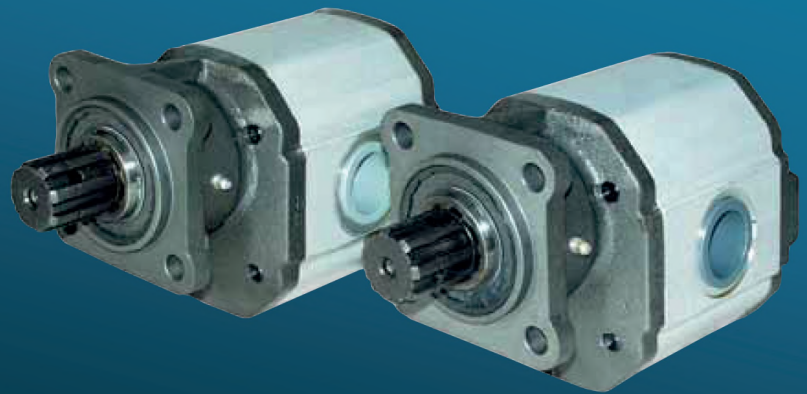
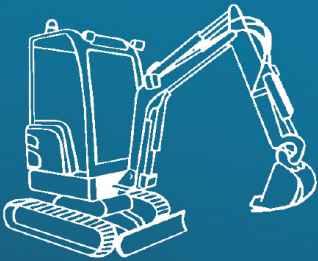


juhstroj
AERO TECHNOLOGY & HYDRAULICS



Displacement from 10 to 100 ccm
Pressure up to 290 bar
Speed from 400 to 3200 RPM

GEAR MOTORS
QM2

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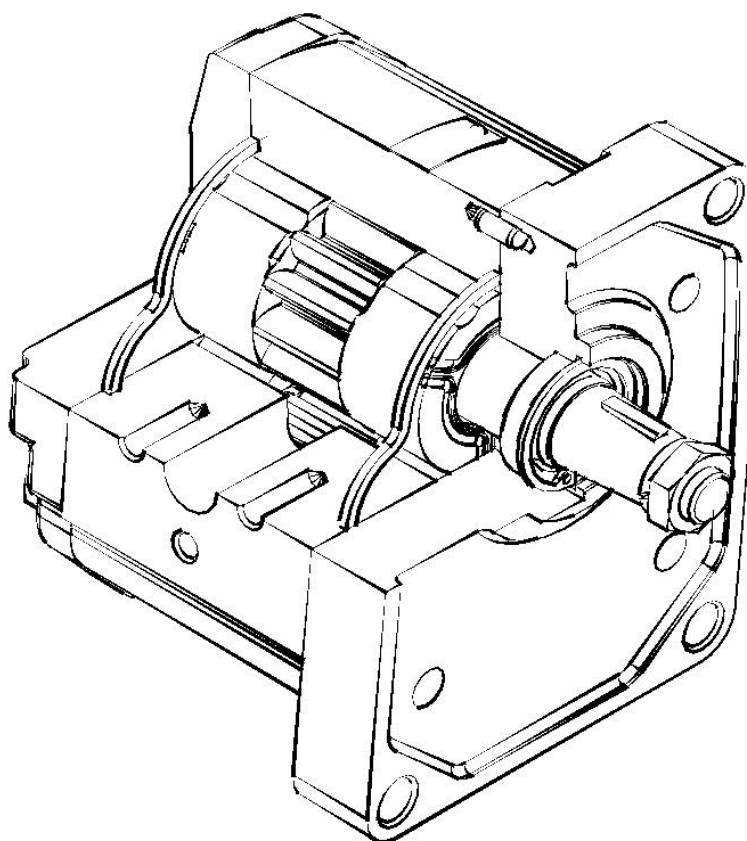
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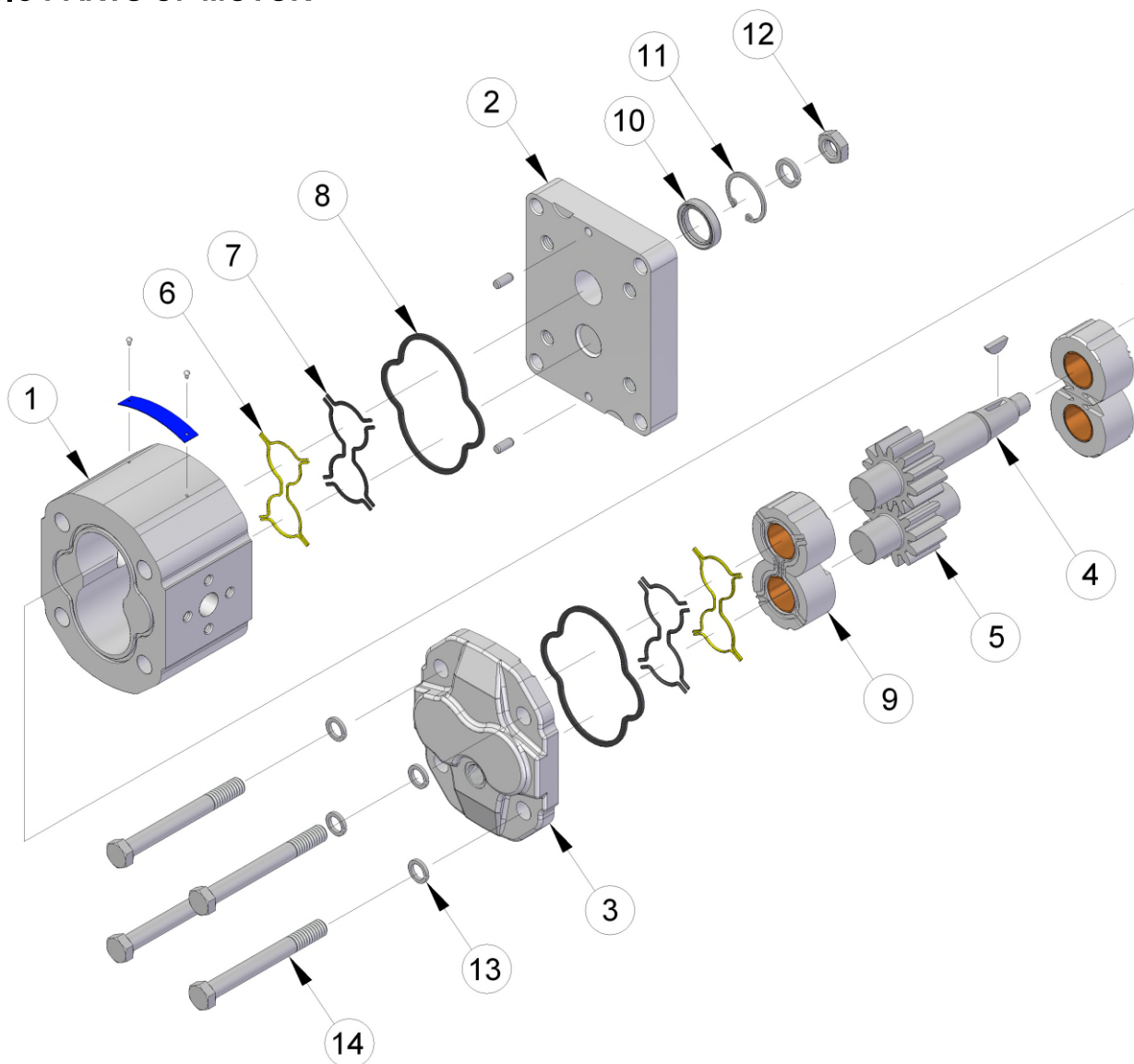


DESCRIPTION

Gear motors are used for transformation of liquid pressure head in mechanical energy. QM2 series motors with external teeth are due to their simple construction, compact dimensions and a wide range of types applicable in modern hydraulic systems, handling equipment as well as mobile hydraulic systems. Flange types used as well as the form of working liquid inlet and outlet comply with all worldwide standards. The QM2 series covers the range of displacements from 10 to 100 cm³/rev.

The basic version consists of several parts. The body is made of a heavy duty aluminium alloy, engine cover and flange of grey iron or eventually aluminium alloy, and gear wheels of heavy duty steel. Axle pins with a high surface duality are imbedded in sliding sleeves, continuously lubricated and cooled by a stream of working liquid. QM2 series motors can be delivered in one-way design as clockwise or anti-clockwise rotating engines; they are also available in reversible version.

BASIC PARTS OF MOTOR



- | | |
|------------------------------------|------------------------------|
| 1. Body | 8. Peripheral sealing |
| 2. Flange | 9. Bearing sleeves |
| 3. Cover | 10. Shaft seal |
| 4. Driving gear | 11. Safety ring |
| 5. Driven gear | 12. Nut |
| 6. Sealing protective plate | 13. Spring washers |
| 7. Balancing sealing | 14. Bolts |

PARAMETER TABLE (One direction motors and reversible motors)

Nominal Size Parameters		Sym.	Unit	QM2 10	QM2 13,5	QM2 17	QM2 22,5	QM2 27	QM2 34
Actual displacement		V_g	[cm ³]	10,14	13,76	17,39	22,46	27,53	34,05
Rotation speed	nominal	n_n	[min ⁻¹]	1500					
	minimum	n_{min}	[min ⁻¹]	600			500		
	maximum	n_{max}	[min ⁻¹]	3200	3200	3200	3200	3200	3000
Pressure at outlet *	minimum	p_{1min}	[bar]	-0,3					
	maximum	p_{1max}	[bar]	0,5					
Pressure at inlet	max. continuous	p_{2n}	[bar]	270	290	290	290	290	290
	maximum	p_{2max}	[bar]	290	310	310	310	310	310
	peak	p_3	[bar]	300	320	320	320	320	320
Nominal flow rate (min.) at n_n and p_{2n}		Q_n	[dm ³ .min ⁻¹]	17,7	24,0	30,3	39,2	45,9	56,8
Maximum flow rate at n_{max} and p_{2max}		Q_{max}	[dm ³ .min ⁻¹]	37,7	51,2	63,2	81,7	97,9	113,5
Nominal input power (max.) at n_n and p_{2n}		P_n	[kW]	5,8	8,5	10,7	13,8	17,0	21,0
Maximum input power at n_{max} and p_{2max}		P_{max}	[kW]	13,3	19,3	24,4	31,6	38,7	44,9
Nominal Torque at n_n a p_{2n}		M	[Nm]	37,0	54,0	68,2	88,1	108,0	133,6
Weight		m	[Kg]	7,9	8,0	8,1	8,2	8,4	8,6

Nominal Size Parameters		Ozn.	Jedn.	QM2 43	QM2 51	QM2 61	QM2 71	QM2 82	QM2 100
Actual displacement		V_g	[cm ³]	43,47	51,44	61,59	71,01	81,87	99,98
Rotation speed	nominal	n_n	[min ⁻¹]	1500					
	minimum	n_{min}	[min ⁻¹]	400					
	maximum	n_{max}	[min ⁻¹]	2800	2600	2400	2200	2000	1800
Pressure at outlet *	minimum	p_{1min}	[bar]	-0,3					
	maximum	p_{1max}	[bar]	0,5					
Pressure at inlet	max. continuous	p_{2n}	[bar]	280	270	250	230	200	180
	maximum	p_{2max}	[bar]	300	290	270	250	220	200
	peak	p_3	[bar]	310	300	280	260	230	210
Nominal flow rate (min.) at n_n and p_{2n}		Q_n	[dm ³ .min ⁻¹]	72,5	85,7	102,7	118,4	136,5	166,6
Maximum flow rate at n_{max} and p_{2max}		Q_{max}	[dm ³ .min ⁻¹]	135,2	148,6	164,2	173,6	181,9	200,0
Nominal input power (max.) at n_n and p_{2n}		P_n	[kW]	25,9	29,5	32,7	34,7	34,8	38,2
Maximum input power at n_{max} and p_{2max}		P_{max}	[kW]	51,7	54,9	56,5	55,3	51,0	51,0
Nominal Torque at n_n a p_{2n}		M	[Nm]	164,7	187,9	208,3	220,9	221,5	243,5
Weight		m	[Kg]	9,0	9,2	9,5	9,8	10,1	11,2

* Outlet pressure in the reversible design can be up to $p_1 = p_{2n} - 70$ bar max. External drainage must be used in case of the reversible design.

FORMULAS USED FOR CALCULATION

Flow rate

$$Q = \frac{V_g \cdot n}{1000 \cdot \eta_v} \quad [\text{dm}^3 \text{min}^{-1}]$$

V_g [cm³] pump displacement
 n [min⁻¹] rotation speed
 η_v [-] volumetric efficiency

Displacement

$$V_g = \frac{Q \cdot 1000 \cdot \eta_v}{n} \quad [\text{cm}^3]$$

Torque

$$M_k = \frac{V_g \cdot p \cdot \eta_m}{20 \cdot \pi} \quad [\text{Nm}]$$

p [bar] required pressure at outlet
 η_m [-] mechanical efficiency

Input power

$$P = \frac{V_g \cdot n \cdot p \cdot \eta_t}{600 \cdot 1000} \quad [\text{kW}]$$

η_t [-] total efficiency

PUMP EFFICIENCIES

Volumetric efficiency η_v

It determines the amount of flow losses. Its value is $\eta_v = 0.92 \div 0.98$ (depending on rotation speed, viscosity of working liquid and outlet pressure). It can be expressed as follows:

$$\eta_v = \frac{Q_{theor}}{Q_{act.}} \quad [-]$$

$Q_{act.}$ [dm³min⁻¹] actual flow rate
 Q_{theor} [dm³min⁻¹] theoretical flow rate

Mechanical efficiency η_m

It determines mechanical losses. Its value is about $\eta_m = 0.85$. It can be expressed as follows:

$$\eta_m = \frac{M_{act.}}{M_{theor}} \quad [-]$$

$M_{act.}$ [Nm] actual torque
 M_{theor} [Nm] theoretical torque

Total efficiency η_t

It is defined as product of η_v and η_m and determines difference between theoretical and actual required input power:

$$\eta_t = \eta_v \cdot \eta_m = \frac{P_{act.}}{P_{theor}} \quad [-]$$

$P_{act.}$ [kW] actual input power
 P_{theor} [kW] theoretical input power

WORKING LIQUID

- Mineral oils for hydraulic drives
- Hydraulic liquids based on plant oils suitable for hydraulic drives

Liquid temperature

$$t = -20 \div +80 \text{ [}^\circ\text{C]} \quad \text{when used with FKM (Viton) seal up to } 120 \text{ [}^\circ\text{C]}$$

Cinematic viscosity

Recommended (during continuous operation): $\nu = 20 \div 80 \cdot 10^{-6} \text{ [m}^2 \cdot \text{s}^{-1}\text{]}$

Maximum (cold starting, at viscosity >1000 , operating pressure <10 bar is permissible, speed $<1500 \cdot \text{min}^{-1}$): $\nu = 1200 \cdot 10^{-6} \text{ [m}^2 \cdot \text{s}^{-1}\text{]}$

Minimum (operating mode at $10 \cdot 10^{-6}$ up to $20 \cdot 10^{-6}$ should be consulted with manufacturer): $\nu = 10 \cdot 10^{-6} \text{ [m}^2 \cdot \text{s}^{-1}\text{]}$

Filtration coefficient β_α

$$\beta_{25} 75 \geq \text{(for pressure } p_2 < 200 \text{ bar)}$$

$$\beta_{10} 75 \geq \text{(for pressure } p_2 > 200 \text{ bar)}$$

Liquid contamination class according to ISO 4406

$$21/18/15 \quad \text{(for pressure } p_2 < 200 \text{ bar)}$$

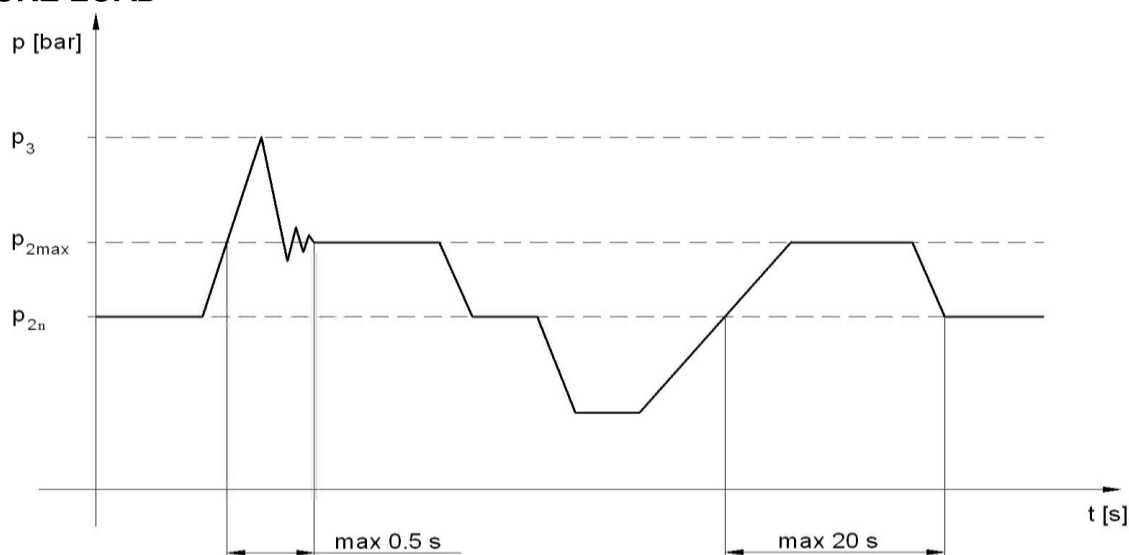
$$20/17/14 \quad \text{(for pressure } p_2 > 200 \text{ bar)}$$

Liquid contamination class according to NAS 1638

$$10 \quad \text{(for pressure } p_2 < 200 \text{ bar)}$$

$$8 \quad \text{(for pressure } p_2 > 200 \text{ bar)}$$

PRESSURE LOAD



p_{2n} max. contin. pressure max. working pressure, at which the pump can be operated without time limitation.

p_{2max} max. pressure maximum pressure permissible for a short time, max. 20s.

p_3 peak pressure short-time pressure (fractions of a second) arising in case of a sudden change of the operating mode; any excess of this pressure during operation is impermissible.

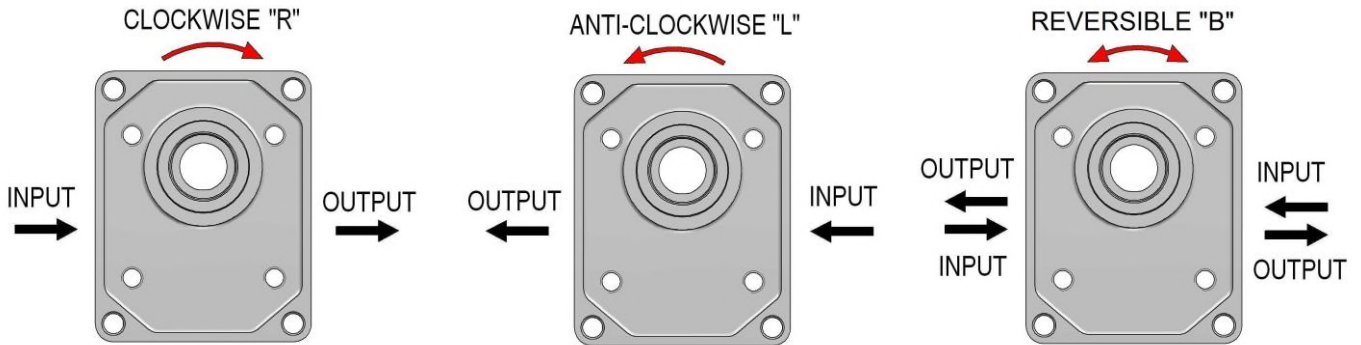
OTHER REQUIREMENTS

A driven device must not generate an axial or a radial load of the motor shaft, unless this is exclusively permitted for the motor with a front-end bearing.

All the matters affecting technical parameters and properties of the motor are given in respective operating manuals, technical specifications and test specifications of the manufacturer.

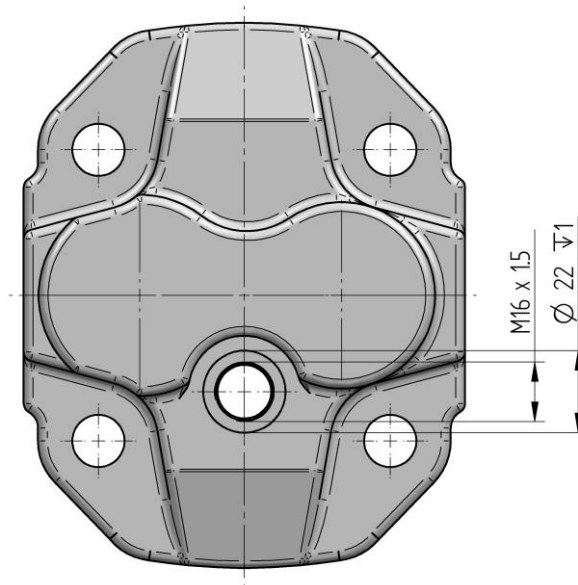
DIRECTION OF ROTATION

Determine direction of rotation by looking at the drive shaft. The motor can only be used in the specified direction of rotation

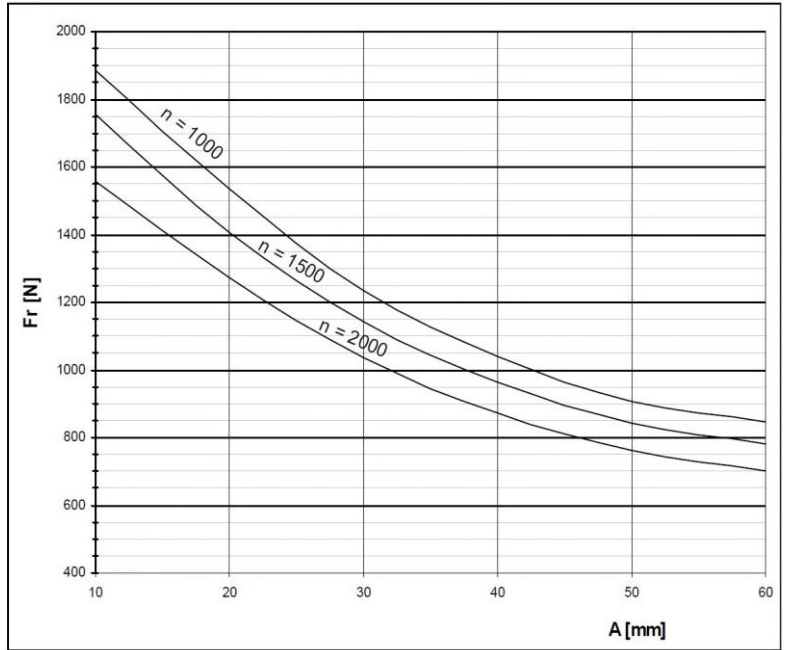
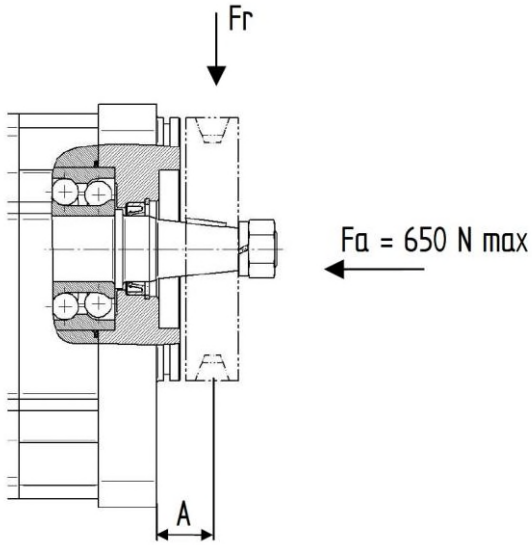


REVERSIBLE DESIGN

The motors with the possibility of bidirectional rotation have a different internal arrangement requiring drainage. Two types are used - internal and external. The internal drainage is always interconnected with the outlet by means of valves. The external drainage is solved by an orifice located in the cover opposite the driven gear.

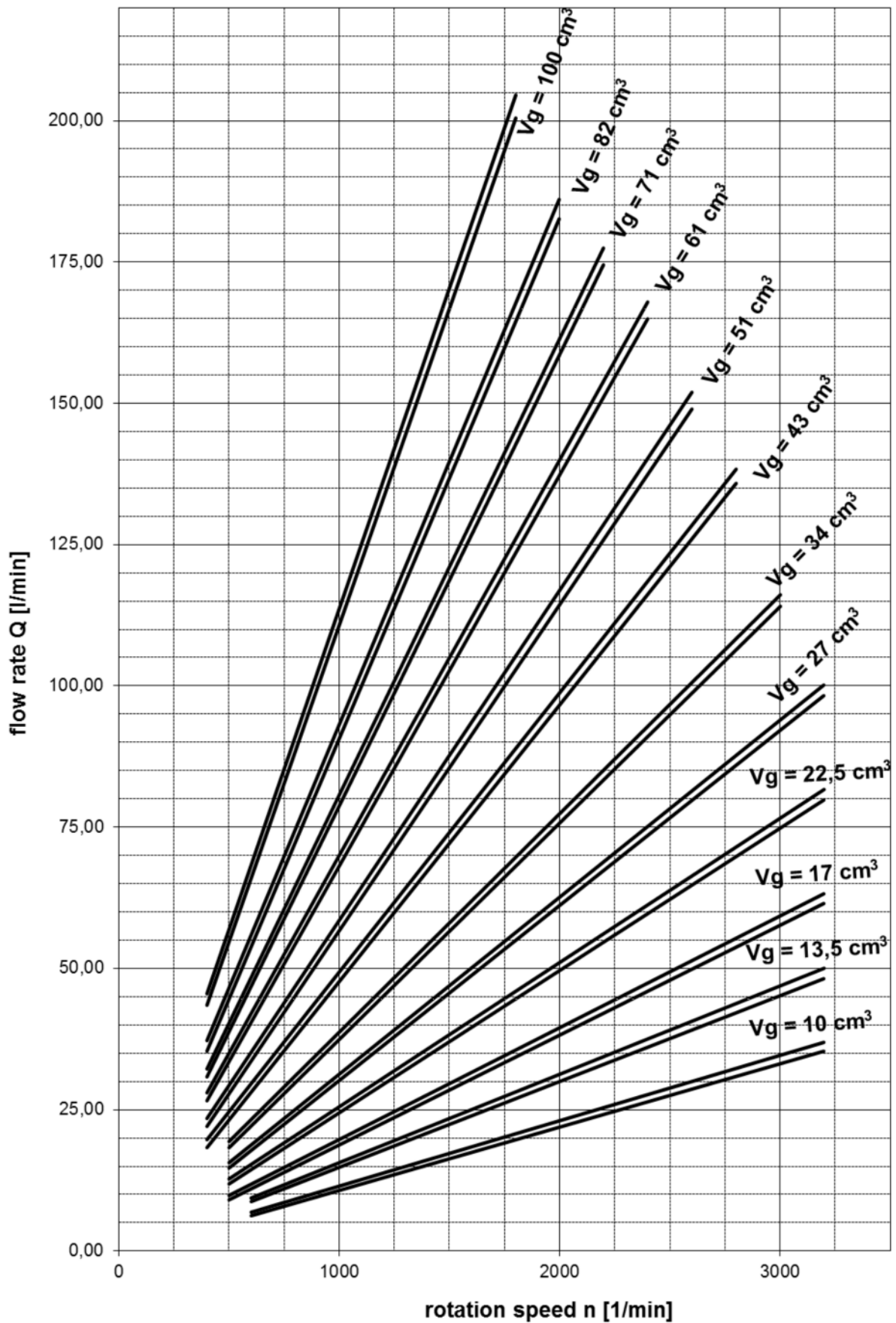


MOTOR WITH A FRONT-END BEARING



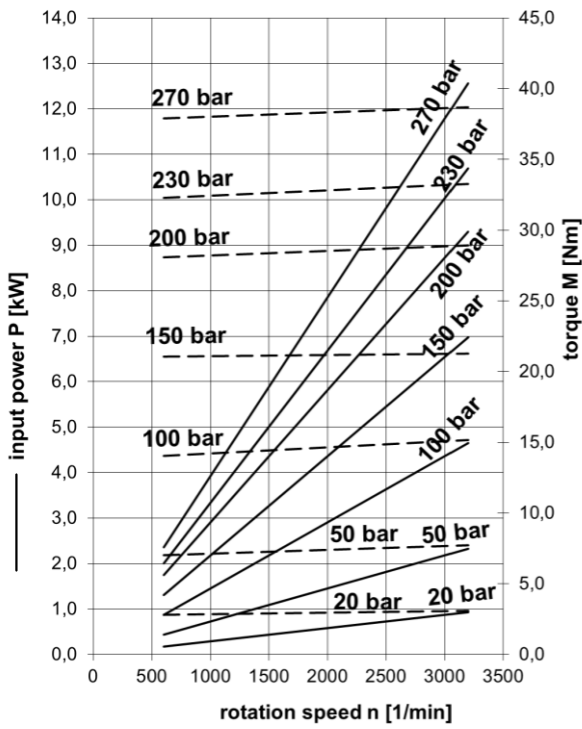
A driven device must not generate an axial or a radial load of the motor shaft, unless this is exclusively permitted for the motor with a front-end bearing.

QM2 FLOW RATE AND POWER CURVES

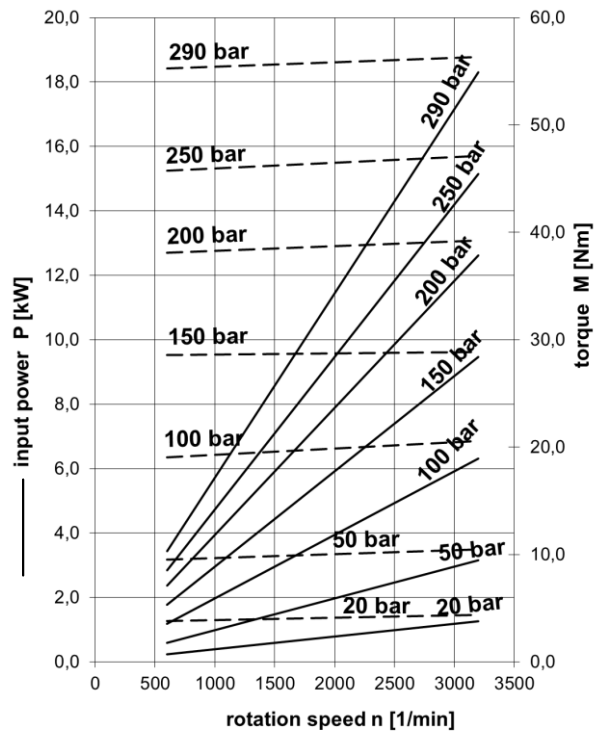


Above curves apply to ISO Vg 46 oil at temperature $t = 45^\circ\text{C}$.

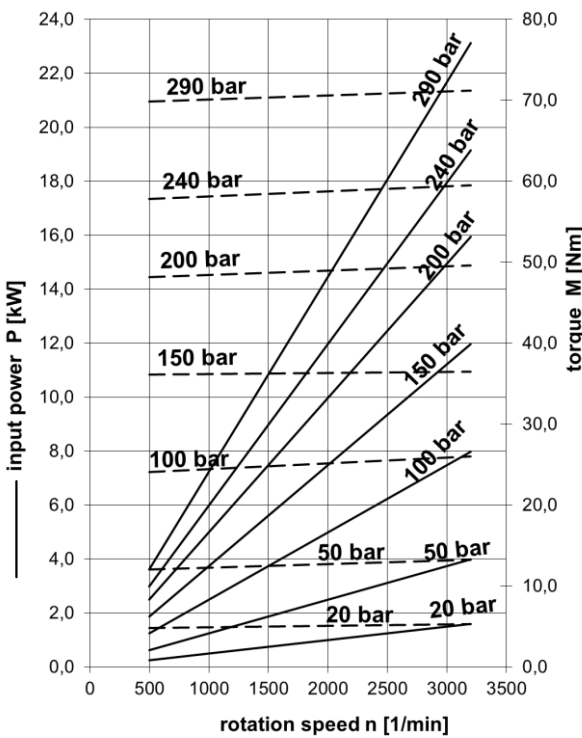
10 cm³



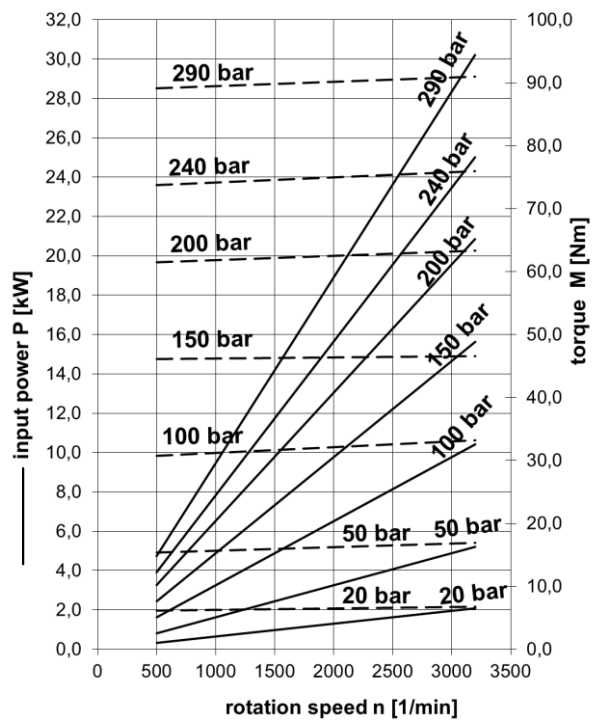
13,5 cm³



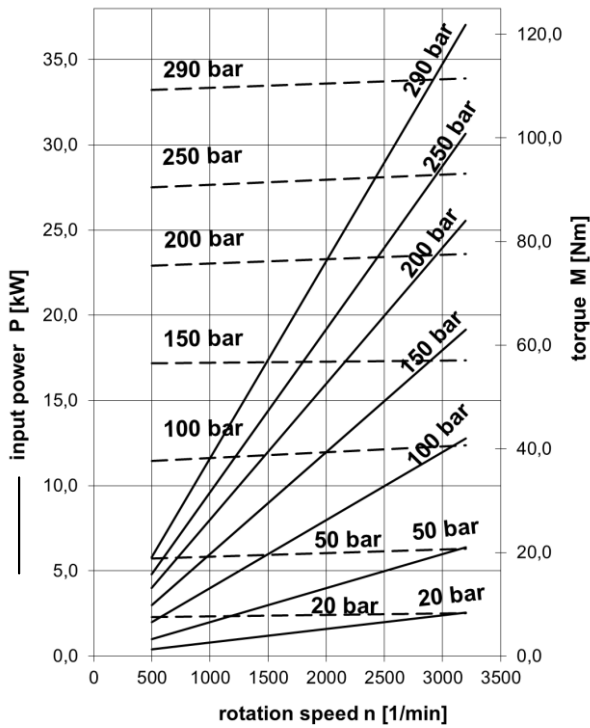
17 cm³



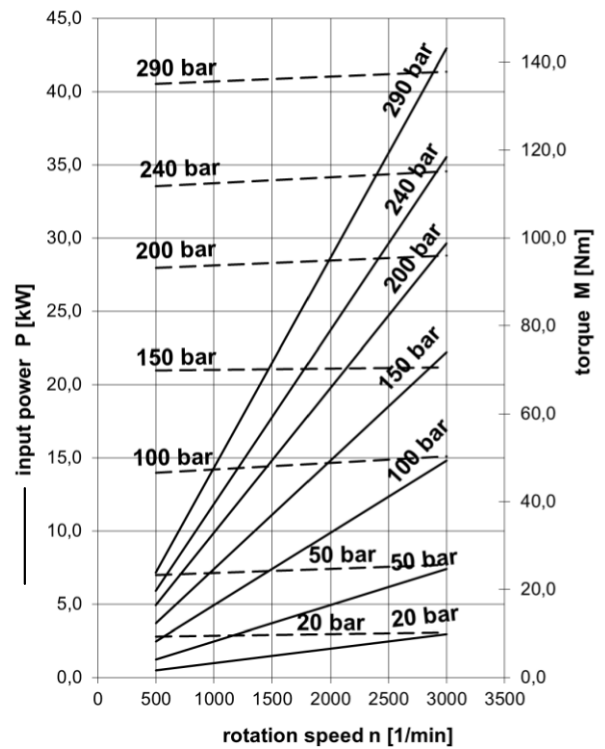
22,5 cm³



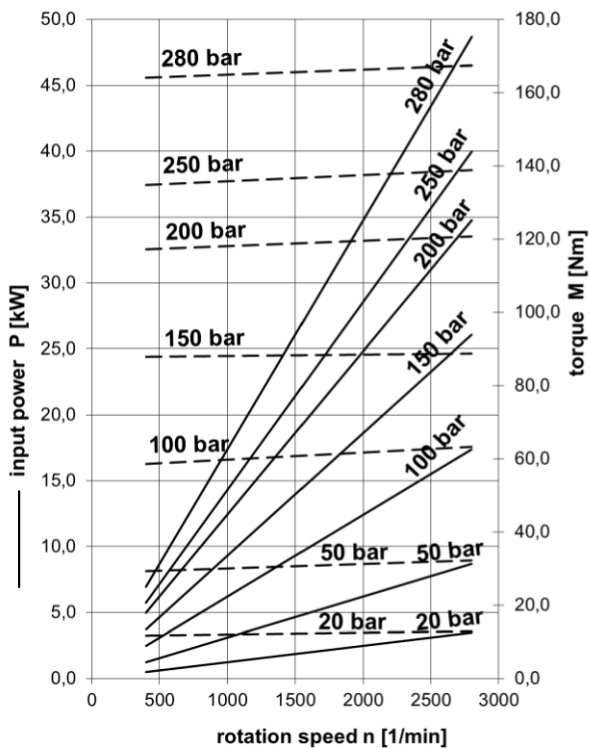
27 cm³



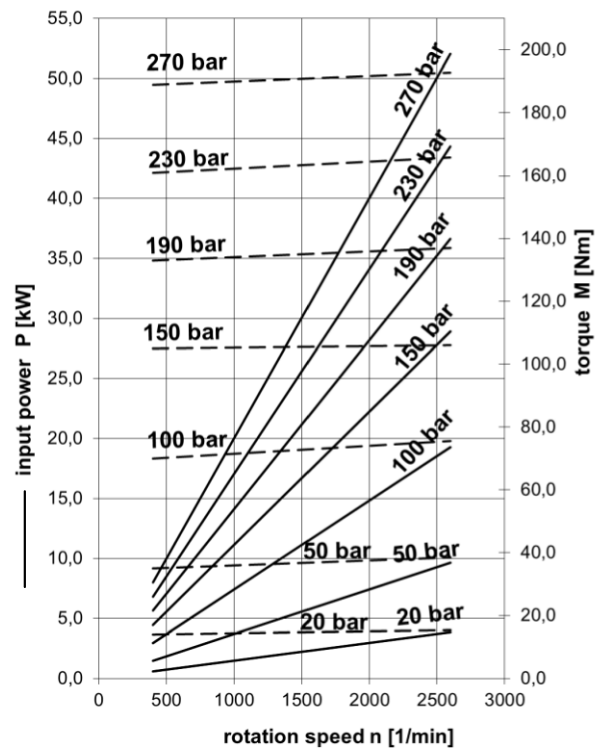
34 cm³



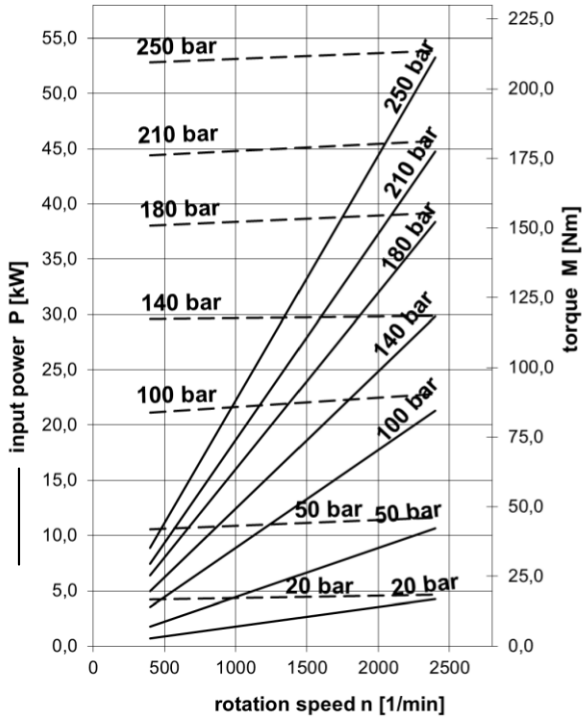
43 cm³



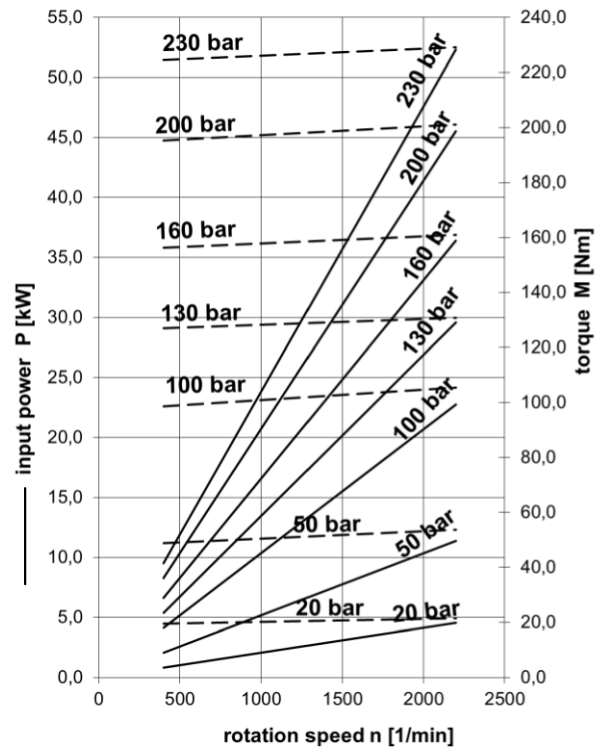
51 cm³



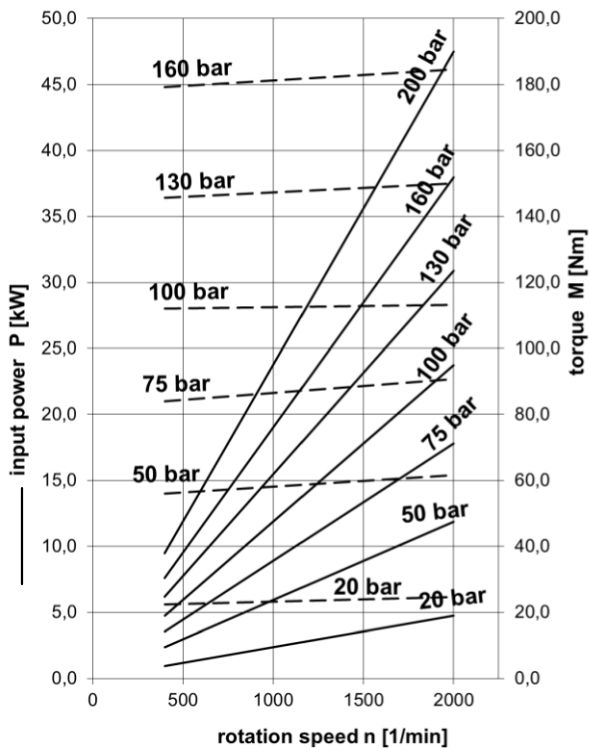
61 cm³



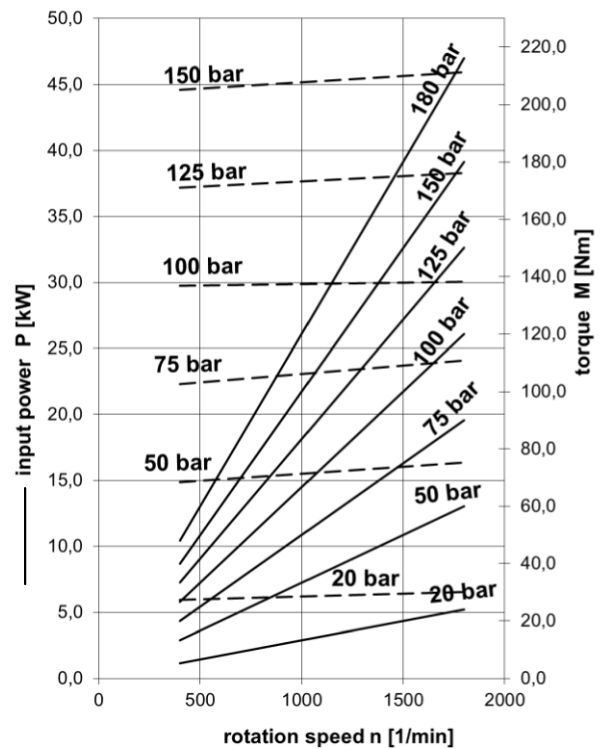
71 cm³



82 cm³



100 cm³






ORDER KEY

QM2 - 51 R - R11 C11 - S G05 G04 - N . 001

Code	Displacement [cm ³]
10	10,14
13,5	13,76
17	17,39
22,5	22,46
27	27,53
34	34,05
43	43,47
51	51,44
61	61,59
71	71,01
82	81,87
100	99,98
XX	Other displacements on request

Code	Rotation
R	Clockwise rotation
L	Anti-clockwise rotation
B	Bi-directional rotation

Code	Type
QM2	QM2 Series Gear Motor

Code	Location of inlets and outlets
S	 Side (in the body)
R	 Rear (in the cover)
C	 Combination

Code	Special arrangements
-	No special arrangements
001	Double lip shaft seal
004	Without shaft seal
006	Axial inlet, radial outlet
007	Rotated out of flange throat
008	With front-end bearing light design
013	Internal drain
014	Axial drain M18x1,5
015	Axial drain M16x1,5
050	Built-in relief valve
061	Radial inlet, radial+axial outlet

Code	Seal material
N	NBR
V	FKM (VITON)
H	HNBR

Code	Flange design
R11	Rectangular flange, centre ring \varnothing 50,8 spacing 98,5 x 128
R22	Rectangular flange UN II
R13	Rectangular flange, centre ring \varnothing 105 spacing 102,5 x 145
S03	SAE B – 2 aperture
S05	SAE B – 4 aperture
I01	ISO, centre ring \varnothing 80 front end bearing
I02	ISO, centre ring \varnothing 80
U01	UNI
A11	trough - bolts
A12	trough - bolts
B01	Flange 4 aperture centre ring \varnothing 90 spacing 110 x 86
K02	Circular flange, centre ring \varnothing 85, 6 bolts, \varnothing 105
Z	Special design

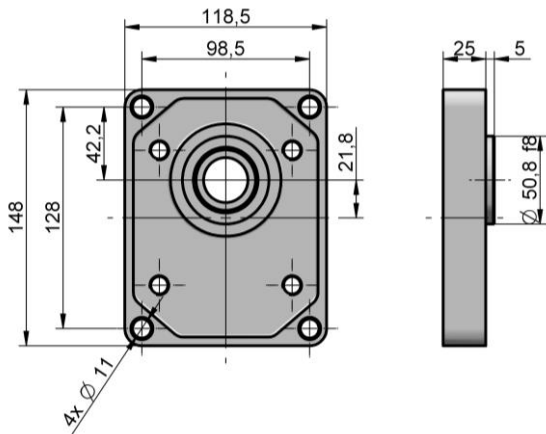
Code	Drive shaft design
C11	Cone 1:8
C12	Cone 1:5
D13	Spline SAE 13T
D15	Spline SAE 15T
D16	Spline 25x1,5 CSN 014950
D17	Spline UNI 221
D18	Equilateral spline DIN 5462 A8x32x36x6
D19	Equilateral spline 6 grooves, \varnothing 20
D22	Involute spline ZV 25x1,5x16
K09	Cross coupling
V14	Cylindric SAE \varnothing 22,225
V15	Cylindric \varnothing 20h7
V16	Cylindric \varnothing 25
Z	Special design

Code	Liquid inlet and outlet connection shape
M08	Thread M 27x1,5
M09	Thread M 27x2
M11	Thread M 33x1,5
M12	Thread M 33x2
M15	Thread M 48x2
G03	Thread BSP G1/2
G04	Thread BSP G3/4
G05	Thread BSP G1"
G06	Thread BSP G1 1/4
U04	Thread 7/8 – 14 UNF
U05	Thread 1-1/16 - 12 UN
U07	Thread 1-5/16 - 12 UN
U08	Thread 1-5/8 - 12 UN
H08	Flanged fitting 4xM8/ \varnothing 40
H09	Flanged fitting 4xM8/ \varnothing 55 ; \varnothing 18
H10	Flanged fitting 4xM8/ \varnothing 55 ; \varnothing 25
H11	Flanged fitting 4xM10/ \varnothing 51
A02	Flanged fitting SAE 3/4
A03	Flanged fitting SAE 1
A04	Flanged fitting SAE 1 1/4
A05	Flanged fitting SAE 1 1/2
E02	Flanged fitting 3/4
E03	Flanged fitting 1
E04	Flanged fitting 1 1/4
E05	Flanged fitting 1 1/2
K03	Flanged fitting 4xM8/ \varnothing 40; \varnothing 18
K04	Flanged fitting 4xM10/ \varnothing 51; \varnothing 26
K05	Flanged fitting 4xM8/ \varnothing 55; \varnothing 18
K06	Flanged fitting 4xM8/ \varnothing 55; \varnothing 25
S08	Flanged fitting 4xM10/22x54
S09	Flanged fitting 4xM10/22x54
S10	Flanged fitting 4xM8/22x46
S11	Flanged fitting 4xM8/22x46
Z	Special design

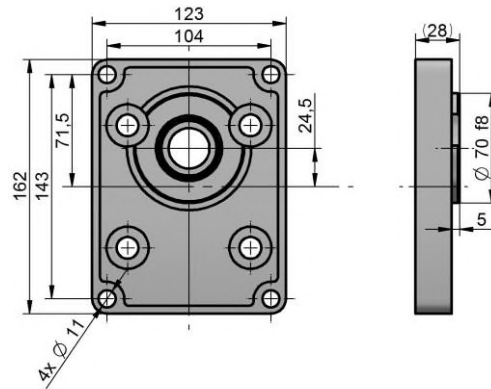
An example of designation for the QM2 clockwise motor with displacement of 51 cm³. Rectangular flange centre ring \varnothing 50.8mm, Shaft with traper 1:8, BSP side inlets in the body and standard NBR sealing, and with two-edges shaft seal: **QM2-51R-R11C11-SG04G05-N.001**

FLANGES DESIGN

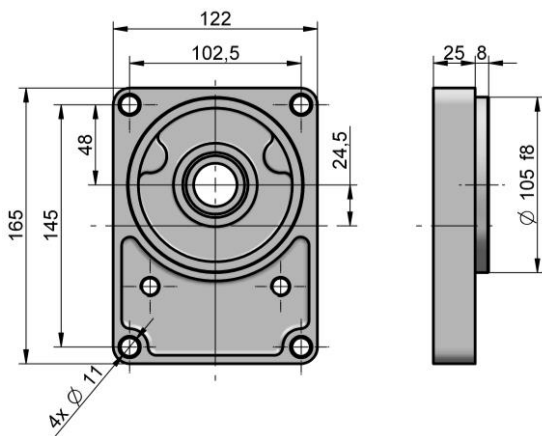
R11:



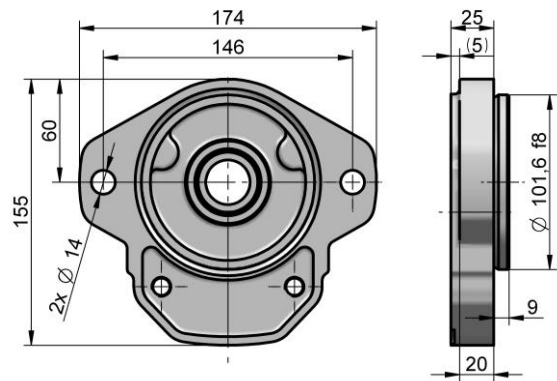
R12:



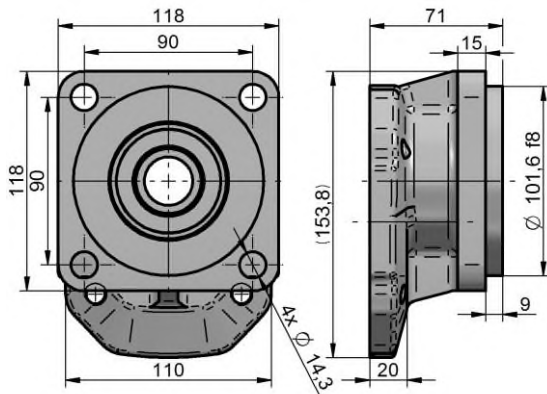
R13:



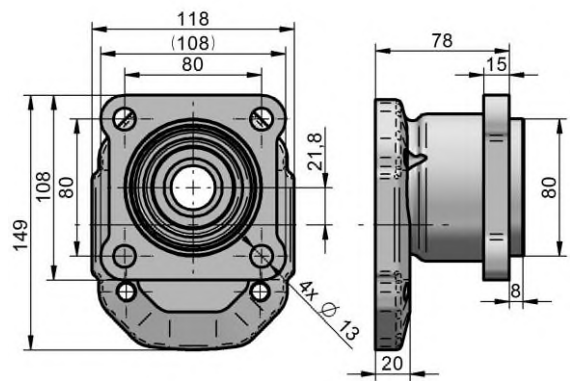
S03:



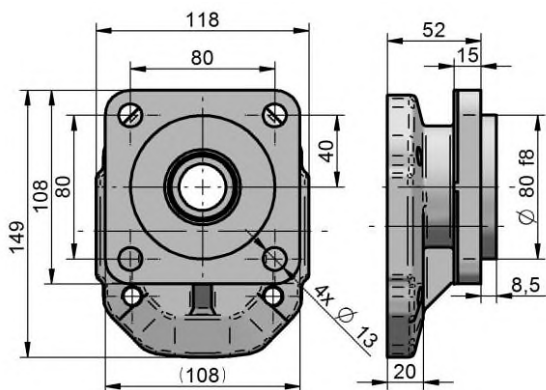
S05:



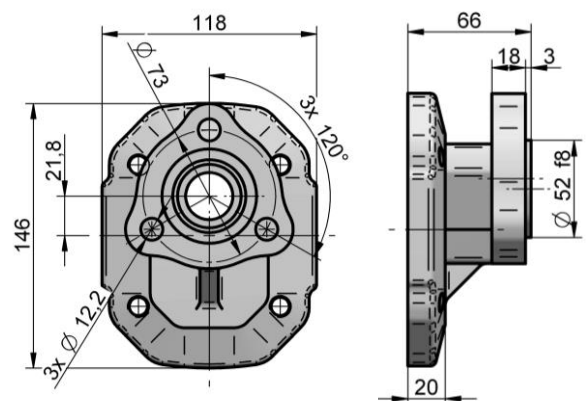
I01:



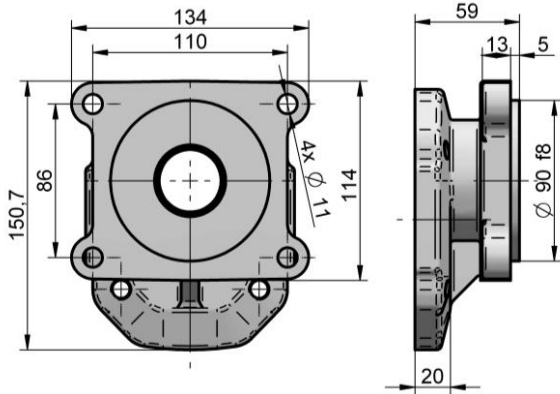
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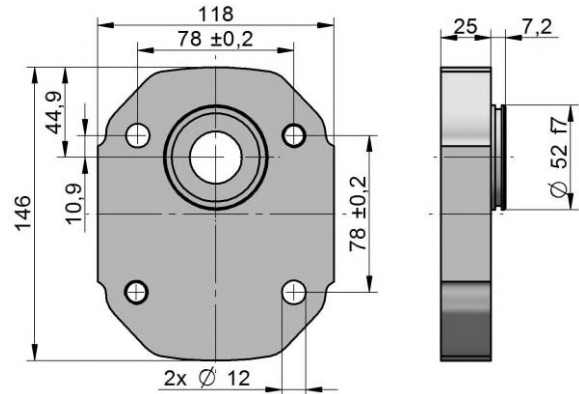
U01:



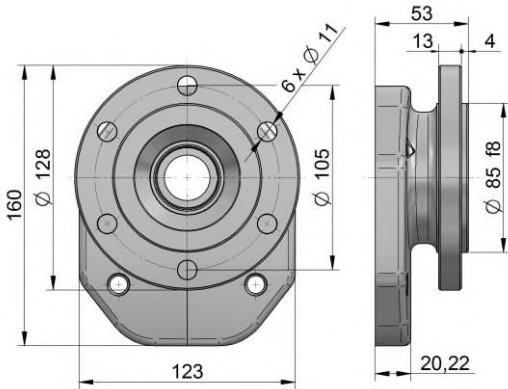
B01:



A11:

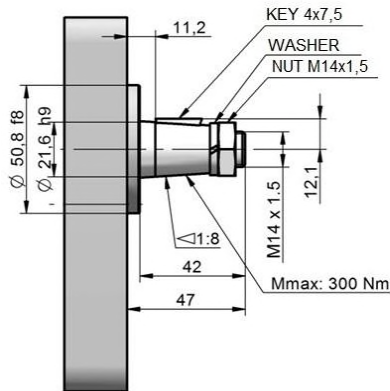


K02:

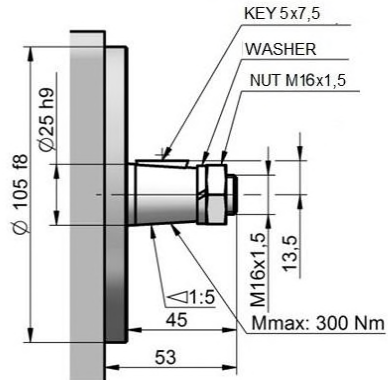


DRIVE SHAFTS

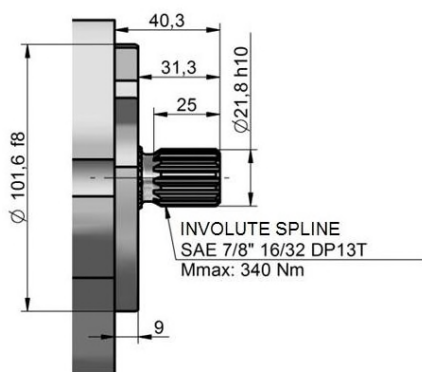
C11:



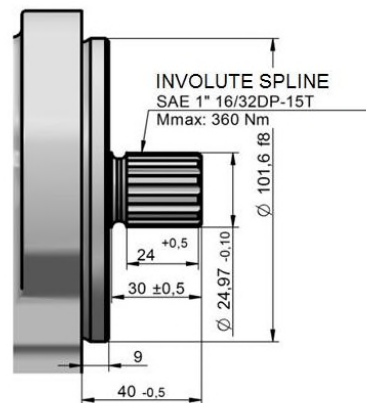
C12:



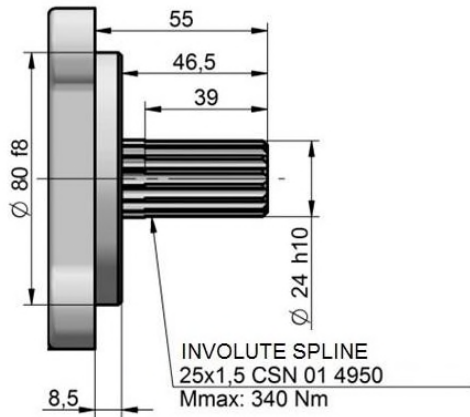
D13:



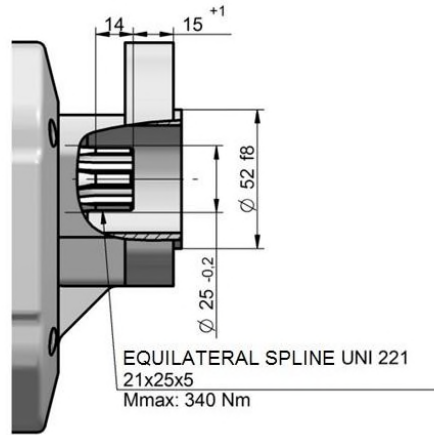
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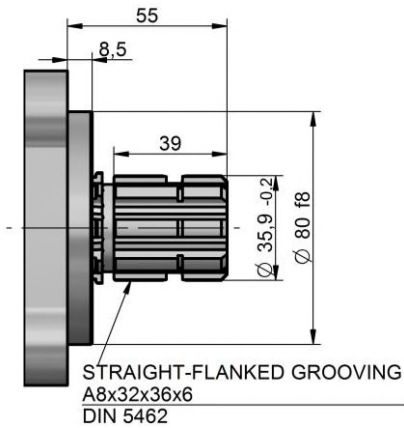
D16:



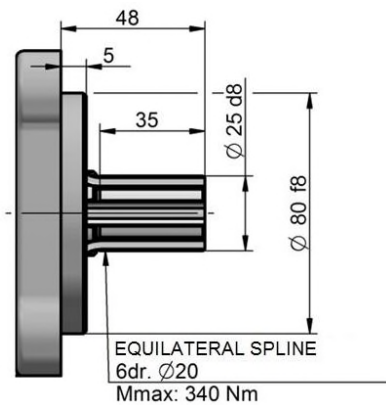
D17:



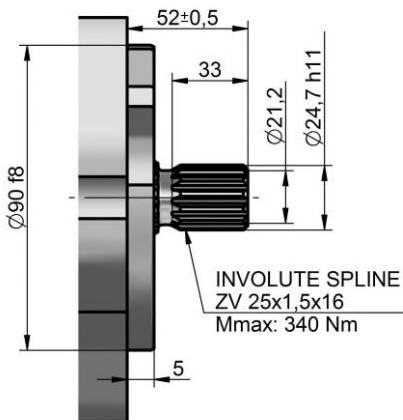
D18:



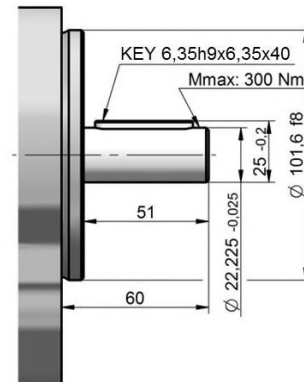
D19:



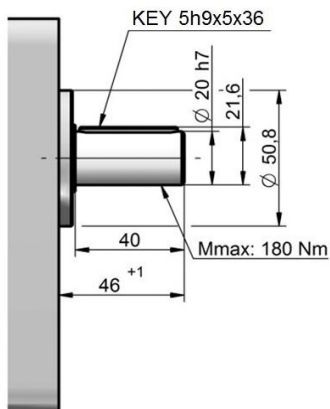
D22:



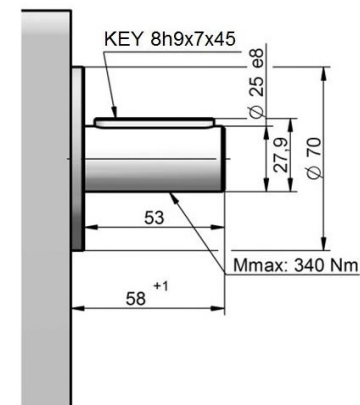
V14:



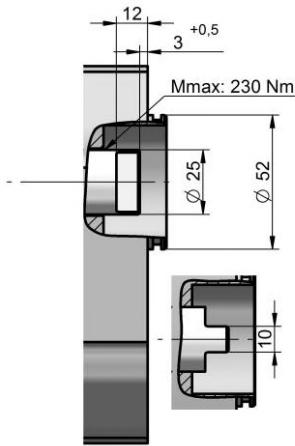
V15:



V16:

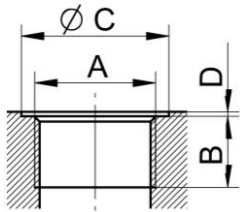


K09:



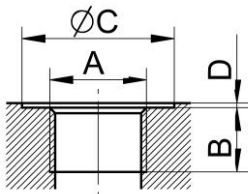
COMBINATIONS OF LIQUID INLETS AND OUTLETS

Metric thread according to ISO 6149



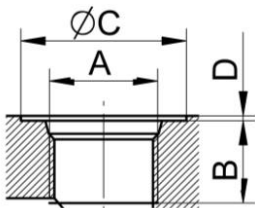
Displacement [cm ³]	Code	Inlet				Code	Outlet				
		A	B	C	D		A	B	C	D	
to 51 including	M12	M33x2	18	40	1	M09	M27x2	16	33	1	
above 51	M15	M48x2		56		M12	M33x2	18	40		
drain	M04	M16x1.5	14	22							
	M05	M18x1.5		24							

BSPP pipe thread according to ISO 228 – 1



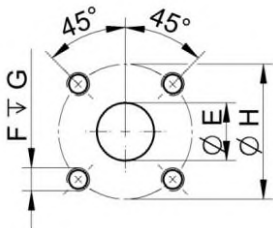
Displacement [cm ³]	Code	Inlet				Code	Outlet			
		A	B	C	D		A	B	C	D
to 17 including	G03	G 1/2	14	33	1	G03	G 1/2	14	33	1
17 - 34 including	G04	G 3/4	16	39		G04	G 3/4	16	39	
34 - 51 including	G05	G 1	18	45		G05	G 1	18	45	
above 51	G06	G 1 1/4		57						

UNF thread according to SAE



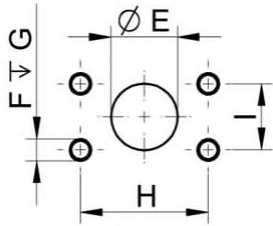
Displacement [cm ³]	Code	Inlet				Code	Outlet			
		A	B	C	D		A	B	C	D
to 17 including	U05	1-1/16-12UNF	19	41	1	U04	7/8-14UNF	17	34	1
17 - 27 including	U07	1-5/16-12UNF	23	49		U05	1-1/16-12UNF	19	41	
27 - 39 including				58		U07	1-5/16-12UNF	23	49	
above 39	U08	1 5/8-12 UN 2B								

Flanged fittings according to DIN 8901/8902



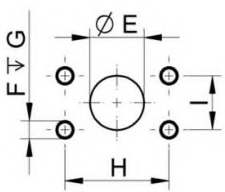
Displacement [cm ³]	Code	Inlet				Code	Outlet			
		E	F	G	H		E	F	G	H
all	H11	26	M10	16	51	H08	18	M8	16	40
	H10	25	M8		55					H09

Flanged fittings according to SAE, metric thread



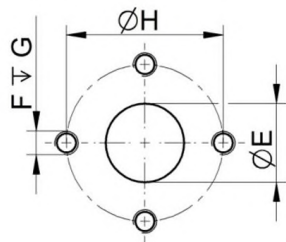
Displacement [cm ³]	Code	Inlet					Code	Outlet				
		E	F	G	H	I		E	F	G	H	I
to 61 including	E03	25.4	M10	22	52.4	26.2	E02	19	M10	22	47.6	22.2
above 61	E04	30.5			58.7	30.2					E03	25.4
		E05	39.3	M12	27	69.8	35.7	E04	30.5			58.7

Flanged fittings according to SAE, UNC thread



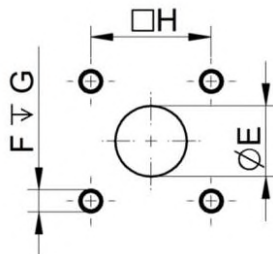
Displacement [cm ³]	Code	Inlet					Code	Outlet				
		E	F	G	H	I		E	F	G	H	I
to 61 including	A03	25.4	3/8-16-UNC	22	52.4	26.2	A02	19	3/8-16-UNC	22	47.6	22.2
above 61	A04	30.5	7/16-14-UNC	29	58.7	30.2					A03	25.4
		A05	39.3	1/2-13-UNC	27	69.8	35.7	A04	30.5	7/16-14-UNC	29	58.7

Flanged fittings – “cross”



Displacement [cm ³]	Code	Inlet				Code	Outlet			
		E	F	G	H		E	F	G	H
all	K04	26	M10	16	51	K03	18	M8	16	40
	K06	25	M8		55					K05

Flanged fittings – “square”

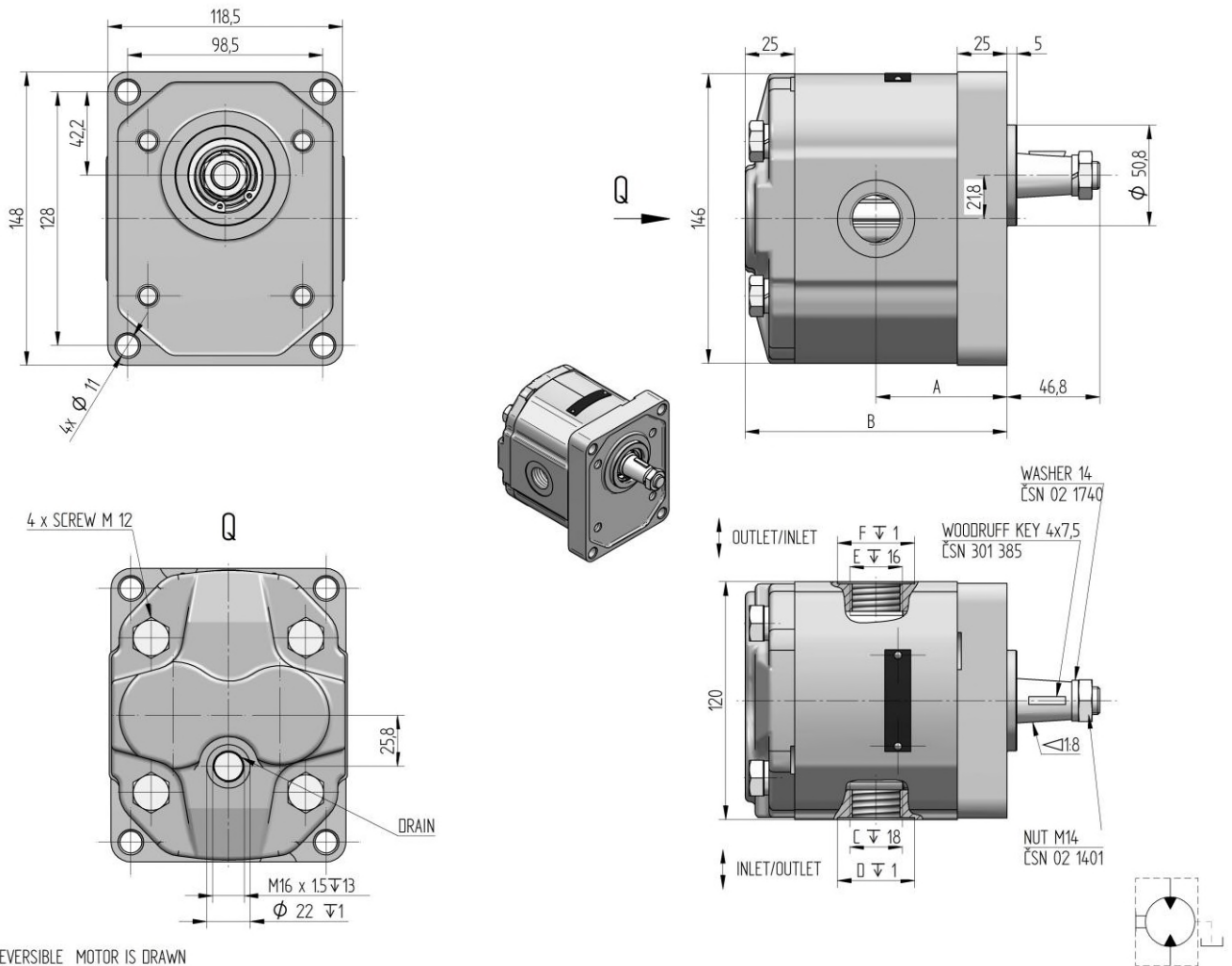


Displacement [cm ³]	Code	Inlet				Code	Outlet			
		E	F	G	H		E	F	G	H
to 43 including	S11	23	M8	22	46	S10	16	M8	22	46
above 43	S09	27	M10		54					S08

Drain:

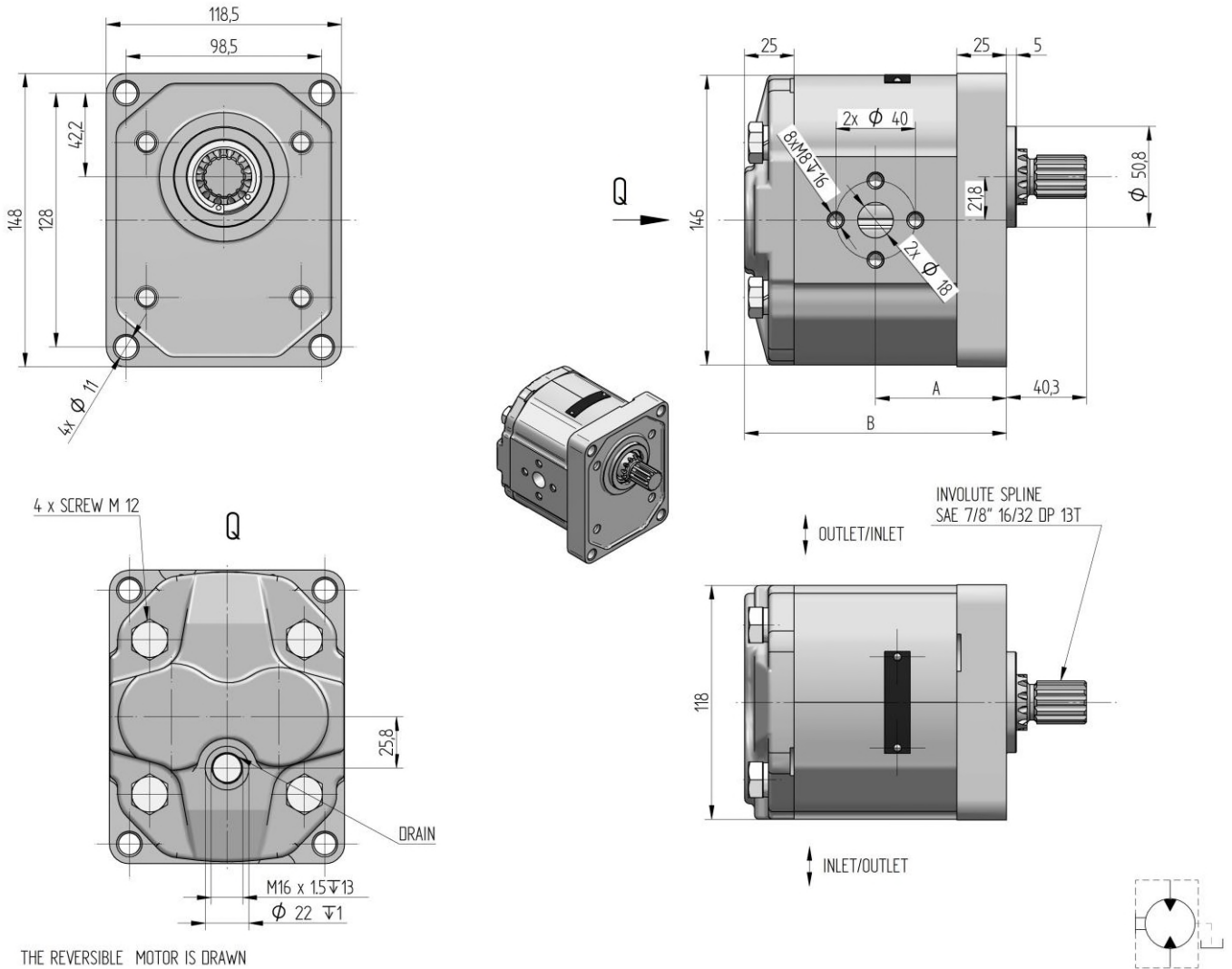
Displacement [cm ³]	Code	Outlet			
		A	B	C	D
all	M04	M16x1,5	14	22	1
	M05	M18x1,5		24	

CATALOGUE SHEETS OF QM2 SERIES BASIC DESIGNS



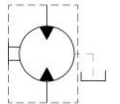
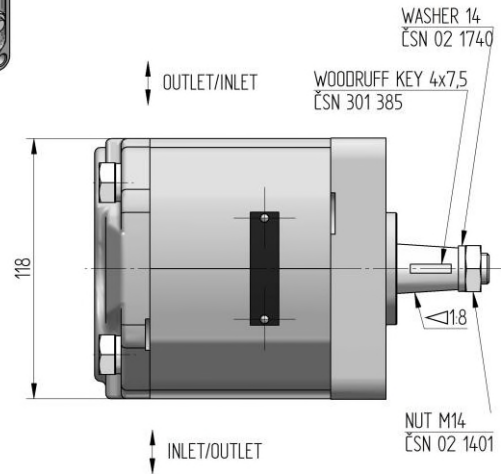
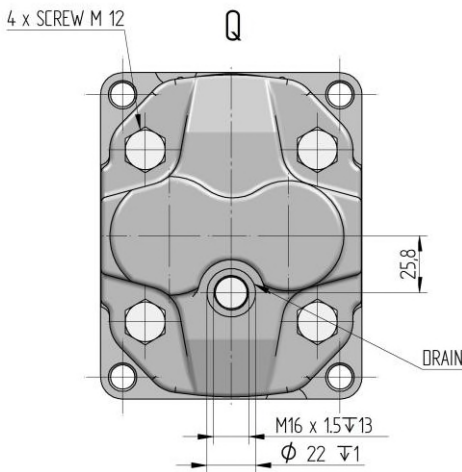
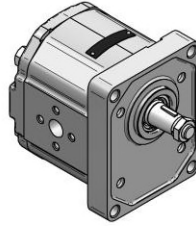
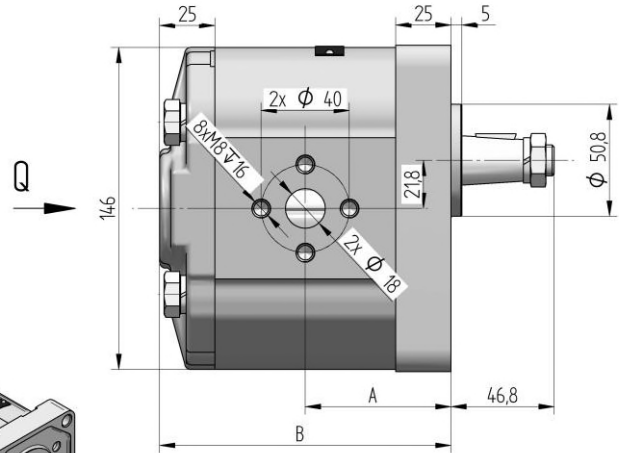
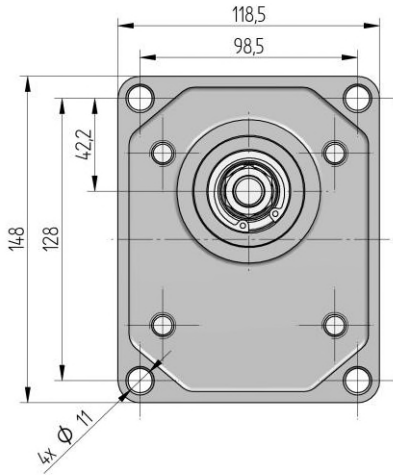
THE REVERSIBLE MOTOR IS DRAWN

QM2-82B-R11C11-SG05G05-N		B	82	180	500	1800	86.25	172.5	G 1"	Ø 45	G 1"	Ø 45		
QM2-71B- R11C11-SG05G05-N		B	71	210	500	1800	81.75	163.5	G 1"	Ø 45	G 1"	Ø 45		
QM2-61B- R11C11-SG05G05-N		B	61	230	500	2000	77.5	155	G 1"	Ø 45	G 1"	Ø 45		
QM2-51B- R11C11-SG04G04-N		B	51	250	500	2500	73.25	146.5	G 3/4"	Ø 39	G 3/4"	Ø 39		
QM2-43B- R11C11-SG04G04-N		B	43	270	500	2500	69.75	139.5	G 3/4"	Ø 39	G 3/4"	Ø 39		
QM2-34B- R11C11-SG04G04-N		B	34	280	500	2800	66	132	G 3/4"	Ø 39	G 3/4"	Ø 39		
QM2-27B- R11C11-SG04G04-N		B	27	290	500	3000	63.25	126.5	G 3/4"	Ø 39	G 3/4"	Ø 39		
QM2-22.5B-R11C11-SG04G04-N		B	22.5	290	500	3000	61.25	122.5	G 3/4"	Ø 39	G 3/4"	Ø 39		
QM2-17B- R11C11-SG03G03-N		B	17	290	500	3000	59	118	G 1/2"	Ø 33	G 1/2"	Ø 33		
QM2-13.5B-R11C11-SG03G03-N		B	13.5	290	500	3000	57.5	115	G 1/2"	Ø 33	G 1/2"	Ø 33		
QM2-10B-R11C11-SG03G03-N		B	10	270	600	3000	56	112	G 1/2"	Ø 33	G 1/2"	Ø 33		
ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRES. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	C	D	E	F	DIMENSIONS [mm]	



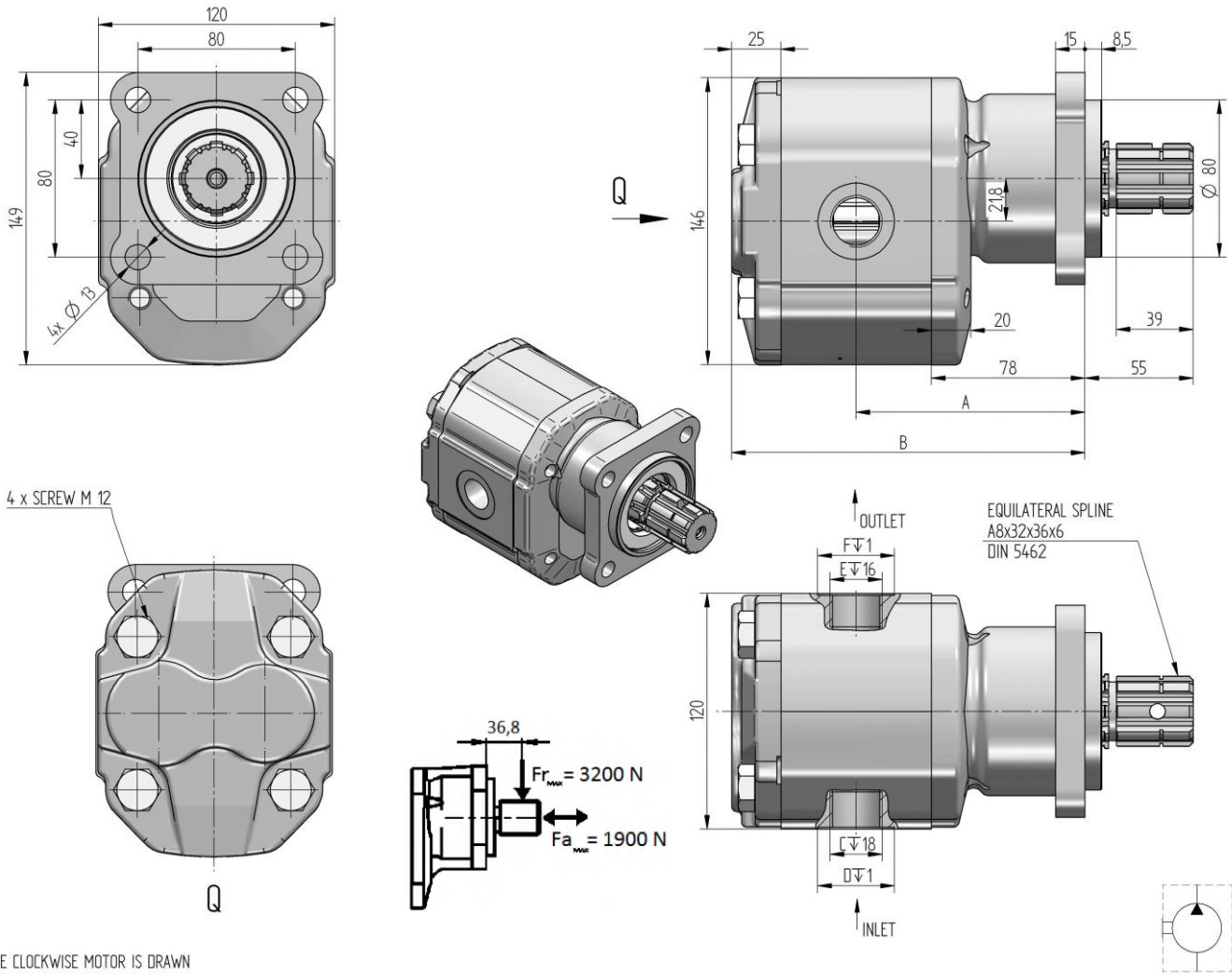
THE REVERSIBLE MOTOR IS DRAWN

ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRES. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	DIMENSIONS [mm]					
QM2-82B-R11D13-SK03K03-N		B	82	180	500	1800	86.25	172.5						
QM2-71B-R11D13-SK03K03-N		B	71	210	500	1800	81.75	163.5						
QM2-61B-R11D13-SK03K03-N		B	61	230	500	2000	77.5	155						
QM2-51B-R11D13-SK03K03-N		B	51	250	500	2500	73.25	146.5						
QM2-43B-R11D13-SK03K03-N		B	43	270	500	2500	69.75	139.5						
QM2-34B-R11D13-SK03K03-N		B	34	280	500	2800	66	132						
QM2-27B-R11D13-SK03K03-N		B	27	290	500	3000	63.25	126.5						
QM2-22.5B-R11D13-SK03K03-N		B	22.5	290	500	3000	61.25	122.5						



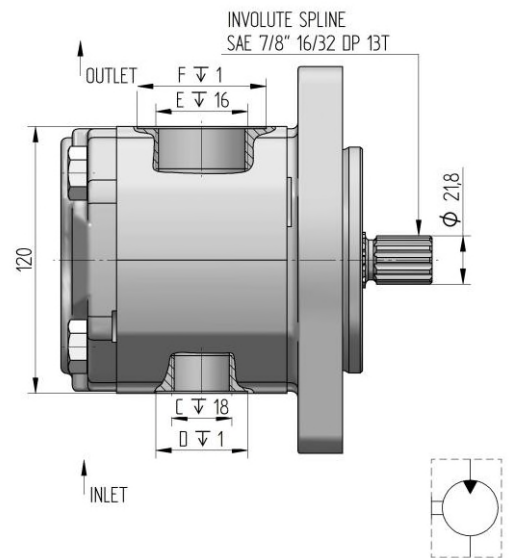
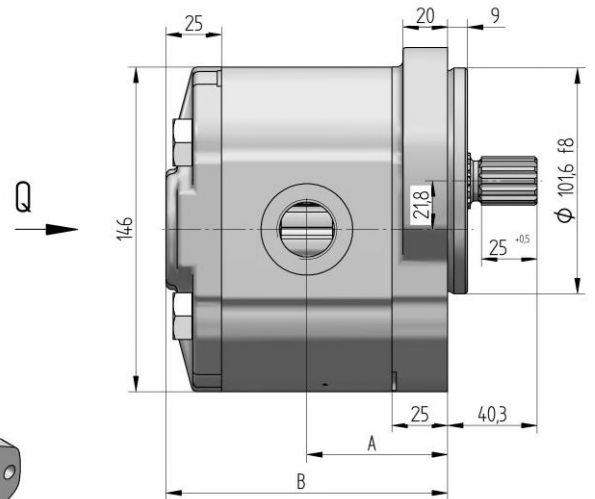
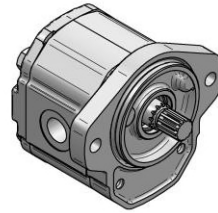
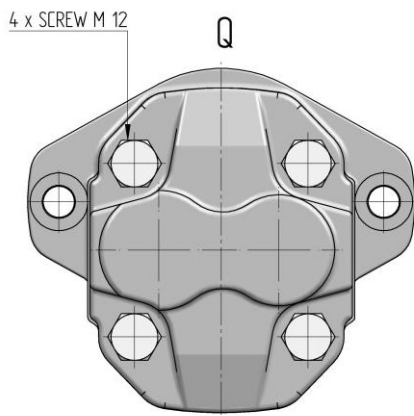
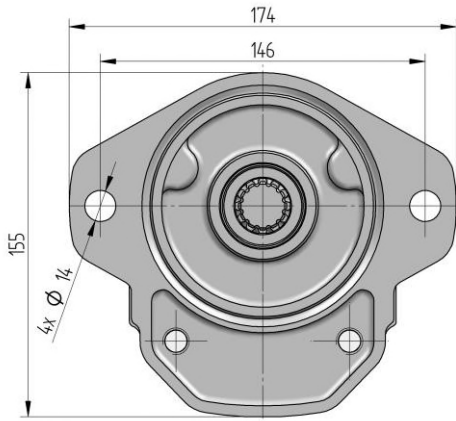
THE REVERSIBLE MOTOR IS DRAWN

ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRES. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	DIMENSIONS [mm]					
QM2-82B-R11C11-SK03K03-N		B	82	180	500	1800	86.25	172.5						
QM2-71B-R11C11-SK03K03-N		B	71	210	500	1800	81.75	163.5						
QM2-61B-R11C11-SK03K03-N		B	61	230	500	2000	77.5	155						
QM2-51B-R11C11-SK03K03-N		B	51	250	500	2500	73.25	146.5						
QM2-43B-R11C11-SK03K03-N		B	43	270	500	2500	69.75	139.5						
QM2-34B-R11C11-SK03K03-N		B	34	280	500	2800	66	132						
QM2-27B-R11C11-SK03K03-N		B	27	290	500	3000	63.25	126.5						
QM2-17B-R11C11-SK03K03-N		B	17	290	500	3000	59	118						



THE CLOCKWISE MOTOR IS DRAWN

ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRES. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	C	D	E	F	G	H
QM2-82R-I01D18-SG05G06-N		R	82	180	500	1800	139.25	225.5	G 1	18	45	G 1-1/4	18	57
QM2-82L-I01D18-SG05G06-N		L	82	180	500	1800	139.25	225.5	G 1	18	45	G 1-1/4	18	57
QM2-71R-I01D18-SG05G06-N		R	71	210	500	1800	134.75	216.5	G 1	18	45	G 1-1/4	18	57
QM2-71L-I01D18-SG05G06-N		L	71	210	500	1800	134.75	216.5	G 1	18	45	G 1-1/4	18	57
QM2-61R-I01D18-SG05G06-N		R	61	230	500	2000	130.5	208	G 1	18	45	G 1-1/4	18	57
QM2-61L-I01D18-SG05G06-N		L	61	230	500	2000	130.5	208	G 1	18	45	G 1-1/4	18	57
QM2-51R-I01D18-SG04G05-N		R	51	250	500	2500	126.25	199.5	G 3/4	16	39	G 1	18	45
QM2-51L-I01D18-SG04G05-N		L	51	250	500	2500	126.25	199.5	G 3/4	16	39	G 1	18	45
QM2-43R-I01D18-SG04G05-N		R	43	270	500	2500	122.75	192.5	G 3/4	16	39	G 1	18	45
QM2-43L-I01D18-SG04G05-N		L	43	270	500	2500	122.75	192.5	G 3/4	16	39	G 1	18	45
QM2-34R-I01D18-SG04G04-N		R	34	280	500	2800	119	185	G 3/4	16	39	G 1/2	14	33
QM2-34L-I01D18-SG04G04-N		L	34	280	500	2800	119	185	G 3/4	16	39	G 1/2	14	33
QM2-27R-I01D18-SG04G04-N		R	27	290	500	3000	179.5	226.3	G 3/4	16	39	G 1/2	14	33
QM2-27L-I01D18-SG04G04-N		L	27	290	500	3000	179.5	226.3	G 3/4	16	39	G 1/2	14	33
QM2-22.5R-I01D18-SG04G04-N		R	22.5	290	500	3000	114.25	175.5	G 3/4	16	39	G 1/2	14	33
QM2-22.5L-I01D18-SG04G04-N		L	22.5	290	500	3000	114.25	175.5	G 3/4	16	39	G 1/2	14	33
QM2-17R-I01D18-SG03G03-N		R	17	290	500	3000	112	117	G 1/2	14	33	G 1/2	14	33
QM2-17L-I01D18-SG03G03-N		L	17	290	500	3000	112	117	G 1/2	14	33	G 1/2	14	33
QM2-10R-I01D18-SG03G03-N		R	10	270	500	3000	109	165	G 1/2	14	33	G 1/2	14	33
QM2-10L-I01D18-SG03G03-N		L	10	270	500	3000	109	165	G 1/2	14	33	G 1/2	14	33



THE CLOCKWISE MOTOR IS DRAWN

QM2-82R-S03D13-SU07U08-N		R	82	180	500	1800	86.25	172.5	1-5/16-12UN	Ø 49	1-5/8-12UN	Ø 58
QM2-82L- S03D13- SU07U08-N		L										
QM2-71R- S03D13- SU07U08-N		R	71	210	500	1800	81.75	163.5	1-5/16-12UN	Ø 49	1-5/8-12UN	Ø 58
QM2-71L- S03D13- SU07U08-N		L										
QM2-61R- S03D13- SU07U08-N		R	61	230	500	2000	77.5	155	1-5/16-12UN	Ø 49	1-5/8-12UN	Ø 58
QM2-61L- S03D13- SU07U08-N		L										
QM2-51R- S03D13- SU07U08-N		R	51	250	500	2500	73.25	146.5	1-5/16-12UN	Ø 49	1-5/8-12UN	Ø 58
QM2-51L- S03D13- SU07U08-N		L										
QM2-43R- S03D13- SU07U08-N		R	43	270	500	2500	69.75	139.5	1-5/16-12UN	Ø 49	1-5/8-12UN	Ø 58
QM2-43L- S03D13- SU07U08-N		L										
QM2-34R- S03D13-SU07U07-N		R	34	280	500	2800	66	132	1-5/16-12UN	Ø 49	1-5/16-12UN	Ø 49
QM2-34L- S03D13-SU07U07-N		L										
QM2-27R- S03D13-SU05U07-N		R	27	290	500	3000	63.25	126.5	1-1/16-12UN	Ø 41	1-5/16-12UN	Ø 49
QM2-27L- S03D13-SU05U07-N		L										
QM2-22.5R- S03D13-SU05U07-N		R	22.5	290	500	3000	61.25	122.5	1-1/16-12UN	Ø 41	1-5/16-12UN	Ø 49
QM2-22.5L- S03D13-SU05U07-N		L										
QM2-17R- S03D13-SU04U05-N		R	17	290	500	3000	59	118	7/8-14UNF	Ø 34	1-1/16-12UN	Ø 41
QM2-17L- S03D13- SU04U05-N		L										
QM2-13.5R- S03D13- SU04U05-N		R	13.5	290	500	3000	57.5	115	7/8-14UNF	Ø 34	1-1/16-12UN	Ø 41
QM2-13.5L- S03D13- SU04U05-N		L										
QM2-10R- S03D13- SU04U05-N		R	10	270	500	3000	56	112	7/8-14UNF	Ø 34	1-1/16-12UN	Ø 41
QM2-10L- S03D13- SU04U05-N		L										
ORDER KEY	PURCH. CODE	DIRECT. OF ROT.	DISPLACEMENT [cm ³ /1]	NOM. PRES. [bar]	MIN. SPEED [min ⁻¹]	MAX. SPEED [min ⁻¹]	A	B	DIMENSIONS [mm]			



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