



POMPE AD INGRANAGGI

**MGP2K**

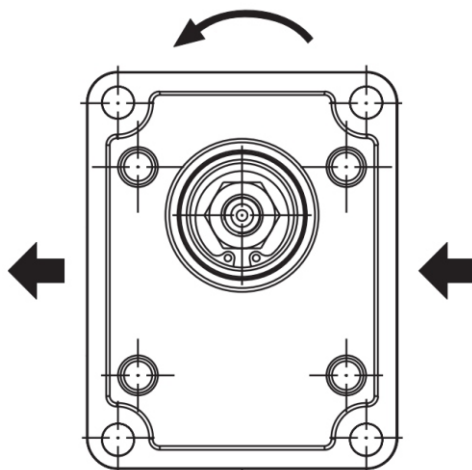
GEAR PUMPS  
GROUP 2

**WORKING CONDITIONS**

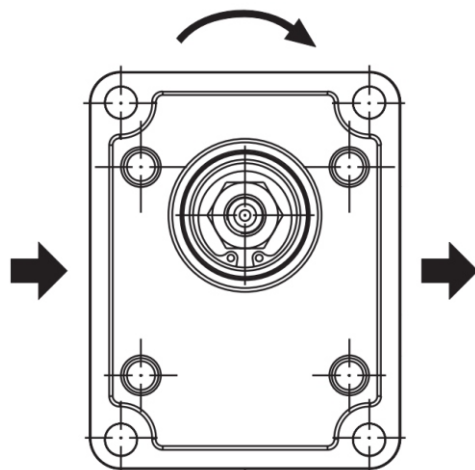
INLET PRESSURE (MAX.)	0.5 – 2.5 BAR
MIN. OPERATING FLUID VISCOSITY	10 MM <sup>2</sup> /SEC
MAX. STARTING VISCOSITY (COLD START)	1000 MM <sup>2</sup> /SEC
FLUID VISCOSITY RECOMMENDED RANGE	17 – 65 MM <sup>2</sup> /SEC
FLUID OPERATING TEMPERATURE RANGE WITH NBR SEALS	-40 + 100 °C
FLUID OPERATING TEMPERATURE RANGE WITH FPM SEALS (VITON)	-20 + 170 °C
HYDRAULIC FLUID	MINERAL OIL
CONTAMINATION CLASS ISO 4406	18/15 (>200 BAR), 19/16 (<200 BAR)
CONTAMINATION CLASS NAS 1638	9 (>200 BAR), 10 (<200 BAR)
ACHIEVED WITH FILTER $\beta_x=75$	15 $\mu$ M (>200 BAR), 25 $\mu$ M (<200 BAR)

**DEFINITION OF ROTATION DIRECTION  
LOOKING ON THE DRIVE SHAFT**

COUNTERCLOCKWISE ROTATION

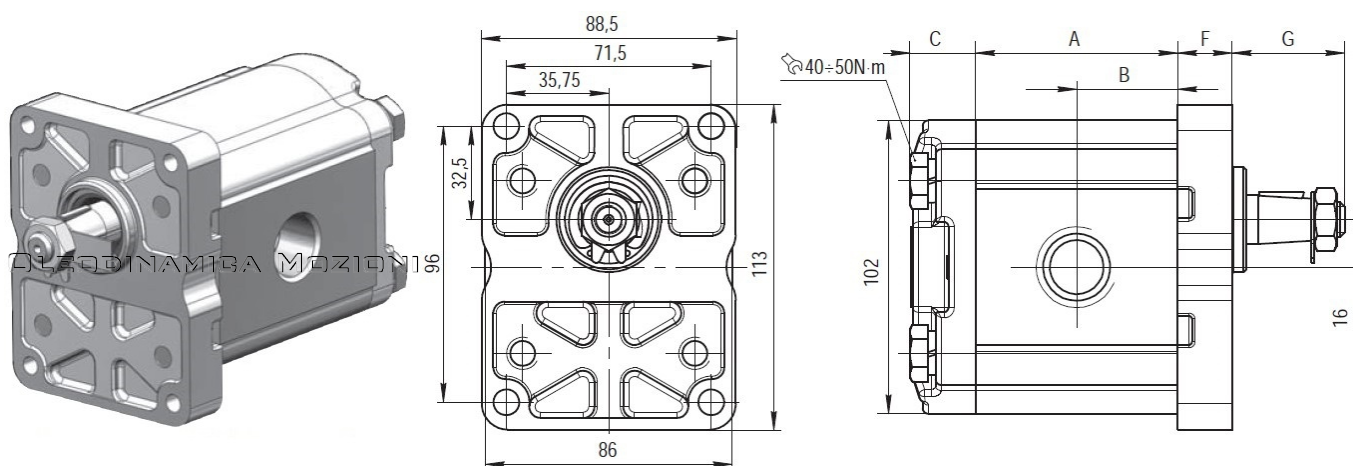


CLOCKWISE ROTATION



## TECHNICAL DATA AND INSTALLATION DIMENSIONS

TYPE	MGP2K4	MGP2K5	MGP2K6	MGP2K8	MGP2K10	MGP2K11	MGP2K12	MGP2K14
DISPLACEMENT, CM <sup>3</sup> /REV	4,5	5,6	6,3	8,2	10,0	11,3	12,5	14,0
DIMENSION A, MM	47,5	49,1	50,2	53,2	56,0	58,0	59,8	62,1
DIMENSION B, MM	23,7	24,6	25,1	26,5	28,0	29,0	29,9	31,1
MAX. CONTINUOUS PRESSURE P <sub>1</sub> , BAR	250							
MAX. INTERMITTENT PRESSURE P <sub>2</sub> , BAR	280							
PEAK PRESSURE P <sub>3</sub> , BAR	300							
MAX. SPEED $\eta_{MAX}$ , MIN <sup>-1</sup>	4000				3500			
MIN. SPEED AT P <sub>1</sub> ≤ 100 BAR, $\eta_{MIN}$ , MIN <sup>-1</sup>	700					600		
WEIGHT*, KG	2,1	2,1	2,2	2,2	2,3	2,4	2,4	2,6



MGP2K10R-G262G

DIMENSION G SEE AT SECTION "DRIVE SHAFTS"  
DIMENSION F SEE AT SECTION "MOUNTING FLANGES"  
DIMENSION C SEE AT SECTION "REAR COVERS"

\* - WEIGHT SPECIFIED FOR PUMPS WITH ALUMINUM COVERS.  
WEIGHT FOR PUMPS WITH CAST IRON COATINGS MUST BE CLARIFY.



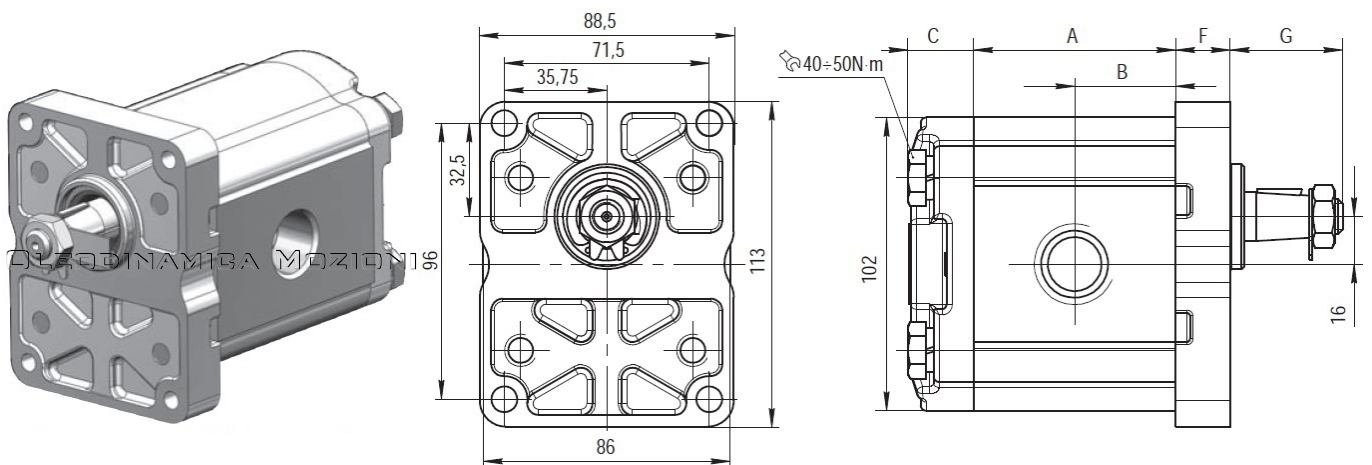
POMPE AD INGRANAGGI

**MGP2K**

GEAR PUMPS  
GROUP 2

**TECHNICAL DATA AND INSTALLATION DIMENSIONS**

TYPE	MGP2K15	MGP2K16	MGP2K17	MGP2K19	MGP2K20	MGP2K23	MGP2K25	MGP2K28
DISPLACEMENT, CM <sup>3</sup> /REV	15,0	16,0	17,0	19,0	20,0	22,5	24,8	28,0
DIMENSION A, MM	63,7	65,2	66,9	69,9	71,4	75,3	78,8	83,7
DIMENSION B, MM	31,9	32,6	33,5	35,0	35,7	37,7	39,4	41,9
MAX. CONTINUOUS PRESSURE P <sub>1</sub> , BAR	250			220	210	190	170	150
MAX. INTERMITTENT PRESSURE P <sub>2</sub> , BAR	280			250	230	210	190	170
PEAK PRESSURE P <sub>3</sub> , BAR	300			270	250	230	210	190
MAX. SPEED $\eta_{MAX}$ , MIN <sup>-1</sup>	3500	3000				2500		
MIN. SPEED AT P <sub>1</sub> ≤ 100 BAR, $\eta_{MIN}$ , MIN <sup>-1</sup>	600			500				
WEIGHT*, KG	2,6	2,7	2,7	2,8	2,8	3,0	3,2	3,4



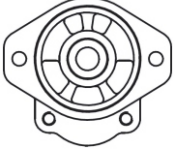
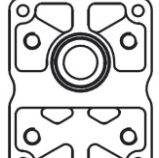



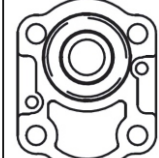

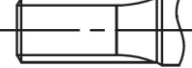
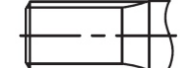
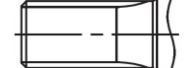
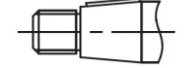
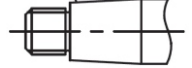
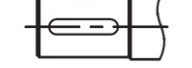
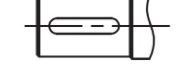
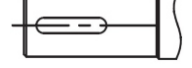

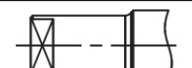

MGP2K10R-G262G

DIMENSION G SEE AT SECTION "DRIVE SHAFTS"  
 DIMENSION F SEE AT SECTION "MOUNTING FLANGES"  
 DIMENSION C SEE AT SECTION "REAR COVERS"

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## COMBINATIONS OF MOUNTING FLANGES & SHAFTS

MGP2K	 SAE "A" 2 BOLTS	 EUROPEAN	 GERMAN ø80	 GERMAN 2 BOLTS ø50	 GERMAN 2 BOLTS ø52	 GERMAN 4 BOLTS ø52	 FOR PERKINS MOTOR
 SAE A SPLINED (9 TEETH)	B2 31 B2 32						
 SAE A SPLINED (10 TEETH)	B3 31 B3 32						
 SAE A SPLINED (11 TEETH)	B4 31 B4 32						
 EUROPEAN TAPERED 1:8		G2 61 G2 62					G2 21
 GERMAN TAPERED 1:5			F2 81	F2 91 F2 92			
 SAE "A" STRAIGHT ø15,87	H2 31 H2 32	H2 61 H2 62					
 SAE "A" STRAIGHT ø19,05	H8 31 H8 32						
 SAE "A" STRAIGHT ø19,05 LENGTH	H9 31 H9 32						
 TANG DRIVE					K3 93 K3 94	K3 95	
 TANG DRIVE				K4 91 K4 92			
 DIN 5482 SPLINED (9 TEETH)		I2 61 I2 62	I2 81	I2 91 I2 92			

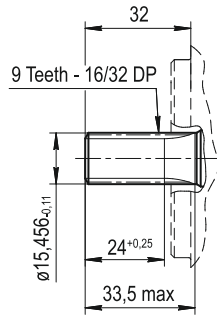
THIS COMBINATIONS OF MOUNTING FLANGES AND SHAFTS ARE USED TO SERIAL PRODUCTION. THE OTHER COMBINATIONS AND DATE OF PRODUCTION, BEFORE ORDERING CLARIFY WITH THE MANUFACTURER.

SEE ALSO: MGP1K  
MGP2.5K, MGP3K



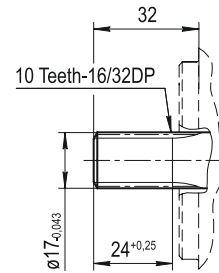
**DRIVE SHAFTS**

MAX. TORQUE 100 N·M



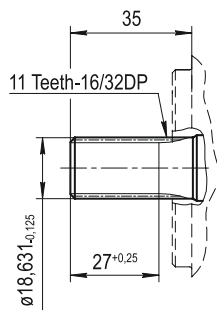
**B2 – SAE A SPLINED (9 TEETH)**

MAX. TORQUE 130 N·M



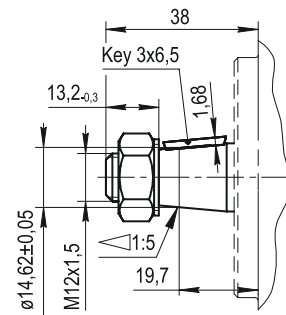
**B3 – SAE A SPLINED (10 TEETH)**

MAX. TORQUE 170 N·M



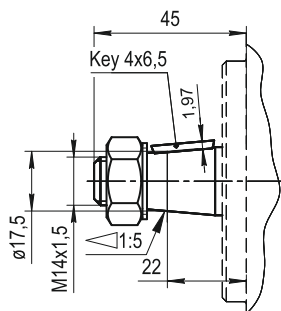
**B4 – SAE A SPLINED (11 TEETH)**

MAX. TORQUE 140 N·M



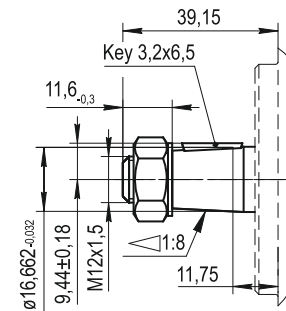
**F2 – GERMAN TAPERED 1:5**

MAX. TORQUE 140 N·M



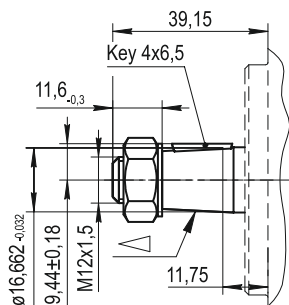
**F6 – GERMAN TAPERED 1:5**

MAX. TORQUE 140 N·M



**G2 – EUROPEAN TAPERED 1:8**

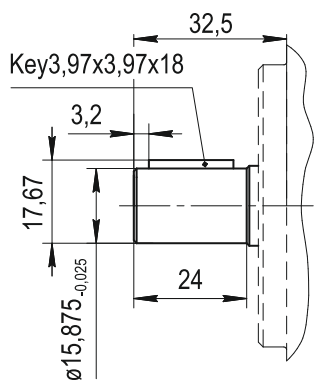
MAX. TORQUE 140 N·M



**G6 – EUROPEAN TAPERED 1:8**

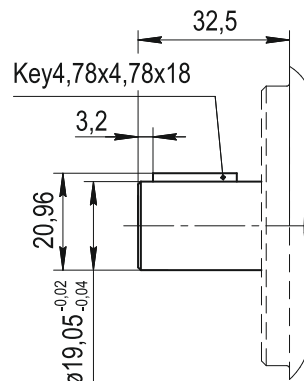
## DRIVE SHAFTS

MAX. TORQUE 70 N·M



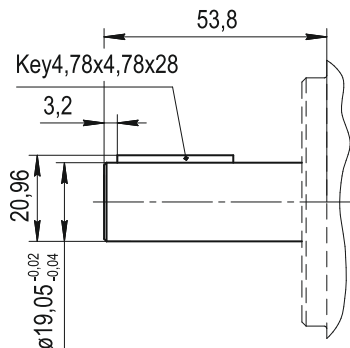
**H2 - SAE A STRAIGHT  $\varnothing$ 15,87**

MAX. TORQUE 100 N·M



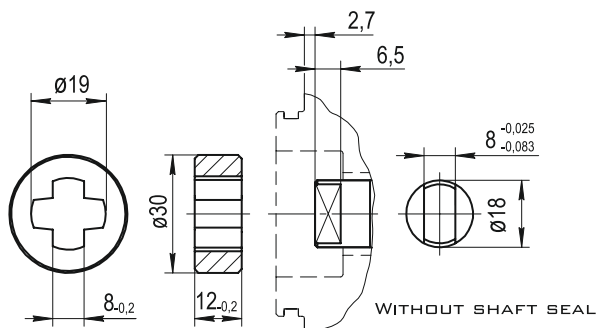
**H8 - SAE A STRAIGHT  $\varnothing$ 19,05**

MAX. TORQUE 140 N·M



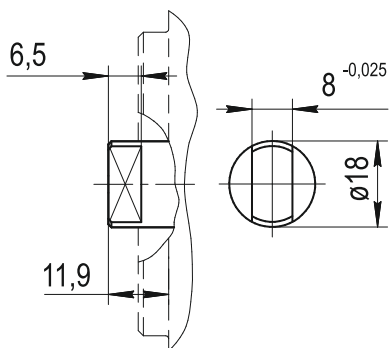
**H9 - SAE A STRAIGHT  
 $\varnothing$ 19,05 LENGTH**

MAX. TORQUE 70 N·M



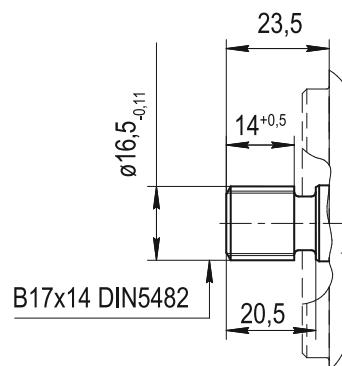
**K3 - TANG DRIVE FOR  
ELECTRIC MOTORS**

MAX. TORQUE 70 N·M



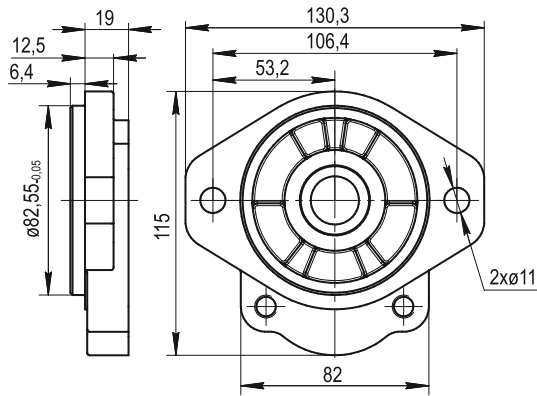
**K4 - TANG DRIVE**

MAX. TORQUE 70 N·M

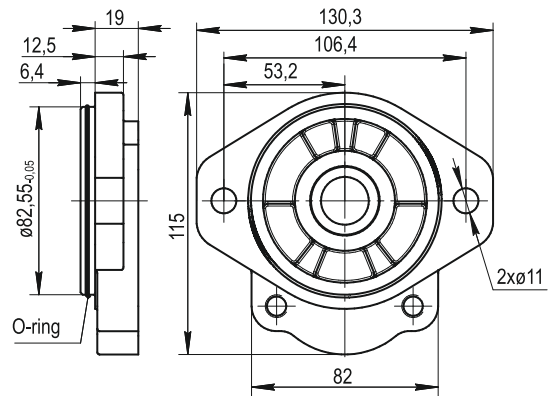


**I2 - DIN 5482 SPLINED (9 TEETH)**

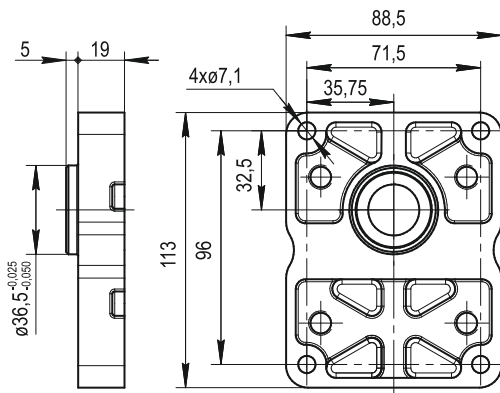
MOUNTING FLANGES



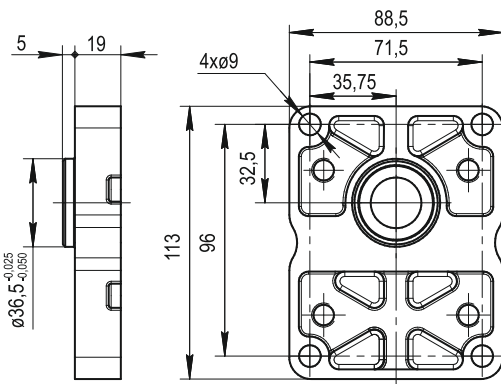
31 - SAE A 2 BOLTS



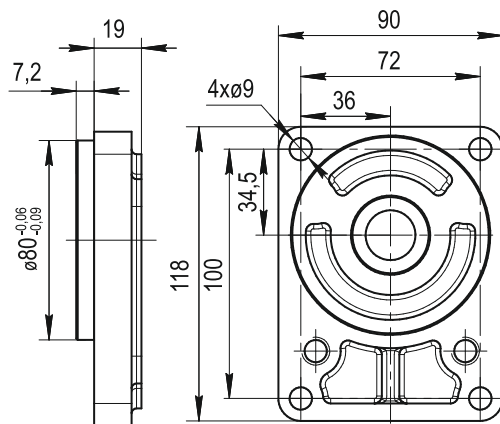
32 - SAE A 2 BOLTS (WITH O-RING)



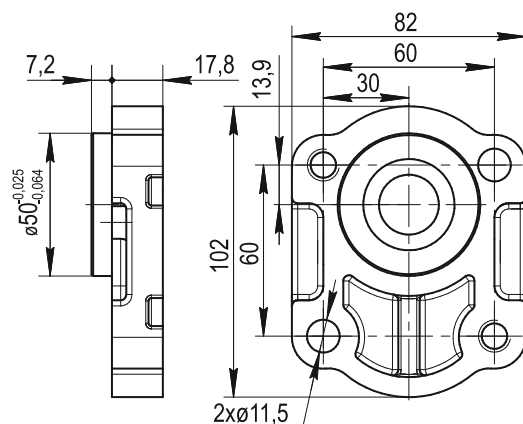
61 - EUROPEAN Ø7,1



62 - EUROPEAN Ø9

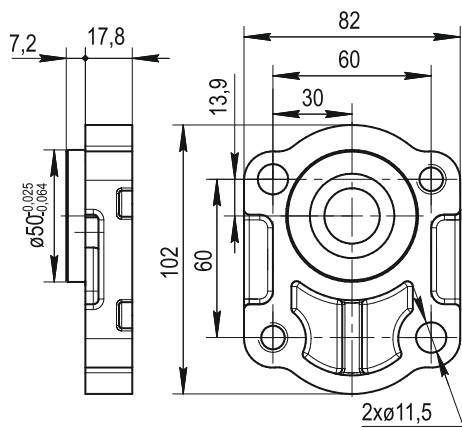


81 - GERMAN Ø80

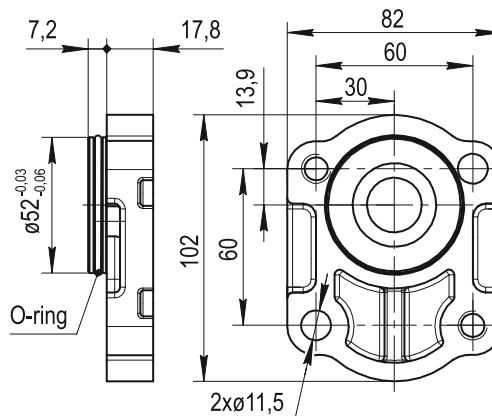


91 - GERMAN 2 BOLTS Ø50

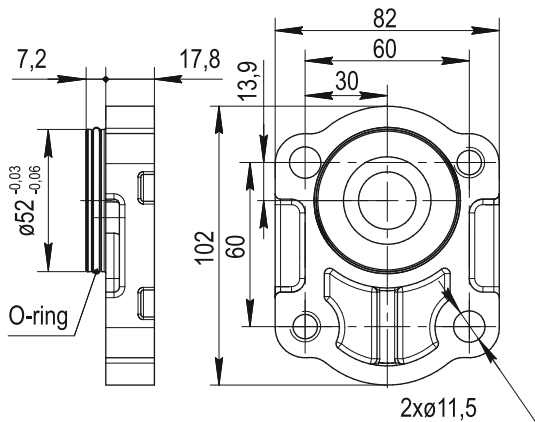
## MOUNTING FLANGES



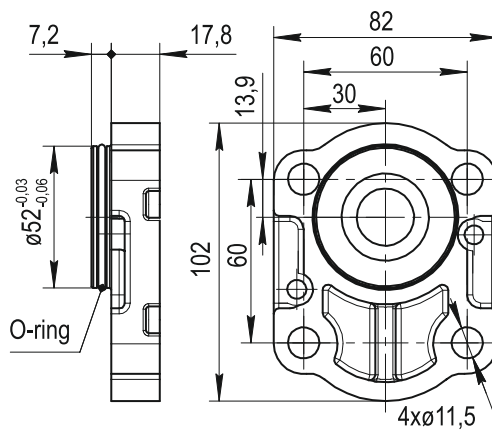
92 - GERMAN 2 BOLTS  $\varnothing 50$



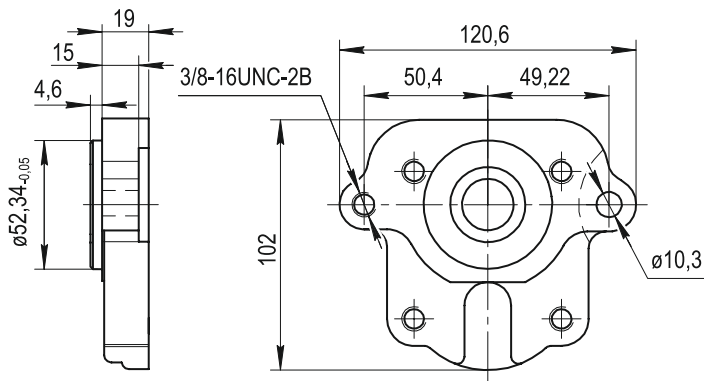
93 - GERMAN 2 BOLTS  $\varnothing 52$



94 - GERMAN 2 BOLTS  $\varnothing 52$



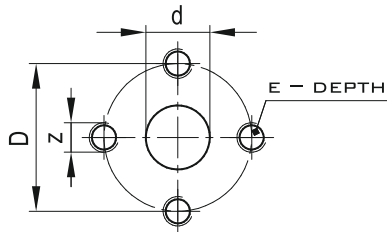
95 - GERMAN 4 BOLTS  $\varnothing 52$



21 - MOUNTING FLANGE  
FOR PERKINS MOTOR

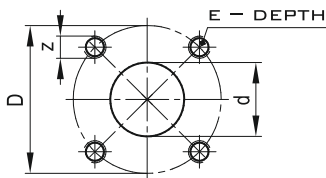


**PORTS**



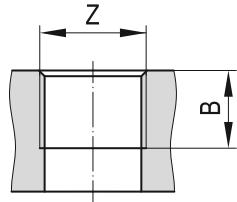
**B - EUROPEAN FLANGE**

TYPE	INLET				OUTLET			
	D	D	Z	E	D	D	Z	E
MGP2K4÷8	13	30	M6	13	13	30	M6	13
MGP2K10÷28	19	40	M8		14			



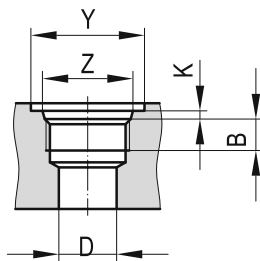
**C - GERMAN FLANGE**

TYPE	INLET				OUTLET			
	D	D	Z	E	D	D	Z	E
MGP2K4÷28	20	40	M6	13	15	35	M6	13



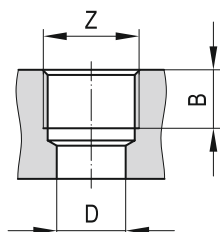
**E - METRIC THREADED**

TYPE	INLET		OUTLET	
	Z	B	Z	B
MGP2K4÷8	M18x1,5	16	M14x1,5	16
MGP2K10÷12	M22x1,5		M18x1,5	
MGP2K14÷28	M27x2			



**F - SAE THREADED**

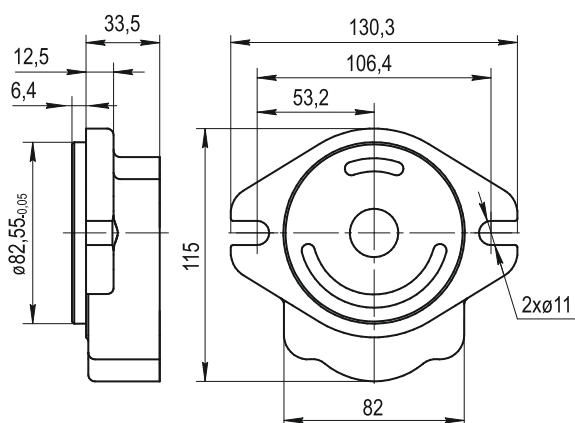
TYPE	INLET					OUTLET				
	Z	B	K	D	Y	Z	B	K	D	Y
MGP2K4÷8	7/8-14 UNF (SAE #10)	14	2,5	13	32	7/8-14 UNF (SAE #10)	14	2,5	13	32
MGP2K10÷28	1 1/16-12 UN (SAE #12)	16	3,3	20	42					



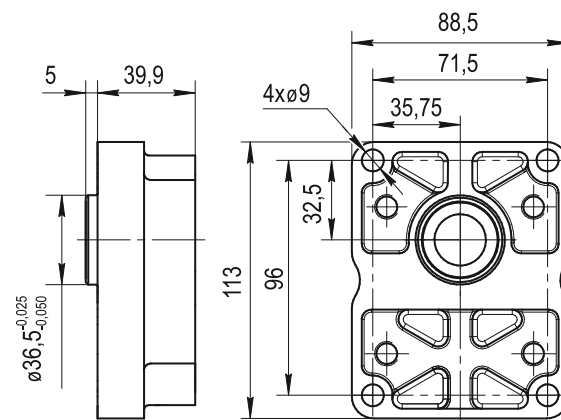
**G - GAS THREADED (BSPP)**

TYPE	INLET			OUTLET		
	Z	B	D	Z	B	D
MGP2K4÷8	1/2" GAS	16	13	1/2" GAS	16	13
MGP2K10÷28	3/4" GAS	19	20			

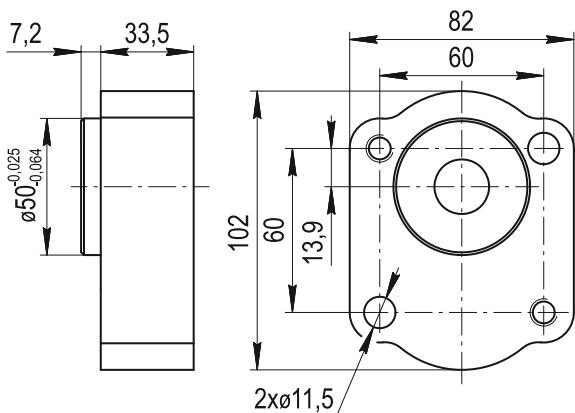
## MOUNTING FLANGES WITH BEARING SUPPORT



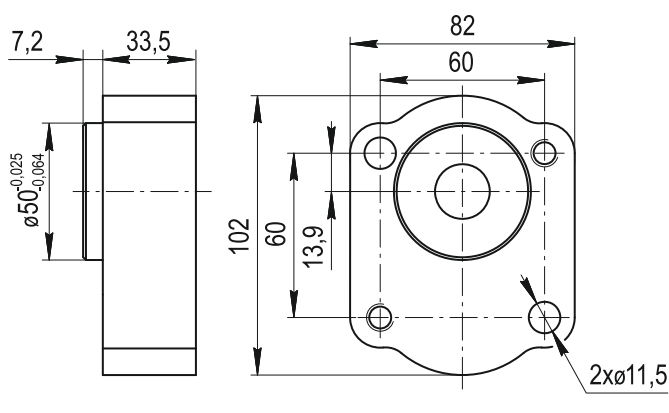
**C3 - SAE A**



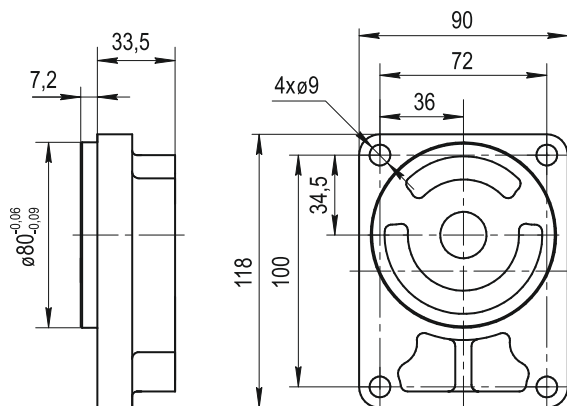
**C6 - EUROPEAN**



**C7 - GERMAN  $\varnothing 50$**

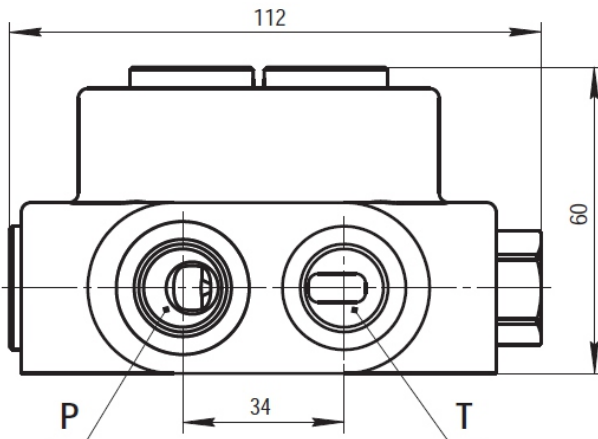


**C8 - GERMAN  $\varnothing 50$**



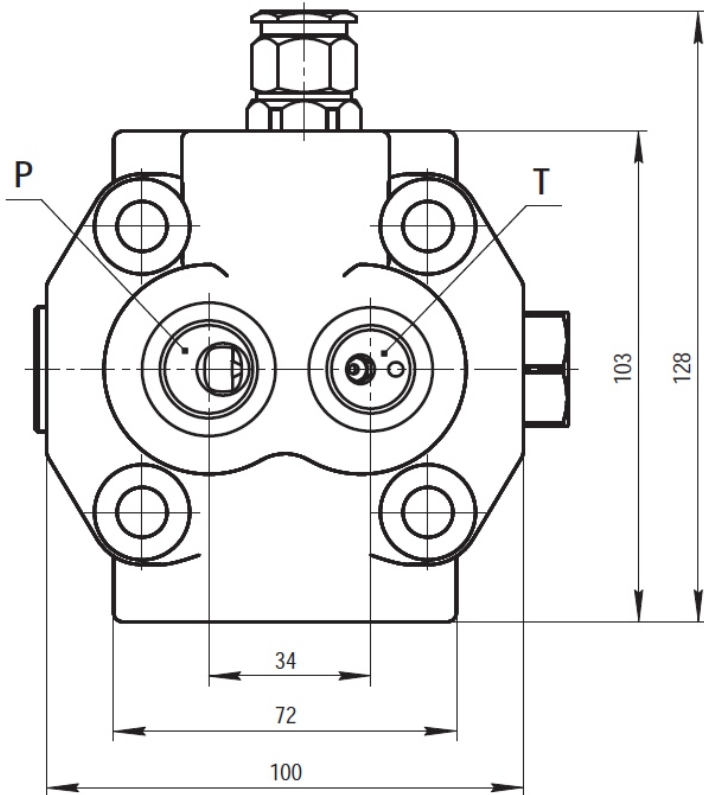
**C9 - GERMAN  $\varnothing 80$**

**VERSION WITH VALVE IN REAR COVER**

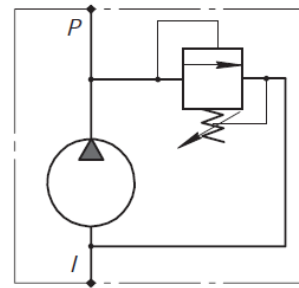


PRESSURE SETTING OF RELIEF VALVE:  
20÷280 BAR

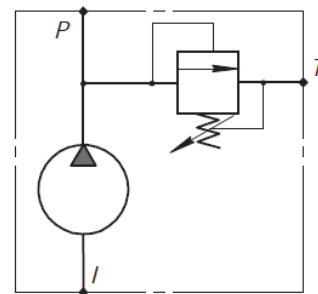
CODE	P	T
E	M20x1,5	M18x1,5
F	7/8-14 UNF	3/4-16 UNF
G	1/2" GAS	3/8" GAS



P - PRESSURE LINE  
T - RETURN LINE



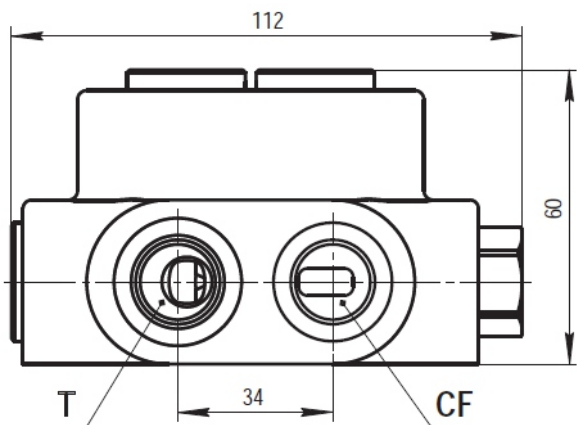
**VR - RETURN TO SUCTION  
RELIEF VALVE**



**VR1 - RETURN-TO-TANK  
RELIEF VALVE**

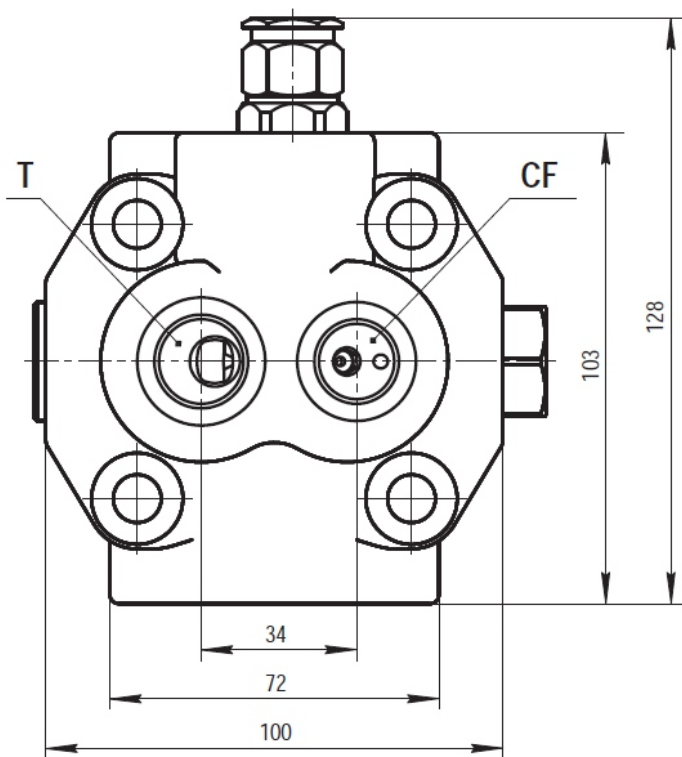


## VERSION WITH VALVE IN REAR COVER

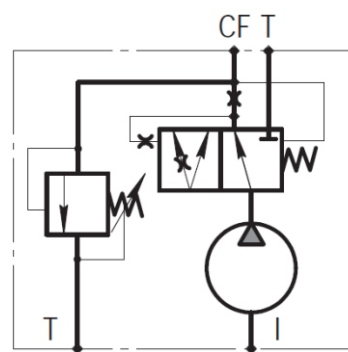


PRESSURE SETTING OF RELIEF VALVE:  
20 ÷ 280 BAR

CODE	P	T
E	M18x1,5	M18x1,5
F	3/4-16 UNF	3/4-16 UNF
G	3/8" GAS	3/8" GAS



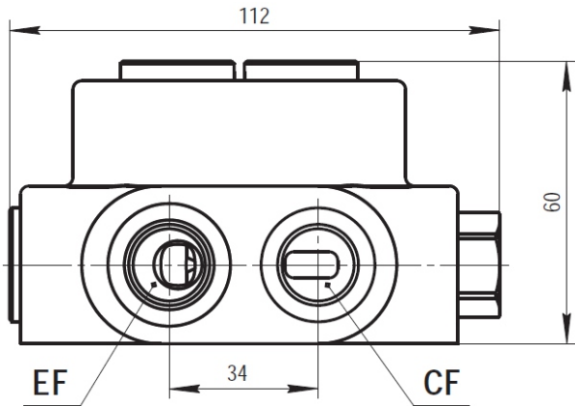
CONSTANT FLOW, L/MIN (± 10%)	1,2	2	4,5	6	8	10
	12	14,5	18	20	23	25



**VQR - CONSTANT FLOW VALVE  
WITH A RELIEF VALVE AND  
RETURN LINE TO TANK**

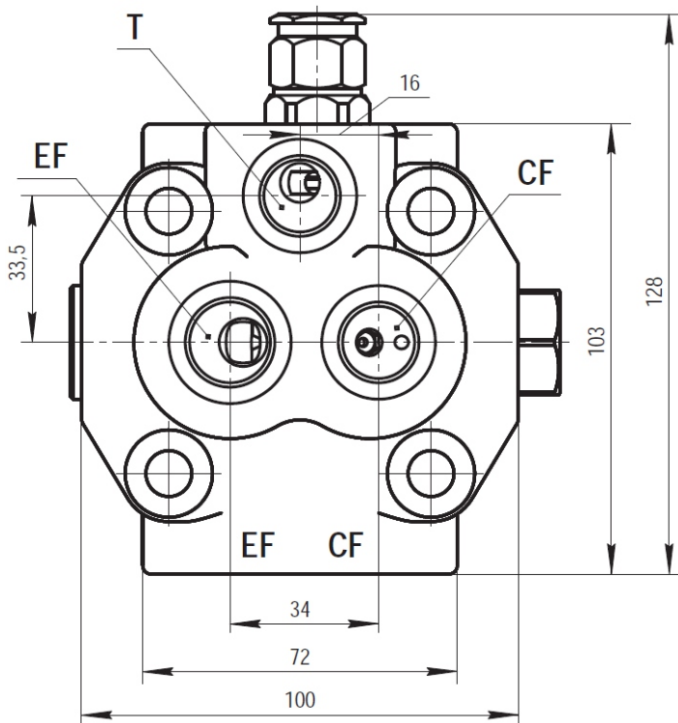
CF - CONSTANT FLOW LINE  
T - RETURN LINE

**VERSION WITH VALVE IN REAR COVER**

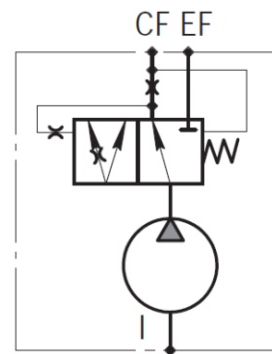


PRESSURE SETTING OF RELIEF VALVE:  
20 ÷ 280 BAR

CODE	CF	EF	T
E	M18x1,5	M20x1,5	M18x1,5
F	3/4-16 UNF	7/8-16 UNF	3/4-16 UNF
G	3/8" GAS	1/2" GAS	3/8" GAS



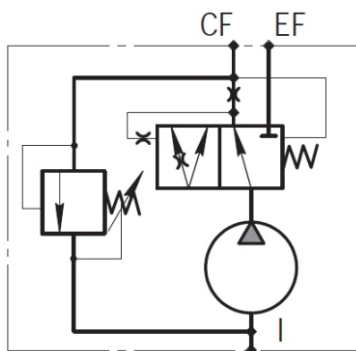
PRIORITY FLOW, L/MIN (± 10%)	1,2	2	4,5	6	8	10
	12	14,5	18	20	23	25



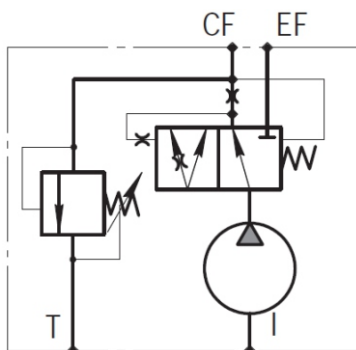
**VP - PRIORITY VALVE**

CF - PRIORITY FLOW LINE  
EF - SECONDARY LINE  
T - RETURN LINE

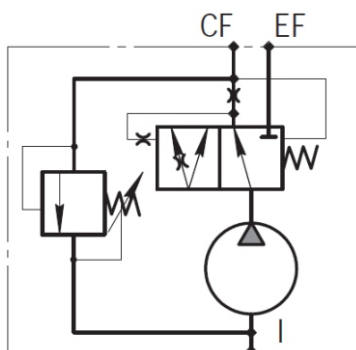
## VERSION WITH VALVE IN REAR COVER



**VPR – PRIORITY VALVE WITH A RELIEF VALVE IN THE PRIORITY LINE AND WITH OIL DRAINAGE IN THE SUCTION LINE OF THE PUMP**

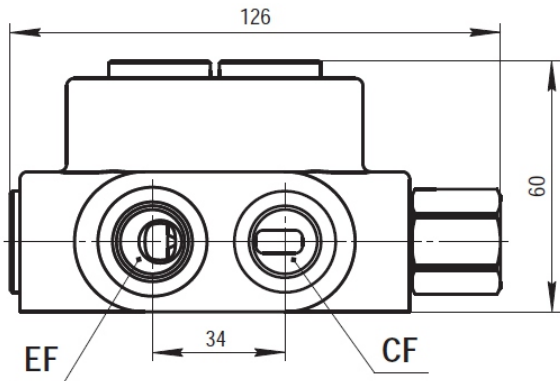


**VPRT – PRIORITY VALVE WITH A RELIEF VALVE IN THE PRIORITY LINE AND WITH OIL DRAINAGE IN THE TANK**



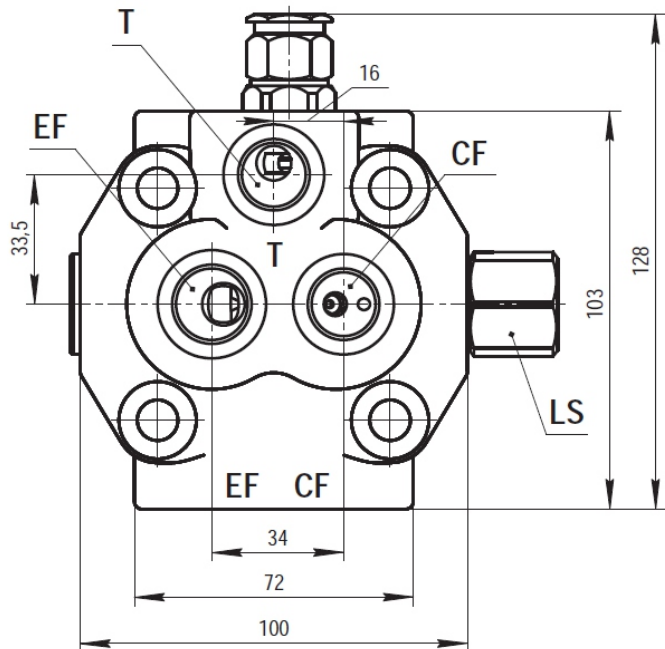
**VPRET – PRIORITY VALVE WITH A RELIEF VALVE IN THE SECONDARY LINE AND WITH OIL DRAINAGE IN THE TANK**

VERSION WITH VALVE IN REAR COVER



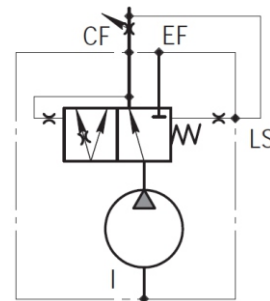
PRESSURE SETTING OF RELIEF VALVE:  
20 ÷ 280 BAR

CODE	CF	EF	T	LS
E	M18x1,5	M20x1,5	M18x1,5	M14x1,5
F	3/4-16 UNF	7/8-16 UNF	3/4-16 UNF	7/16-20 UNF
G	3/8" GAS	1/2" GAS	3/8" GAS	1/4" GAS

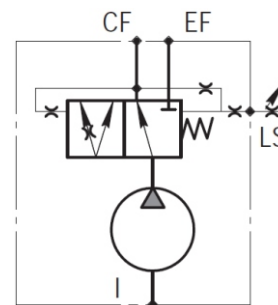


LS SIGNAL, BAR	4	7	10
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CF - PRIORITY FLOW LINE  
EF - SECONDARY LINE  
LS - SIGNAL LINE  
T - RETURN LINE

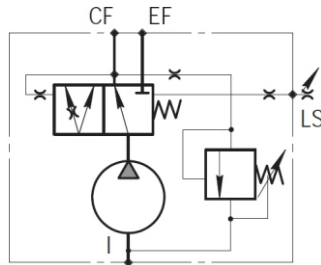


VPLS - PRIORITY VALVE WITH  
STATIC LS CONTROL

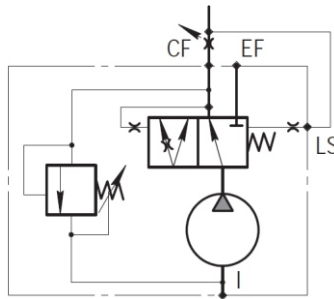


VPLD - PRIORITY VALVE WITH  
DYNAMIC LS CONTROL

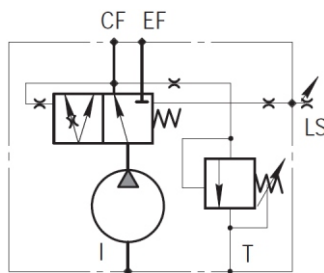
## VERSION WITH VALVE IN REAR COVER



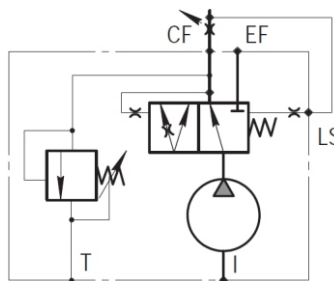
**VPLRS – PRIORITY VALVE WITH A RELIEF VALVE IN THE PRIORITY LINE AND WITH OIL DRAINAGE IN THE SUCTION LINE OF THE PUMP**



**VPLRD – PRIORITY VALVE WITH A RELIEF VALVE IN THE PRIORITY LINE AND WITH OIL DRAINAGE IN THE TANK**



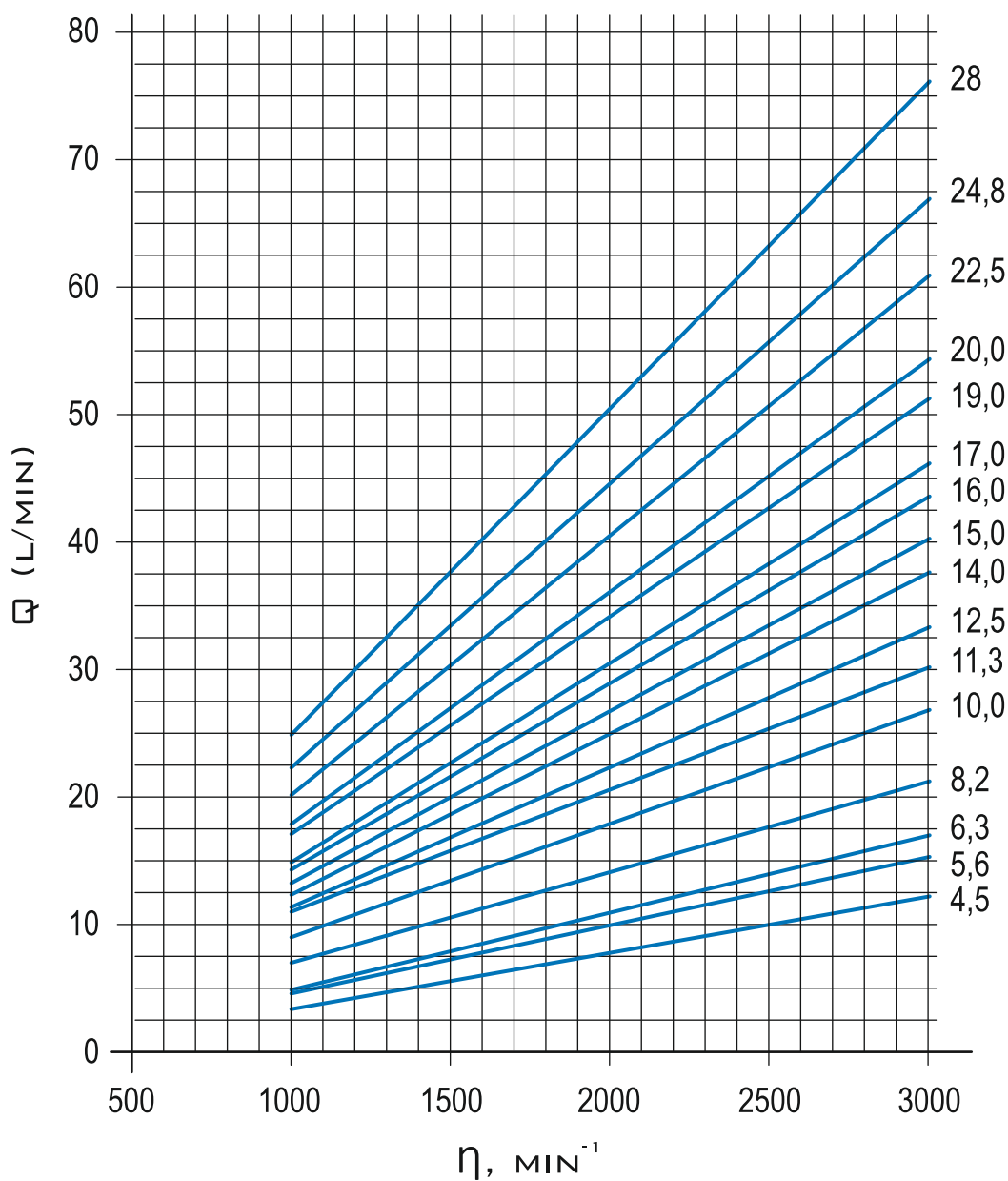
**VPLRST – PRIORITY VALVE WITH A RELIEF VALVE IN THE SECONDARY LINE AND WITH OIL DRAINAGE IN THE TANK**



**VPLRDT – PRIORITY VALVE WITH A RELIEF VALVE IN THE SECONDARY LINE AND WITH OIL DRAINAGE IN THE TANK**

## CHARACTERISTIC CURVES

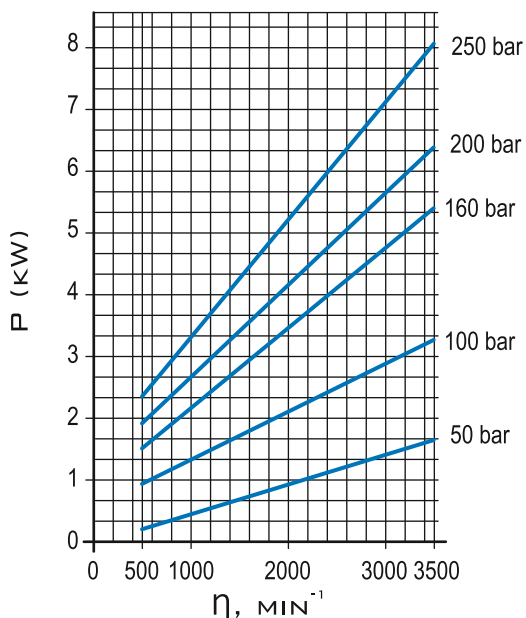
CHARACTERISTIC CURVES CARRIED OUT WITH OIL VISCOSITY AT 16 MM<sup>2</sup>/SEC,  
OIL TEMPERATURE AT 60 °C AND MAX. CONTINUOUS PRESSURES FOR EACH TYPE.



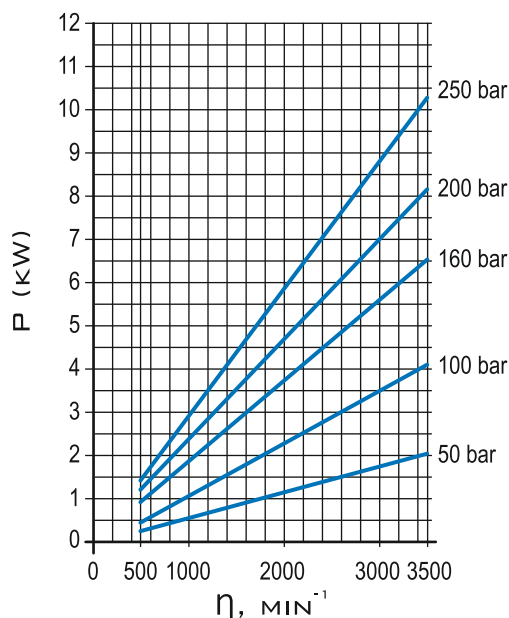
## CHARACTERISTIC CURVES

CHARACTERISTIC CURVES CARRIED OUT WITH OIL VISCOSITY AT 16 MM<sup>2</sup>/SEC AND OIL TEMPERATURE AT 60 °C.

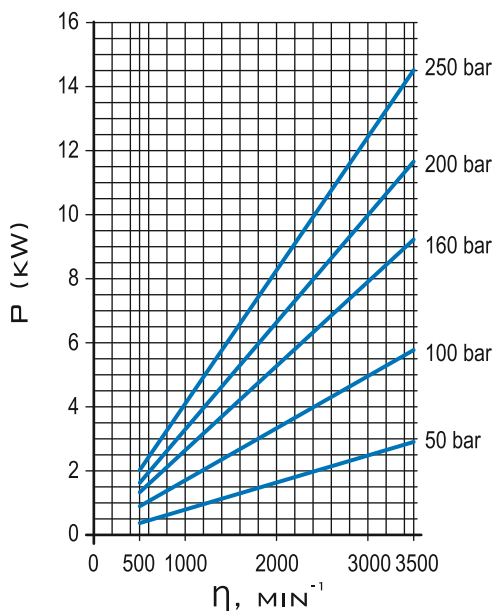
**MGP2K4**



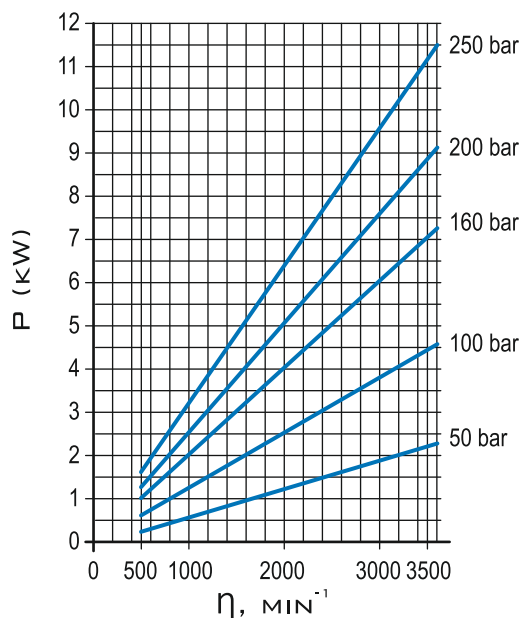
**MGP2K5**



**MGP2K6**



**MGP2K8**



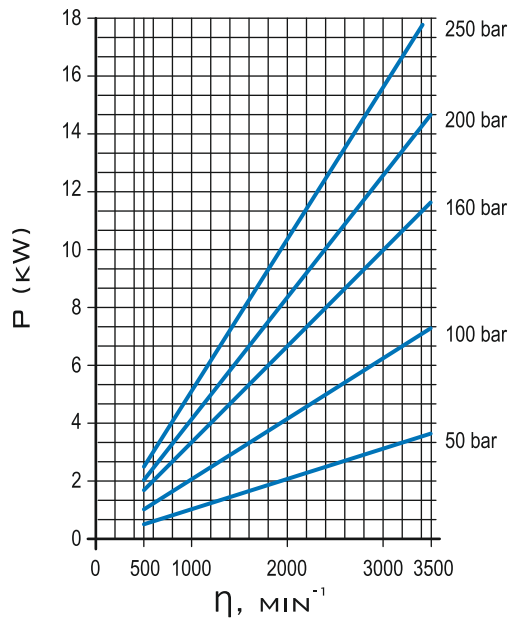




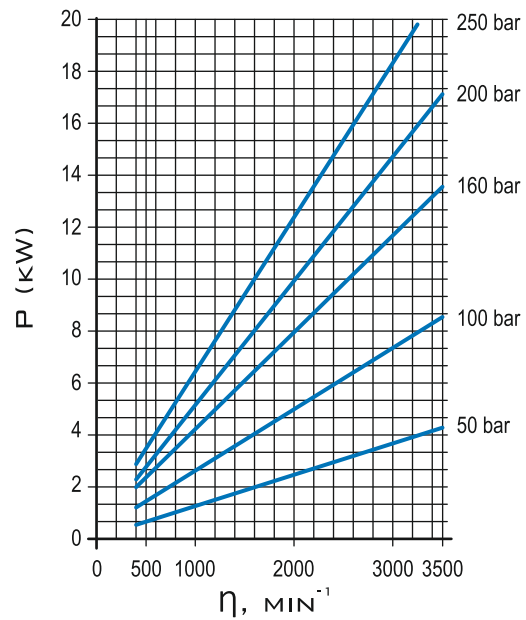
CHARACTERISTIC CURVES

CHARACTERISTIC CURVES CARRIED OUT WITH OIL VISCOSITY AT 16 MM<sup>2</sup>/SEC AND OIL TEMPERATURE AT 60 °C.

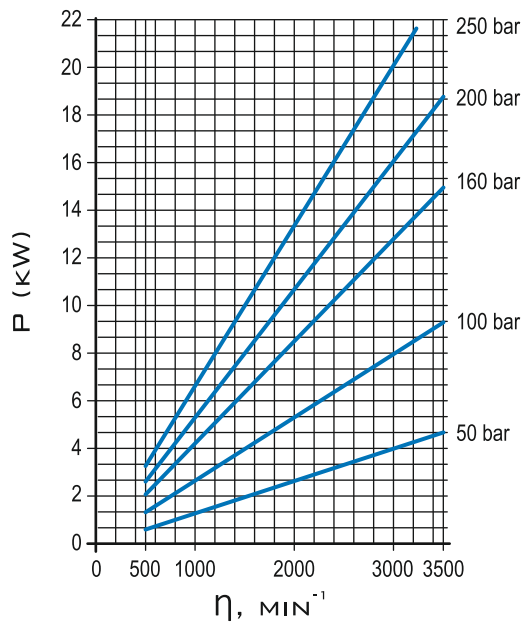
MGP2K10



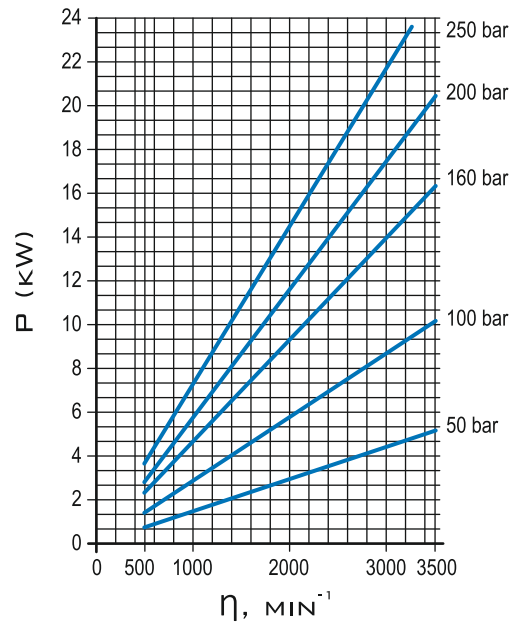
MGP2K11



MGP2K12



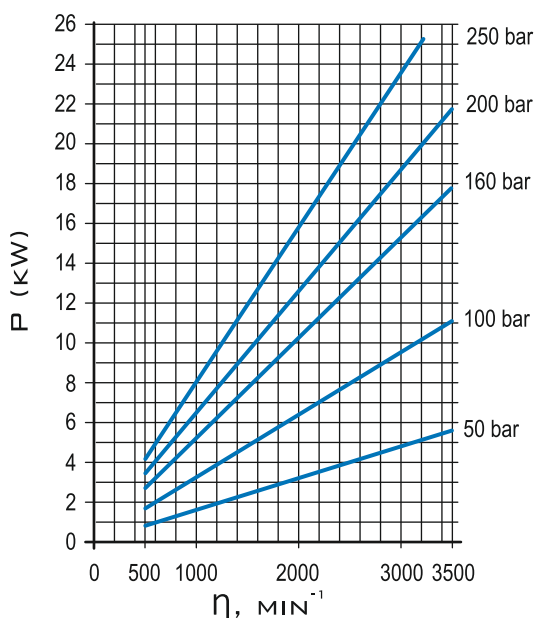
MGP2K14



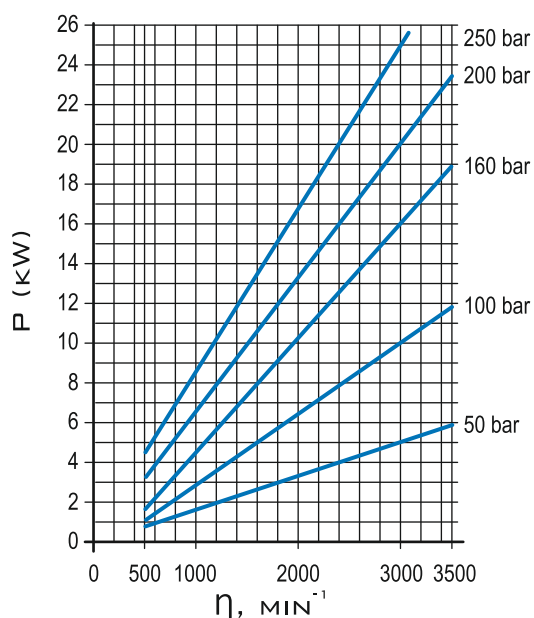
## CHARACTERISTIC CURVES

CHARACTERISTIC CURVES CARRIED OUT WITH OIL VISCOSITY AT 16 MM<sup>2</sup>/SEC AND OIL TEMPERATURE AT 60 °C.

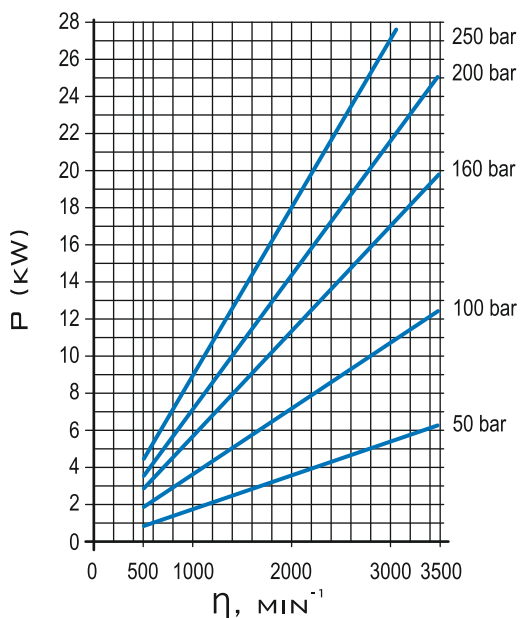
**MGP2K15**



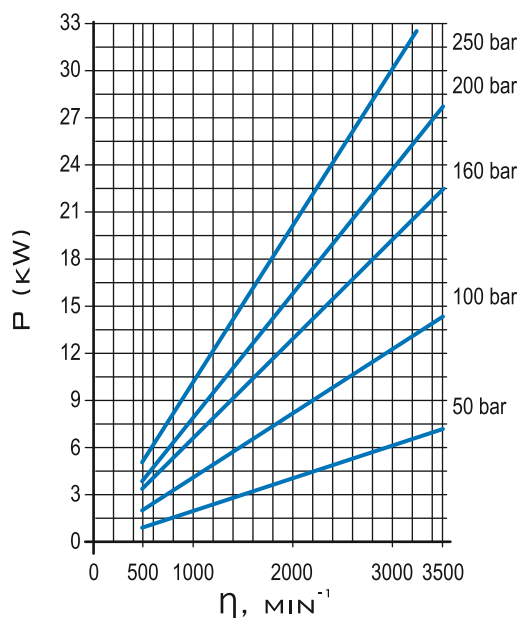
**MGP2K16**



**MGP2K17**



**MGP2K19**

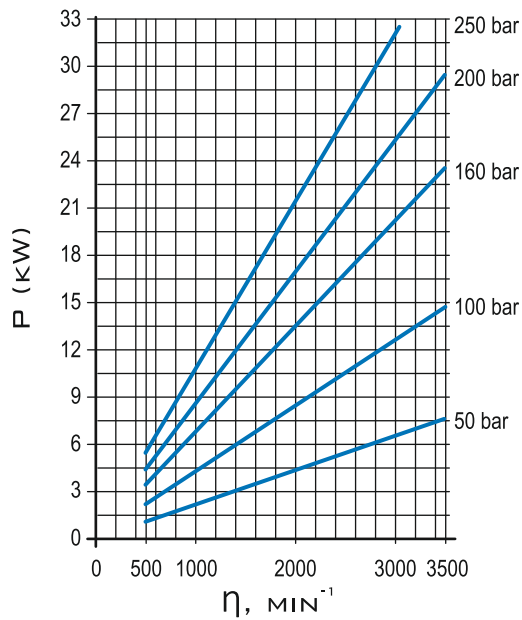




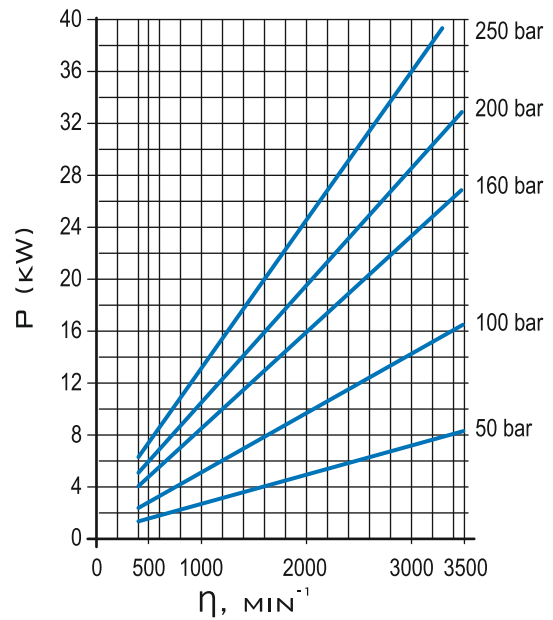
CHARACTERISTIC CURVES

CHARACTERISTIC CURVES CARRIED OUT WITH OIL VISCOSITY AT 16 MM<sup>2</sup>/SEC AND OIL TEMPERATURE AT 60 °C.

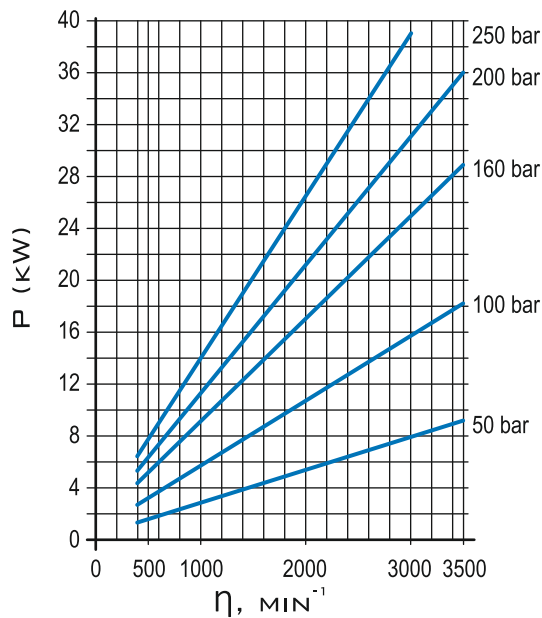
MGP2K20



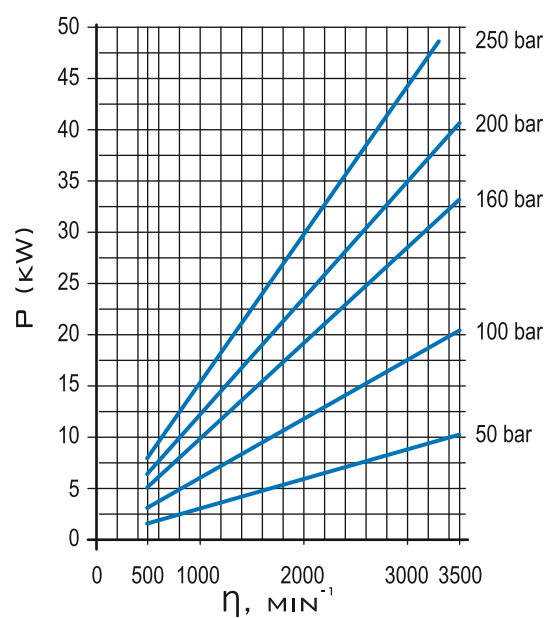
MGP2K23



MGP2K25



MGP2K28

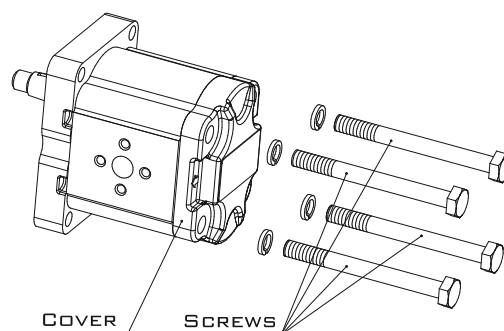


## INSTRUCTIONS OF ROTATION CHANGING

PROCESS OF CHANGE DIRECTION SHOWN AT THE EXAMPLE FOR PUMP WITH CLOCKWISE ROTATION.

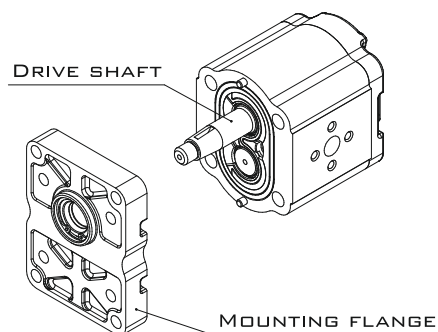
### STEP 1

- UNSCREW AND REMOVE THE SCREWS COMPLETELY.
- PUT THE PUMP MOUNTING FLANGE UP.
- LUBRICATE THE DRIVE SHAFT WITH GREASE TO PREVENT DAMAGE TO THE SHAFT SEAL.



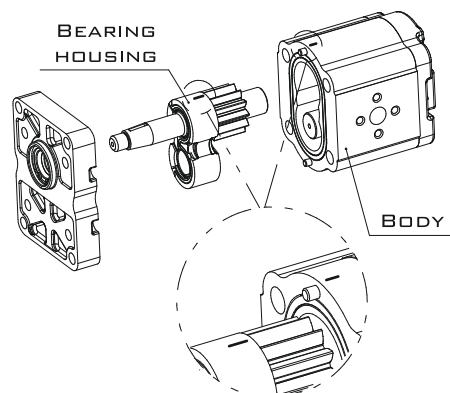
### STEP 2

- REMOVE THE MOUNTING FLANGE.
- VERIFY THAT THE COMPENSATION SEAL IS CORRECTLY LOCATED IN THE BODY SEAT.



### STEP 3

- MARK THE POSITION OF THE BEARING HOUSING (WITH MARKER) RELATIVE TO THE BODY.
- REMOVE THE BEARING HOUSING AND THE DRIVE SHAFT TAKING CARE TO AVOID DRIVEN SHAFT AXIAL SHIFTS.

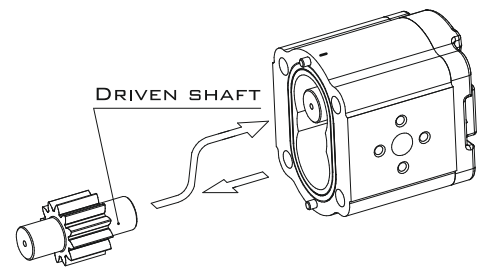


**INSTRUCTIONS OF ROTATION CHANGING**

PROCESS OF CHANGE DIRECTION SHOWN AT THE EXAMPLE FOR PUMP WITH CLOCKWISE ROTATION.

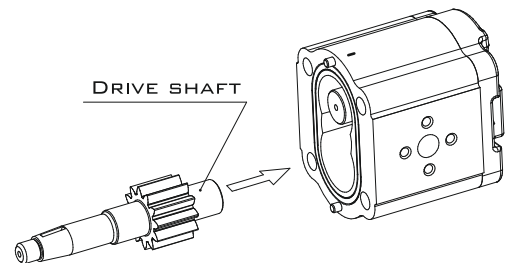
**STEP 4**

- DRAW OUT THE DRIVEN SHAFT FROM ITS HOUSING.
- RE-LOCATE THE DRIVEN SHAFT IN THE POSITION PREVIOUSLY OCCUPIED BY THE DRIVE SHAFT.



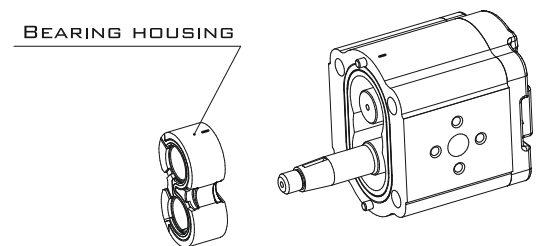
**STEP 5**

- RE-LOCATE THE DRIVE SHAFT IN THE POSITION PREVIOUSLY OCCUPIED BY THE DRIVEN SHAFT.



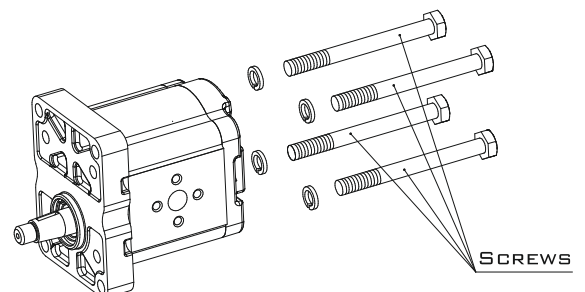
**STEP 6**

- REPLACE THE BEARING HOUSING TAKING CARE THAT:
- MARKS SHALL BE LOCATED AS IN THE PICTURE.
- COMPENSATION SEAL AND ANTI-EXTRUSION PLATE ARE CORRECTLY LOCATED.



**STEP 7**

- CLEAN BODY AND MOUNTING FLANGE.
- REFIT THE MOUNTING FLANGE, TURNED 180° FROM ITS ORIGINAL POSITION.
- REPLACE THE CLAMP SCREWS AND TIGHTEN (TORQUE – SEE SECTION “TECHNICAL DATA”).
- CHECK THAT THE SHAFT ROTATES FREELY.





## ORDER CODE

MGP 2 K

GROUP 2

SERIES K

- 4=4,5 CM<sup>3</sup>/REV
- 5=5,6 CM<sup>3</sup>/REV
- 6=6,3 CM<sup>3</sup>/REV
- 8=8,2 CM<sup>3</sup>/REV
- 10=10 CM<sup>3</sup>/REV
- 11=11,3 CM<sup>3</sup>/REV
- 12=12,5 CM<sup>3</sup>/REV
- 14=14 CM<sup>3</sup>/REV
- 15=15 CM<sup>3</sup>/REV
- 16=16 CM<sup>3</sup>/REV
- 17=17 CM<sup>3</sup>/REV
- 19=19 CM<sup>3</sup>/REV
- 20=20 CM<sup>3</sup>/REV
- 23=22,5 CM<sup>3</sup>/REV
- 25=24,8 CM<sup>3</sup>/REV
- 28=28 CM<sup>3</sup>/REV

R=CLOCKWISE ROTATION  
L=COUNTERCLOCKWISE ROTATION

- DRIVE SHAFTS:
- B2=SAE A SPLINED (9 TEETH)
  - B3=SAE A SPLINED (10 TEETH)
  - B4=SAE A SPLINED (11 TEETH)
  - F2=GERMAN TAPERED 1:5
  - F6=GERMAN TAPERED 1:5
  - G2=EUROPEAN TAPERED 1:8
  - G6=EUROPEAN TAPERED 1:8
  - H2=SAE A STRAIGHT Ø15,87
  - H8=SAE A STRAIGHT Ø19,05
  - H9=SAE A STRAIGHT Ø19,05 LENGTH
  - K3=TANG DRIVE FOR ELECTRIC MOTORS
  - K4=TANG DRIVE
  - I2=DIN 5482 SPLINED (9 TEETH)

- MOUNTING FLANGES WITH BEARING SUPPORT:
- C3=SAE A
  - C6=EUROPEAN
  - C7=GERMAN Ø50
  - C8=GERMAN Ø50
  - C9=GERMAN Ø80

PORTS CF, EF, T, LS:  
E=METRIC THREADED  
F=SAE THREADED  
G=GAS THREADED

PRESSURE OF RELIEF  
VALVE:  
20÷280 BAR

PRESSURE OF LS SIGNAL:  
4=4 BAR  
7=7 BAR  
10=10 BAR

TYPE OF VALVE=  
SEE PAGES 15-20

NO CODE=ALUMINIUM COVER  
F=CAST IRON COVER

NO CODE=NBR SEALS  
V=FKM SEALS

PORTS POSITION:  
NO CODE=SIDE INLET - SIDE OUTLET  
1=BACK INLET - BACK OUTLET

PORTS:  
B=EUROPEAN FLANGE  
C=GERMAN FLANGE  
E=METRIC THREADED  
F=SAE THREADED  
G=GAS THREADED (BSPP)

MOUNTING FLANGES:  
31=SAE A 2 BOLTS  
32=SAE A 2 BOLTS (WITH O-RING)  
61=EUROPEAN Ø7,1  
62=EUROPEAN Ø9  
81=GERMAN Ø80  
91-92=GERMAN 2 BOLTS Ø50  
93-94=GERMAN 2 BOLTS Ø52  
95=GERMAN 4 BOLTS Ø52  
21=MOUNTING FLANGE FOR  
PERKINS MOTOR