenoid valve has to be switched.

While construction the normal rotation should be specified to decide the currentless operation of the motor.

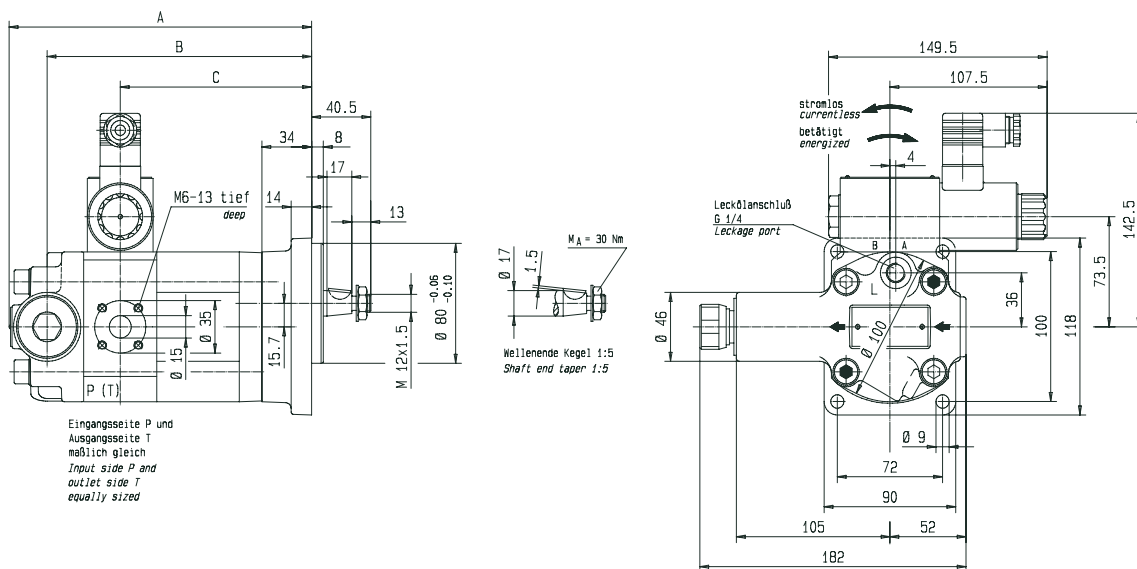
A charging valve is fitted as a non-return valve. Cavitations will be prevented.

TYPE code:

KM 1/... + HB4 A 308 A + TKM 1 D.D...



Currentless clockwise - Dimensions (in mm)



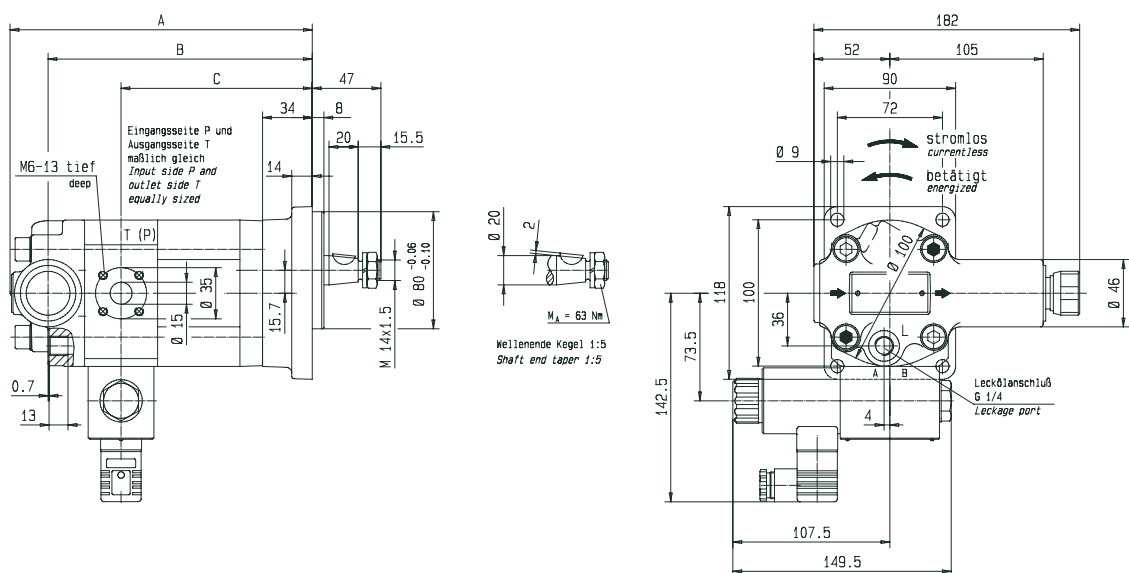
Nominal motor displacement (cm ³ /r)	5.5	8	9.6	11	14	16	19	22
A	197.7	201.9	204.7	206.9	211.9	215.3	220.3	226.1
B	171.7	175.9	178.7	180.9	185.9	189.3	194.3	200.1
C	121.7	125.9	128.7	130.9	135.9	139.3	144.3	150.1

KM 1 thermostatic valve and pressure relief valve with reversible unit

Ordering example: KM1/ L3LW X00 4N.1/324 + HB4 A 0308 A + TKM 1 D1D 22 A 200 E00/S03



Currentless counter-clockwise - Dimensions (in mm)



Nominal motor displacement (cm ³ /r)	5.5	8	9.6	11	14	16	19	22
A	197.7	201.9	204.7	206.9	211.9	215.3	220.3	226.1
B	171.7	175.9	178.7	180.9	185.9	189.3	194.3	200.1
C	121.7	125.9	128.7	130.9	135.9	139.3	144.3	150.1

KM 1 thermostatic valve and pressure relief valve with reversible unit

Ordering example: KM1/ L3LW X00 4N.1 + HB4 A 0308 A + TKM1 D1D 22 A 200 E00/S03

Fan drive

KM 1 pressure relief valve

The series KM 1 is available with a mechanical adjustable pressure relief valve in the end cover of the hydraulic motor.

This pressure relief valve can be delivered pre-adjusted to the operating pressure.

With this pressure relief the maximum speed of the fan can be limited, overflow will bypass.

A recharging valve is fitted as a non-return valve. Cavitation will be prevented.

Please remind that this pressure relief valve works only in one direction - clockwise or counter-clockwise.

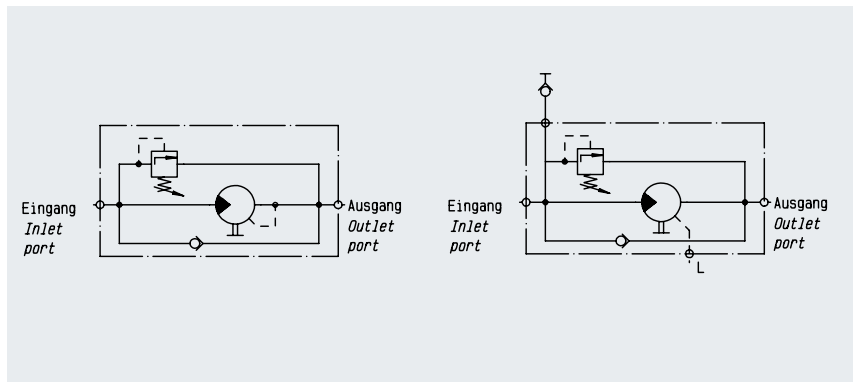
TYPE code:

KM 1/... + SOV 4 B 0173 A - without drain port

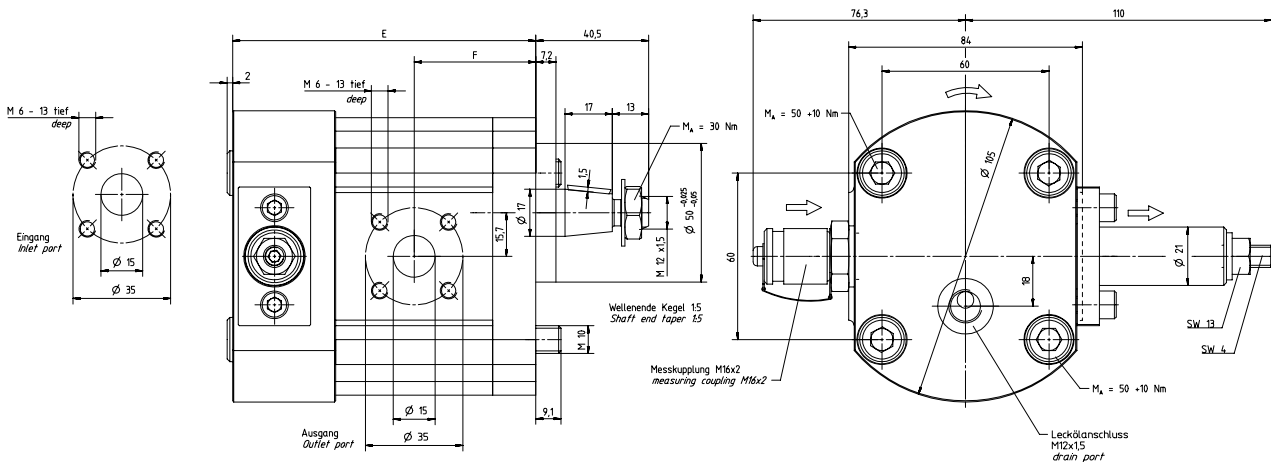
KM 1/... + SOV 4 E 0173 A - with drain port

Available for all versions of the KM 1 series.

Pressure setting: 24 to 240 bar



Dimensions (in mm)



Nominal motor displacement (cm ³ /r)	5.5	6.3	8	11	14	16	19	22
E	102.2	103.6	103.9	108.9	113.9	117.3	122.3	128.1
F	39.1	39.8	41.2	43.7	46.2	47.9	50.4	53.3

KM 1 pressure relief valve

Ordering example: [KM 1/ F20A K00 4NL1/386 + SOV 4 E 0173 A](#)

Fan drive

KM 1 ON-OFF function

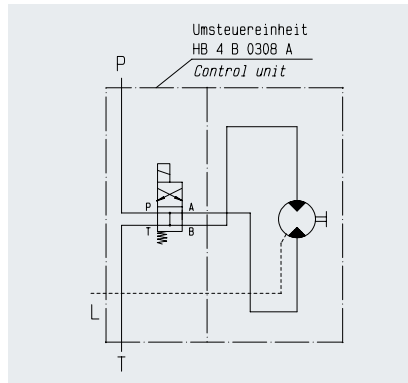
The series KM 1 is available with an ON-OFF function to run the hydraulic motor in one direction.

The enclosed solenoid valve can be switched on to bypass the flow around the motor.

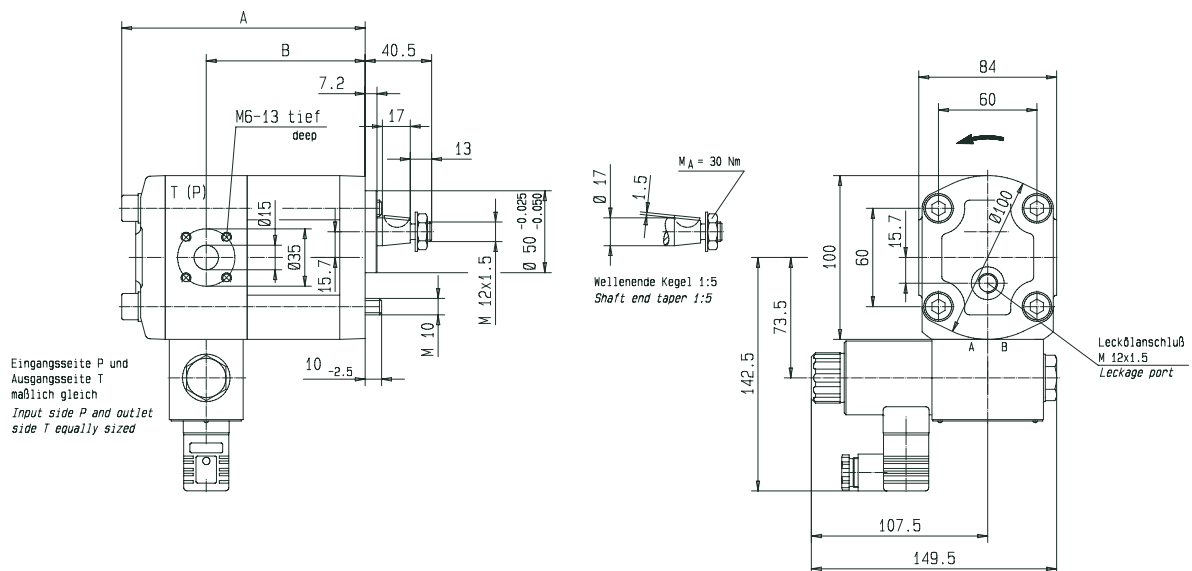
TYPE code:

KM 1/... + HB 4 B 308 A

Available for all versions of the KM 1 series



Dimensions (in mm)



Nominal motor displacement (cm ³ /r)	5.5	6.3	8	11	14	16	19	22
A	139.2	140.6	143.4	148.4	153.4	156.8	161.8	167.6
B	87.7	89.1	91.9	96.9	101.9	105.3	110.3	116.1

KM 1 ON-OFF function

Ordering example: KM1/ F30W K0A 4N.1/386 + HB 4 B 0308 A

Fan drive

KM 1 pressure relief valve and reversible unit

The series of hydraulic motors KM 1 can be added with a reversible function including a pressure relief valve.

With the reverse function the rotation of the motor can be switched by the solenoid valve DURING operation, the pressure relief valve works independent from the rotation.

This pressure relief valve can be delivered pre-adjusted to the operating point.

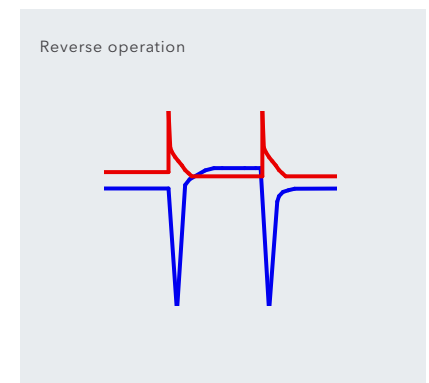
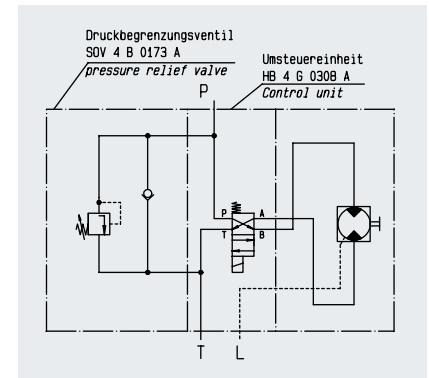
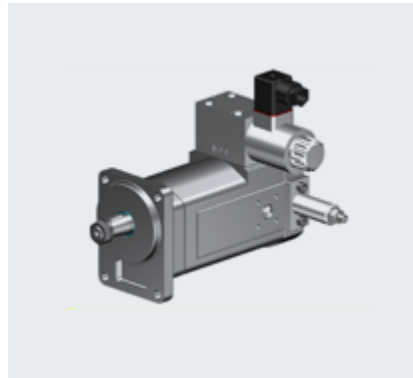
A recharging valve is fitted as a non-return valve. Cavitations will be prevented.

The relief valve works in both directions.

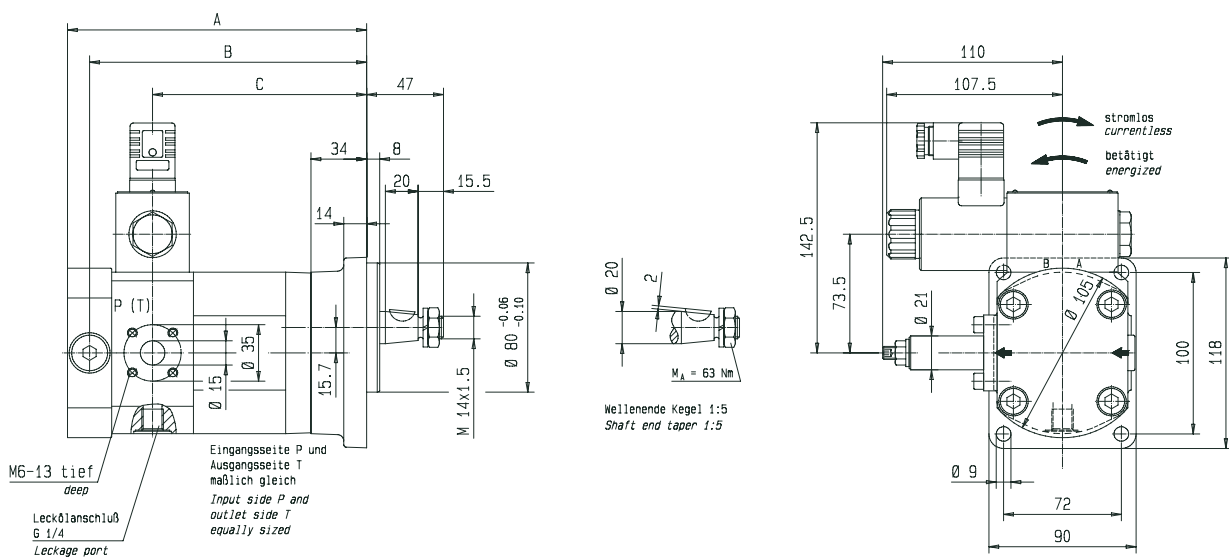
TYPE code:

KM 1/... + HB 4 G 0308 A + SOV 4 B 0173 A

Available for all versions of the KM 1 series.



Dimensions (in mm)



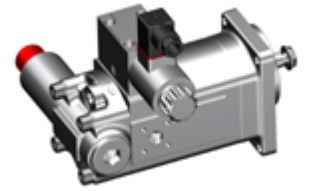
Nominal motor displacement (cm³/r)

	5.5	8	9.6	11	14	16	19	22
A	173.7	177.9	180.7	182.9	187.9	191.3	196.3	202.1
B	160.2	164.4	167.2	169.4	174.4	177.8	182.8	188.6
C	121.7	125.9	128.7	130.9	135.9	139.3	144.3	150.1

KM 1 pressure relief valve and reversible unit

Ordering example: KM1. L3LW X00 4N.1 + HB 4 G 0308 A + SOV 4 B 0173 A

KM 1 fan drive combinations



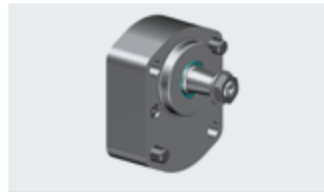
Outboard bearing



Taper 1:5, Ø 17 mm



Taper 1:5, Ø 20 mm

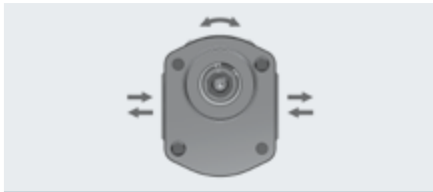


Taper 1:5, Ø 17 mm

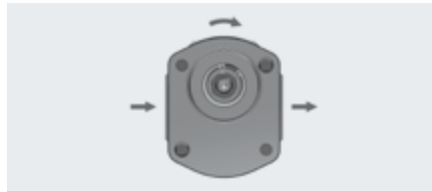


Taper 1:5, Ø 20 mm

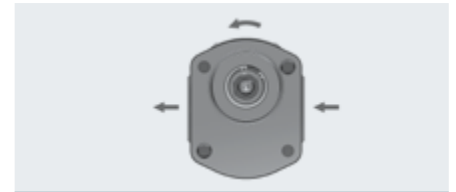
Direction of rotation



Both



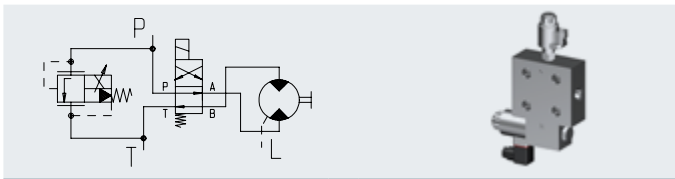
Clockwise



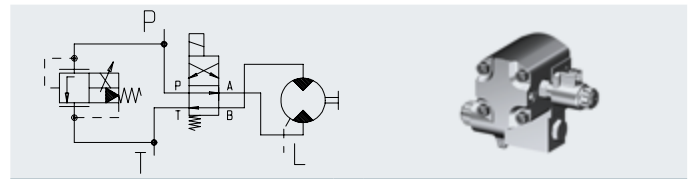
Counter-clockwise

Function

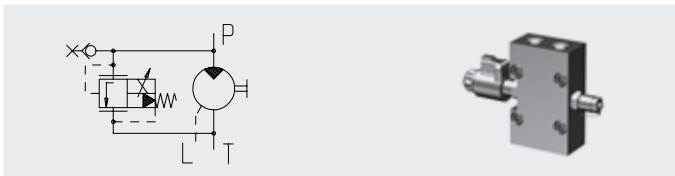
KM 1 „space optimized“ proportional valve and reversible unit



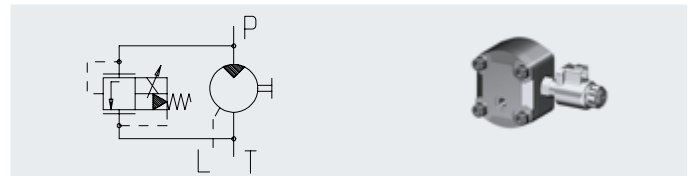
KM 1 "standard" proportional valve and reversible unit



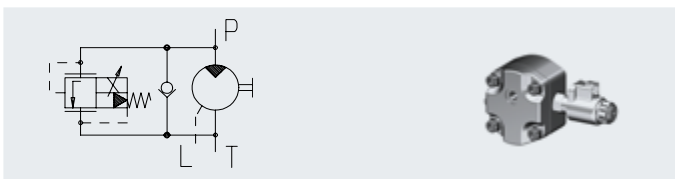
KM 1 "space optimized" proportional valve



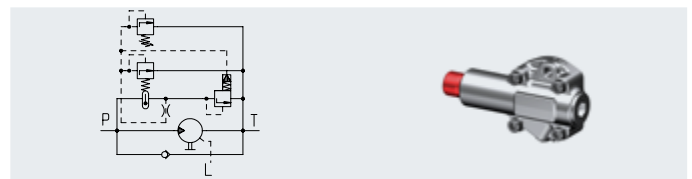
KM 1 "standard" proportional valve



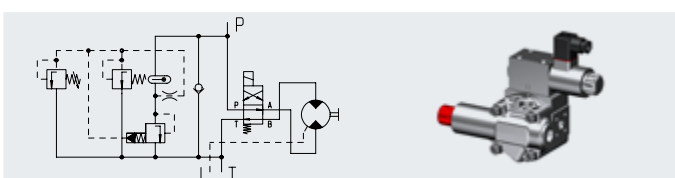
KM 1 "standard" proportional valve



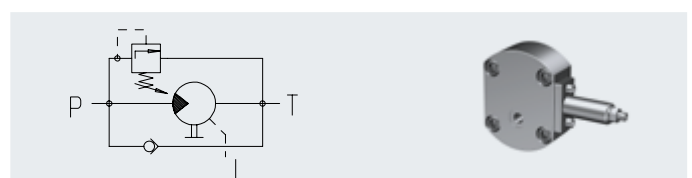
KM 1 thermostatic valve and pressure relief valve



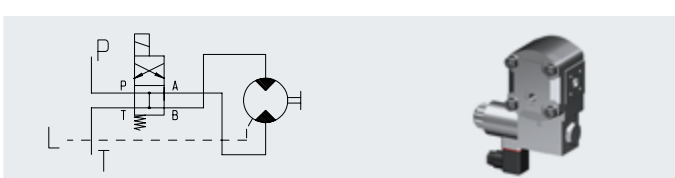
KM 1 thermostatic valve and pressure relief valve with reversible unit



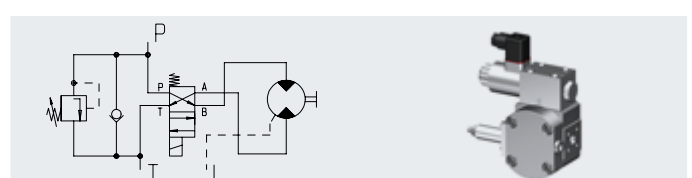
KM 1 pressure relief valve



KM 1 ON-OFF function



KM 1 pressure relief valve and reversible unit



Fan drive

KM 2 proportional valve with outboard bearing and anti-cavitation valve

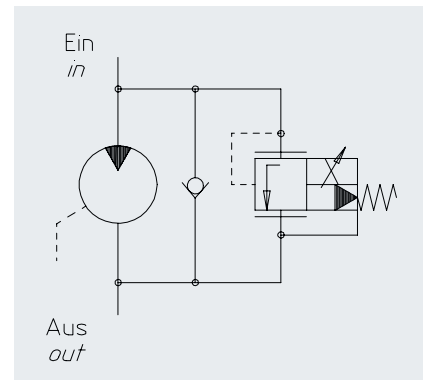
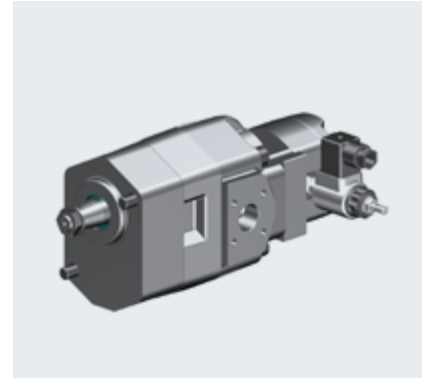
For cooler combinations of water and oil cooler the use of a proportional valve is the best choice.

The shown proportional valve includes a mechanical adjustable pressure relief valve and an electrical adjustment of the flow.

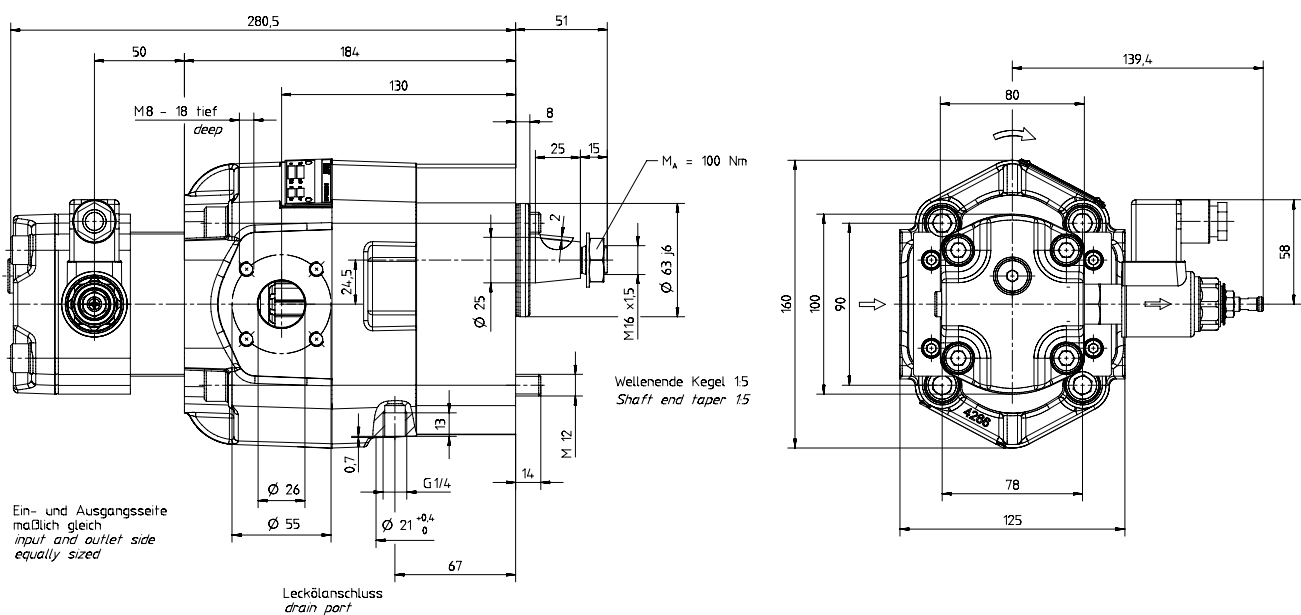
The proportional valve is acting due to the signal of the temperature sensor of the vehicle - different solenoids are available.

KRACHT always recommends to use the version which is without current fully open - in the case of a broken cable the motor will run with the maximum speed to avoid an overheating of the machine - fail-safe function.

TYPE code: KM 2/... + SOV 4 B 0216 A



Dimensions (in mm)



KM 2 proportional valve with outboard bearing and anti-cavitation valve

Ordering example: KM2/32 M2LA K0H 4DL1/410 + SOV 4 B 0216 A

Fan drive

KM 2 proportional valve and reversible unit

For cooler combinations of water and oil cooler the use of a proportional valve is the best choice.

The shown proportional valve includes a mechanical adjustable pressure relief valve and an electrical adjustment of the flow and the reversible function.

The proportional valve is acting due to the signal of the temperature sensor of the vehicle - different solenoids are available.

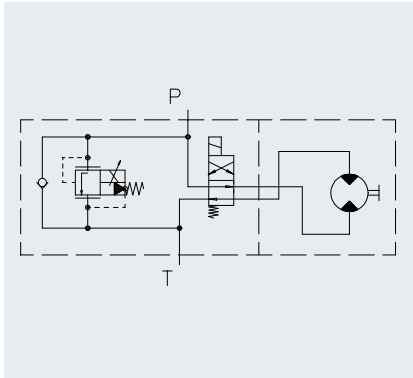
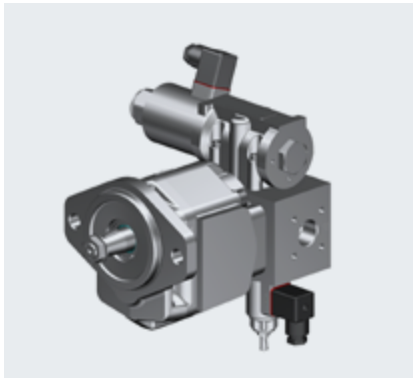
KRACHT always recommends to use the version which is without current fully open - in the case of a broken cable the motor will run with the maximum speed to avoid an overheating of the machine - fail-safe function.

The reverse function can be acting independent from the temperature.

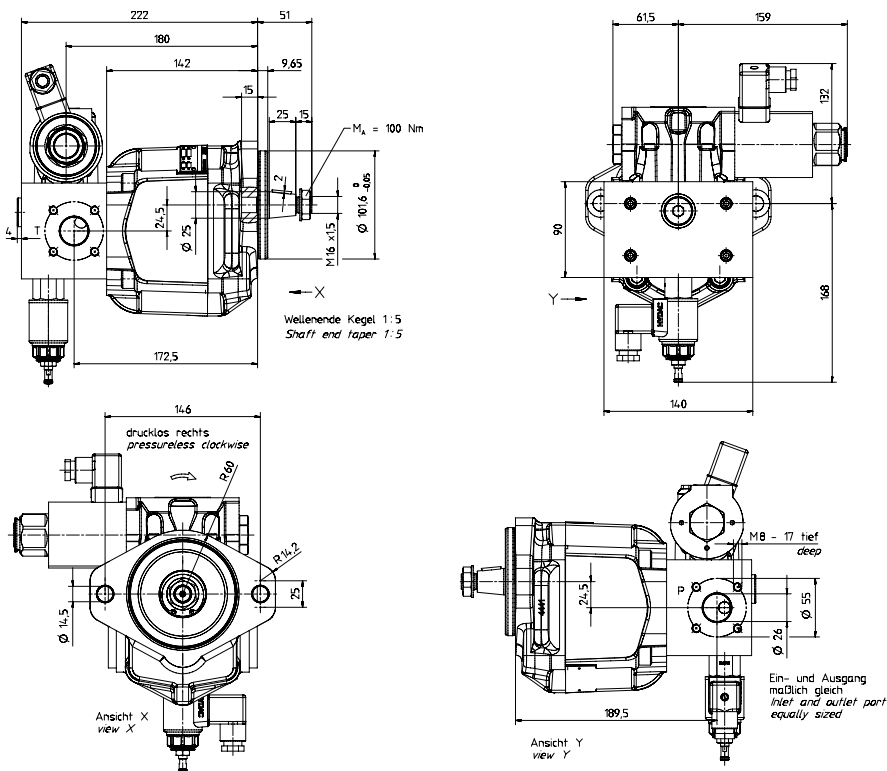
Different solenoid function are available due to the rotation.

Optional with anti-cavitation valve.

TYPE code: KM 2/... + SOV 4 B 0253 A



Dimensions (in mm)



KM 2 reversible unit

Ordering example: KM2/40 S30L U00 4DL1/494 + SOV 4 B 0253 A

Fan drive

KM 2 thermostatic valve and pressure relief valve

The thermostatic valve is a precontrolled pressure relief valve with temperature dependent pressure control and mounted on the KM 2 motor.

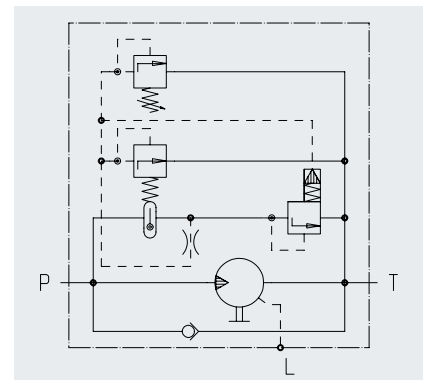
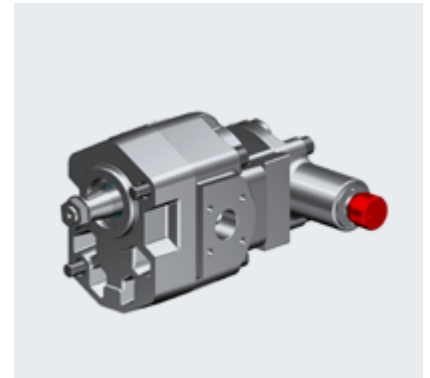
The basic principle is that the pressure setting of the valve automatically changes depending on the temperature via a built-in flexible material element and this controls the motor speed.

The speed of the motor follows the oil temperature, different start points can be chosen.

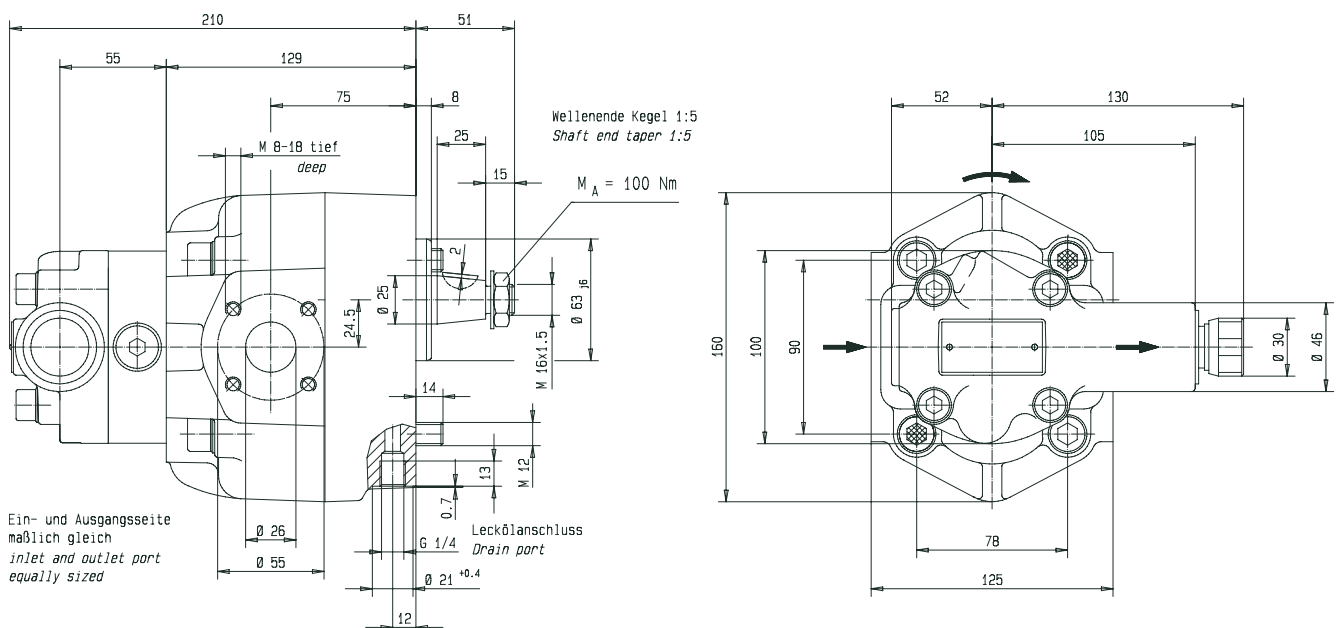
Thermostatic valve type TKM is used for oil-air coolers – for combi coolers proportional version is available.

TYPE code:

KM 2/... + TKM 2 D1D 22 A 200 A00/S03



Dimensions (in mm)



KM 2 thermostatic valve and pressure relief valve

Ordering example: KM2/32 M20A K00 4VL. + TKM 2 D1D 22 A 200 A00/S03

Fan drive

KM 3 pressure relief valve and reversible unit

The series of hydraulic motors KM 3 can be added with a reversible function including a pressure relief valve.

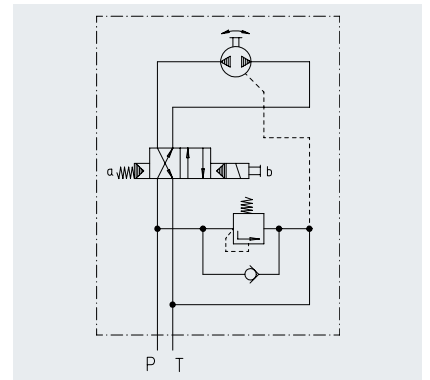
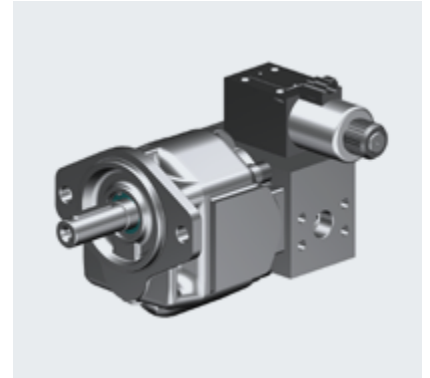
With the reverse function the rotation of the motor can be switched by the solenoid valve DURING operation, the pressure relief valve works independent from the rotation.

This pressure relief valve can be delivered pre-adjusted to the operating point (fixed pressure setting).

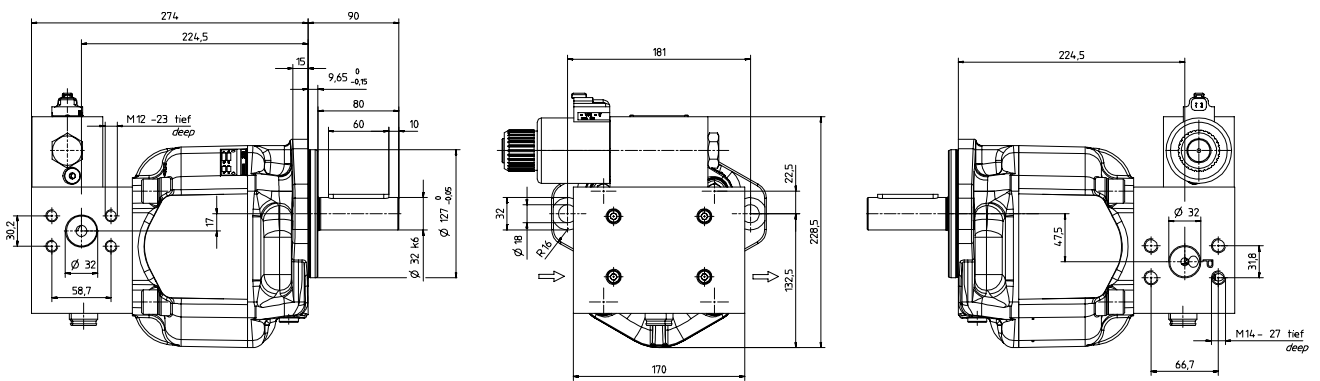
A recharging valve is fitted as a non-return valve. Cavitations will be prevented.

The relief valve works in both directions.

TYPE code: KM 3/... + SOV 4 A 0250 A



Dimensions (in mm)



Drehrichtung: rechts- und linksdrehend
stromlos linksdrehend
The direction of rotation is clockwise and counter clockwise
currentless counterclockwise

KM 3 pressure relief valve and reversible unit

Ordering example: KM3/100 T30L Y00 6VL2/494 + SOV 4 A 0250 A

Range

Hydraulic motors KM

Hydraulic motors

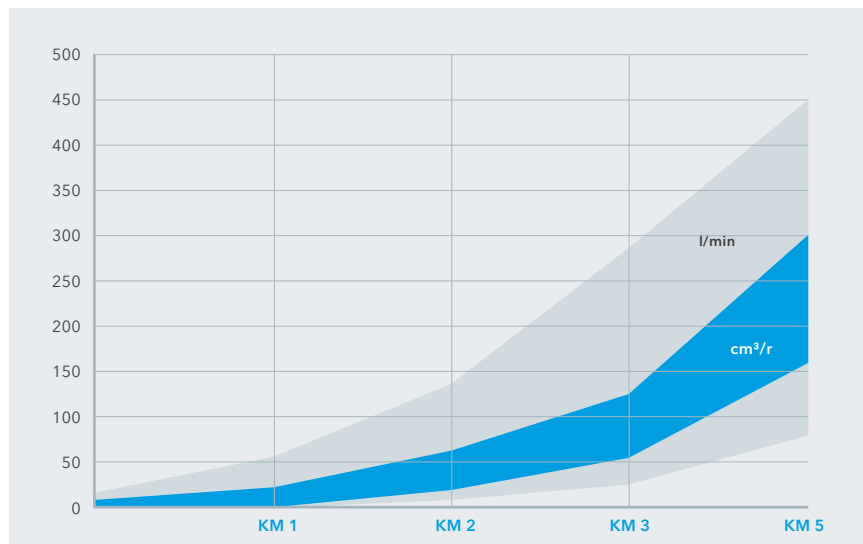
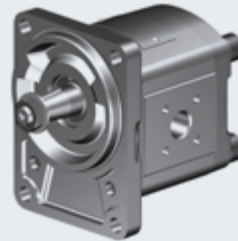
KM

with hydraulic axial clearance compensation

Displacement	5.5 ... 300 cm ³ /r
Working pressure	... 315 bar
Speed	... 4000 1/min
Viscosity	10 ... 1000 mm ² /s
Media temperature	-20 ... 150 °C

Designs in aluminium, cast iron, spheroidal cast iron or as flow dividers

KM 1



Hydraulic motors

KM

Motor	Displacement	Speed	Working pressure	Design / Option
KM 1	5.5 ... 25 cm ³ /r	500 ... 4000 1/min	... 280 bar	<ul style="list-style-type: none"> - Aluminium housing (... 4NL) - Front and end covers made of cast iron - ATEX protection up to T4 on request - The valve function can be temperature or proportionally controlled
KM 2	2 ... 62 cm ³ /r	300 ... 3000 1/min	... 315 bar	<ul style="list-style-type: none"> - Optionally with bronze sleeve bearing - Available in spheroidal cast iron (EN-GJS-600) - Optionally also with valve function - temperature controlled
KM 3	63 ... 125 cm ³ /r	400 ... 3000 1/min	... 280 bar	<ul style="list-style-type: none"> - Made completely of cast iron (EN-GJL-300) - Also with bronze sleeve bearing - Available in spheroidal cast iron (EN-GJS-600)
KM 5	219 ... 300 cm ³ /r	800 ... 2000 1/min	... 100 bar	<ul style="list-style-type: none"> - Made completely of cast iron (EN-GJL-300)

Hydraulically driven lube oil

KRACHT combines

The hydraulic motors of the series KM with high pressure pumps of series KP and lube oil pumps of series KF.



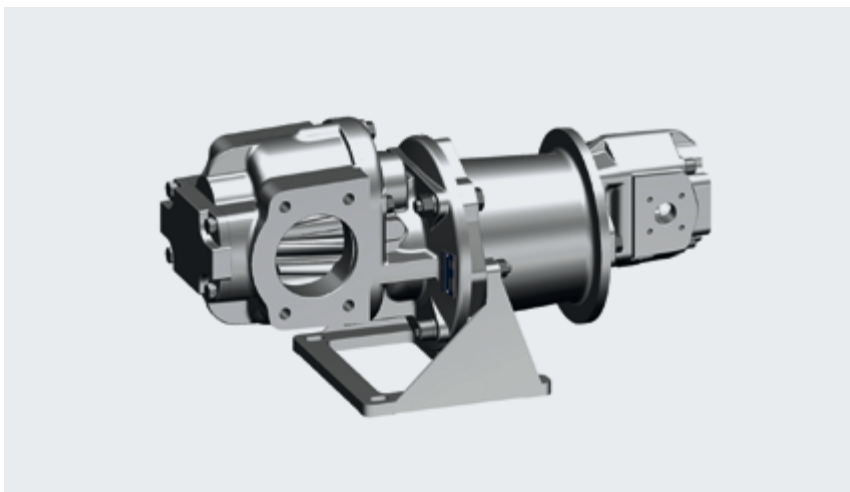
Hydraulic motor KM 1 + Gear pump KP 1

Typical application of a hydraulic driven high pressure pump used on tank vehicles for pumping fuel.



Gear pump KF 25 + Hydraulic motor KM 1 Gear pump KF 6/400 + Hydraulic motor KM 2

Typical application of hydraulic driven lube oil pumps used on excavators for lube oil for cooling systems.



PTO gear pumps KP

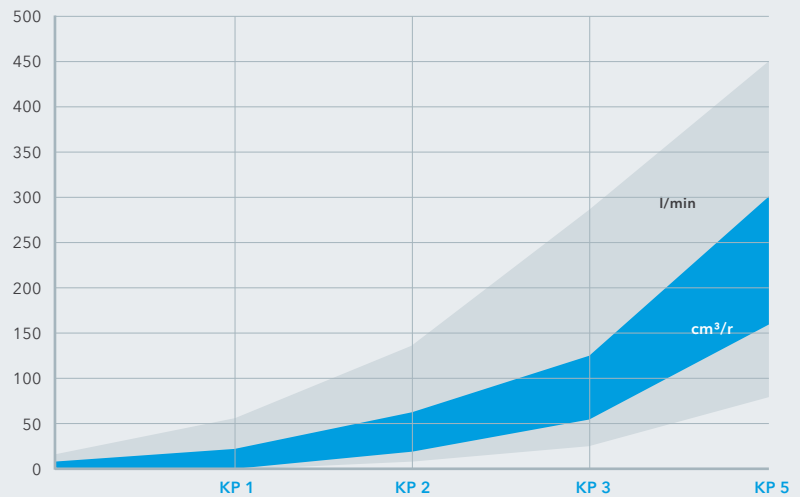
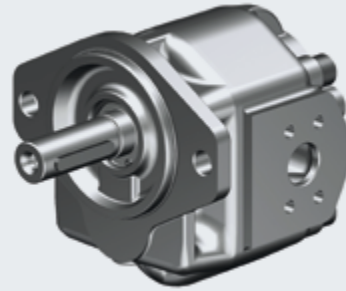
PTO gear pumps

KP

with hydraulic axial clearance compensation

Displacement	1.5 ... 300 cm ³ /r
Working pressure	... 315 bar
Speed	... 4000 1/min
Viscosity	10 ... 600 mm ² /s
Media temperature	-20 ... 150 °C

KP 3



PTO gear pumps

KP

Pumps	Displacement	Speed	Working pressure	Design / Option
KP 1	1,5 ... 25 cm ³ /r	500 ... 4000 1/min	... 280 bar	<ul style="list-style-type: none"> - Aluminium housing (... 4NL) - Front and end covers made of cast iron - Optionally completely cast iron (... 2KL) e.g. for mining or HFC media - ATEX protection up to T4 on request
KP 2	20 ... 62 cm ³ /r	500 ... 3000 1/min	... 315 bar	<ul style="list-style-type: none"> - Made completely of cast iron (EN-GJL-300) - Optionally with bronze sleeve bearing - Also available in spheroidal cast iron (EN-GJS-600) - ATEX protection up to T3 on request
KP 3	71 ... 125 cm ³ /r	500 ... 2600 1/min	... 280 bar	<ul style="list-style-type: none"> - Made completely of cast iron (EN-GJL-300) - Also available with bronze sleeve bearing in spheroidal cast iron - ATEX protection up to T3 on request
KP 5	160 ... 300 cm ³ /r	800 ... 2000 1/min	... 100 bar	<ul style="list-style-type: none"> - Made completely of cast iron (EN-GJL-300)

Asphalt gear pumps BTH

Asphalt gear pumps

BTH

with heating chamber

Displacement	97...1056 cm ³ /r
Working pressure	... 8 bar
Speed	100 ... 750 1/min
Viscosity	76 ... 30 000 mm ² /s
Media temperature	-10 ... 220 °C

In the case of fluids which require elevated temperatures to flow i. e. bitumen, wax etc. the BTH series pump should be used. In this model the housing is double walled to provide a heating chamber. The pump chamber is heated by circulating heat transfer fluid or steam through the jacket.



Contacts



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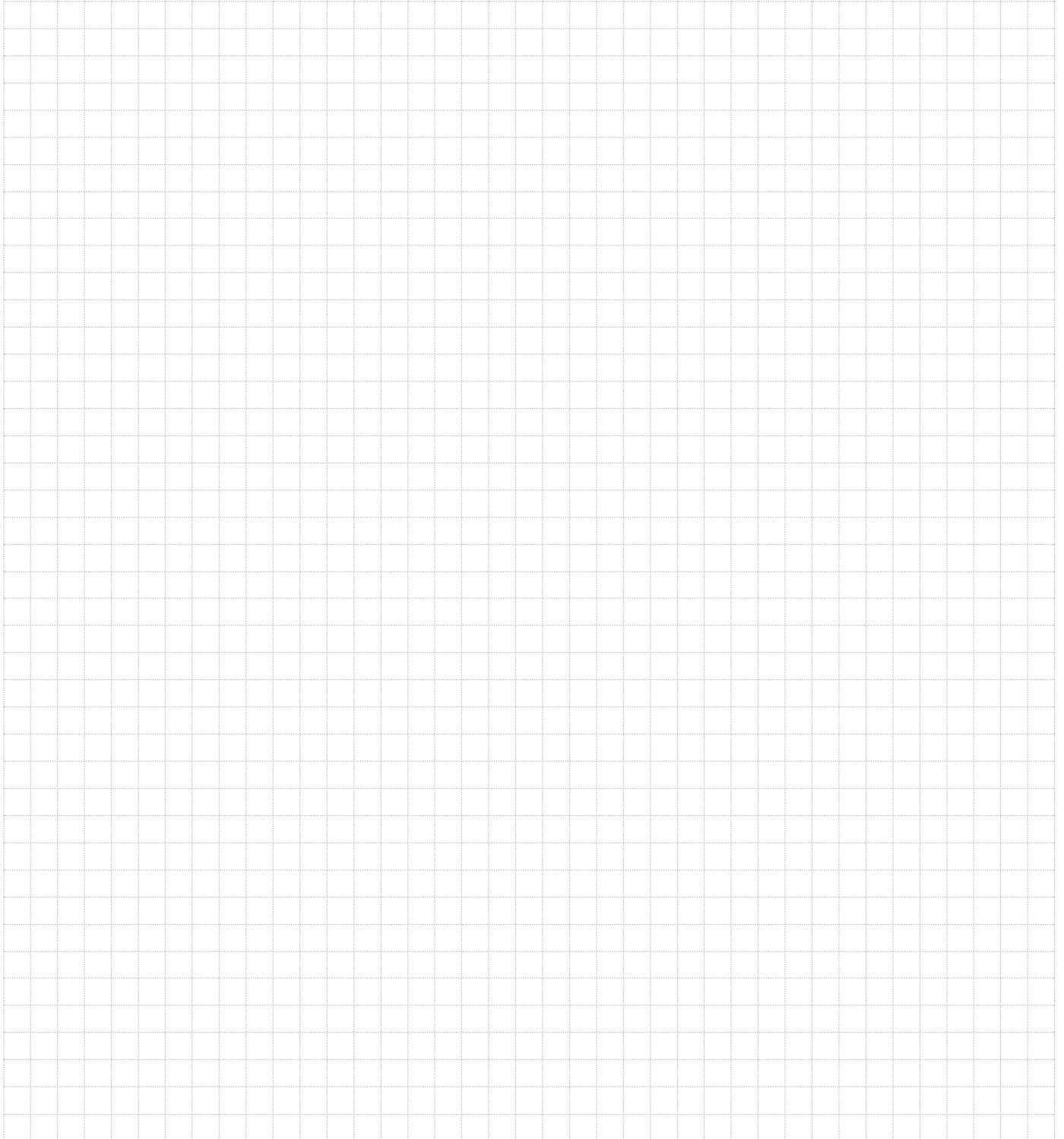
Russia
Slovakia
Slovenia
South Africa

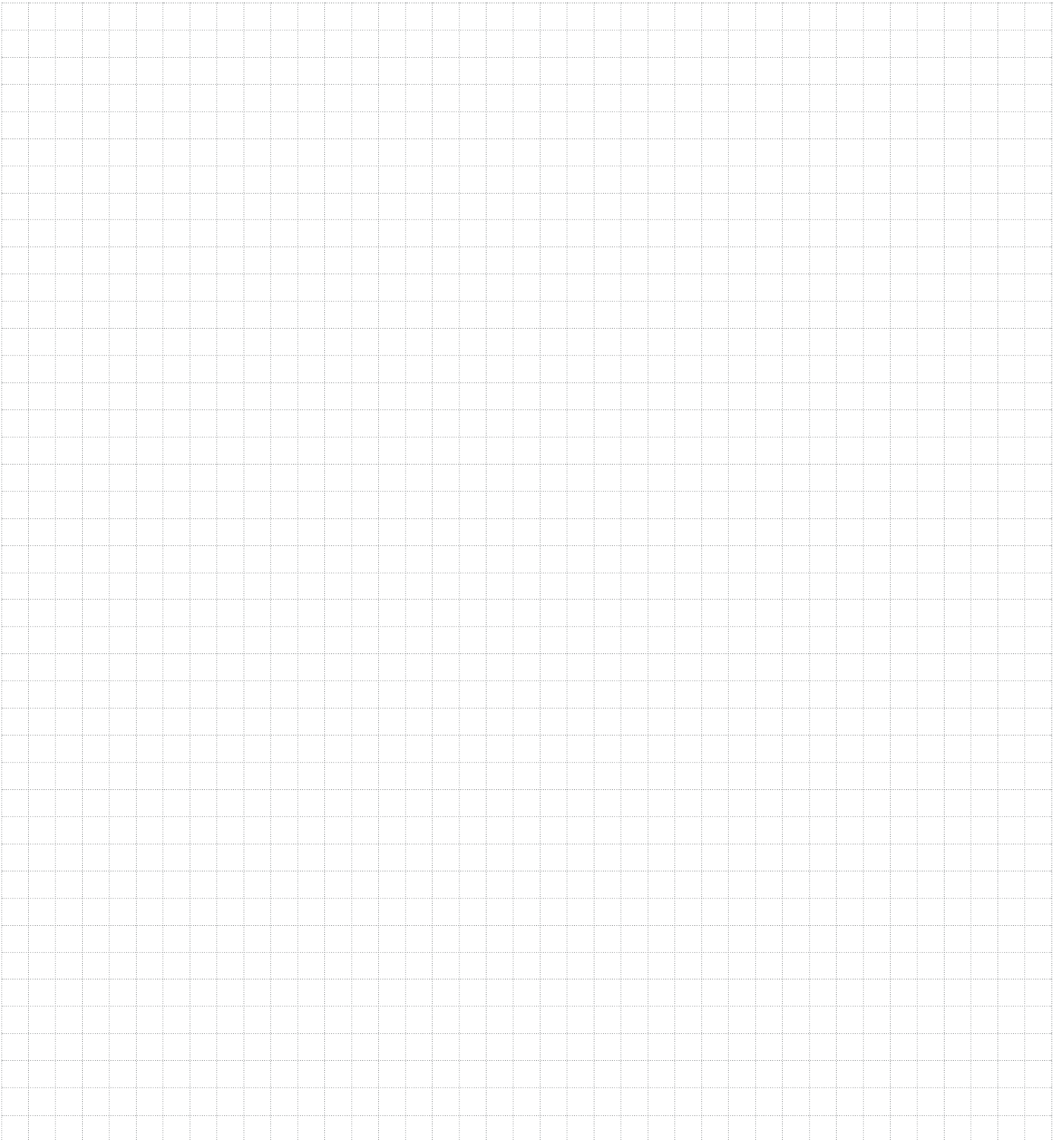
Spain
Sweden
Switzerland
Turkey

United Kingdom
USA

We are ready to support you around the world with the professional mastery of specific applications and complete solutions. A closely woven network of sales and customer specialists provide the right tools for national and international consulting and optimal customer service.

Notes





KRACHT

KRACHT GmbH · Gewerbestraße 20 · 58791 Werdohl, Germany
Phone +49 2392.935 0 · Fax +49 2392.935 209
Email info@kracht.eu · Web www.kracht.eu