Air Vane Motors

SOMMER automatic

Air Vane **Motors**

Order no.:	Nominal performance [Watt]	Nominal speed [U/min.]	Page
Clockwise rotation			
DLM-RK-150-9100	150	9100	10
DLM-RK-150-2200	150	2200	10
DLM-RK-150-1400	150	1400	10
DLM-RK-150-530	150	530	10
DLM-RK-150-330	150	330	10
Reversibile			
DLM-RLK-95-6500	95	6500	10
DLM-RLK-95-1600	95	1600	10
DLM-RLK-95-950	95	950	10
DLM-RLK-95-380	95	380	10
DLM-RLK-95-230	95	230	10

Order no.:	Nominal performance [Watt]	Nominal speed [U/min.]	Page
Clockwise rotation			
DLM-RK-235-9600	236	9600	14
DLM-RK-235-2200	236	2200	14
DLM-RK-235-1650	236	1650	14
DLM-RK-235-1040	236	1040	14
DLM-RK-235-535	225	535	14
DLM-RK-235-380	225	380	14
DLM-RK-235-235	225	235	14
Reversibile			
DLM-RLK-150-6500	150	6500	14
DLM-RLK-150-1390	150	1390	14
DLM-RLK-150-1050	150	1050	14
DLM-RLK-150-650	150	650	14
DLM-RLK-150-310	150	310	14
DLM-RLK-150-240	150	240	14
DLM-RLK-150-140	150	140	14

Order no.:	Nominal performance [Watt]	Nominal speed [U/min.]	Page
Clockwise rotation			
DLM-RK-370-9400	370	9400	18
DLM-RK-370-2600	370	2600	18
DLM-RK-370-1460	370	1460	18
DLM-RK-370-1180	370	1180	18
DLM-RK-370-580	360	580	18
DLM-RK-370-320	360	320	18
DLM-RK-370-260	360	260	18
Reversibile			
DLM-RLK-225-7000	225	7000	18
DLM-RLK-225-1960	225	1960	18
DLM-RLK-225-1090	225	1090	18
DLM-RLK-225-880	225	880	18
DLM-RLK-225-435	218	435	18
DLM-RLK-225-240	218	240	18
DLM-RLK-225-190	218	190	18

Table of contents DLM-RK/DLM-RLK

Air Vane **Motors**

Order no.:	Nominal performance [Watt]	Nominal speed [U/min]	Page
Clockwise rotation			
DLM-RK-610-160	585	160	32
DLM-RK-610-100	585	100	32
DLM-RK-610-60	585	60	32
Reversibile			
DLM-RLK-500-120	480	120	32
DLM-RLK-500-77	480	77	32
DLM-RLK-500-46	480	46	32

Order no.:	Nominal performance [Watt]	Nominal speed [U/min]	Page
Clockwise rotation			
DLM-RK-610-39	575	39	34
DLM-RK-610-25	575	25	34
Reversibile			
DLM-RLK-500-30	470	30	34
DLM-RLK-500-19	470	19	34

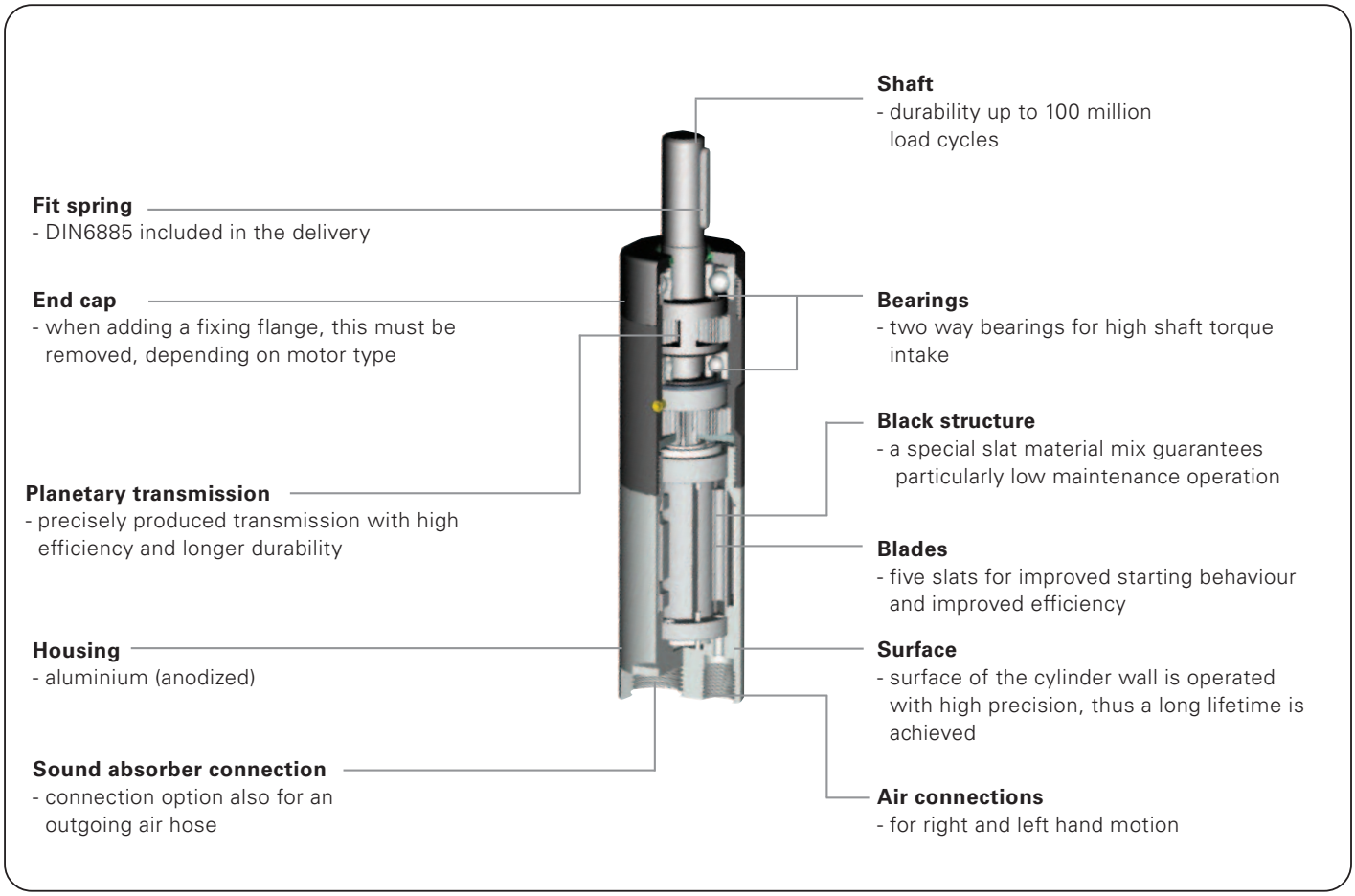
Order no.:	Nominal performance [Watt]	Nominal speed [U/min]	Page
Clockwise rotation			
DLM-RK-1130-9300	1130	9300	38
DLM-RK-1130-2700	1130	2700	38
DLM-RK-1130-1600	1130	1600	38
DLM-RK-1130-1200	1130	1200	38
DLM-RK-1130-590	1100	590	38
DLM-RK-1130-360	1100	360	38
DLM-RK-1130-260	1100	260	38
Reversibile			
DLM-RLK-770-6800	772	6800	38
DLM-RLK-770-1970	772	1970	38
DLM-RLK-770-1200	772	1200	38
DLM-RLK-770-890	772	890	38
DLM-RLK-770-425	752	425	38
DLM-RLK-770-260	752	260	38
DLM-RLK-770-190	752	190	38

Order no.:	Nominal performance [Watt]	Nominal speed [U/min]	Page
Clockwise rotation			
DLM-RK-1130-140	1080	140	40
DLM-RK-1130-85	1080	85	40
DLM-RK-1130-65	1080	65	40
Reversibile			
DLM-RLK-770-100	733	100	40
DLM-RLK-770-65	733	65	40
DLM-RLK-770-45	733	45	40

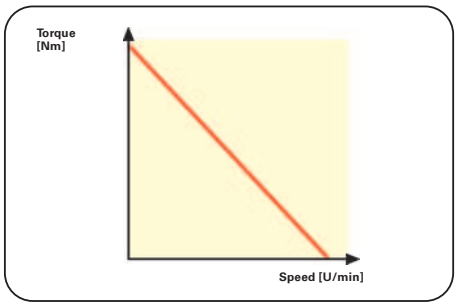
Features

- A performance power density, which is superior to almost all other motors: 75% lighter and 85% smaller than an asynchronous electric motor of equal strenght
- can be loaded to a standstill at full torque with no damage and can be started an dstopped with unlimited frequency
- Performance adapts automatically to the load applied
- Infinitely variable regulation over a wide range of speeds in a manner typical to compressed air
- Ideal for many applications under conditions that are dangerous or harmful to people
- Soft start guarantees minimum peak load on drives
- Insensitive to electrical faults and cannot cause any itself

Functional diagram



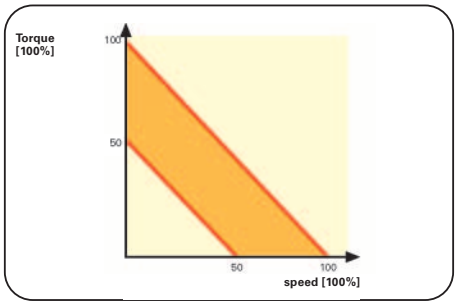
Compressed air motors are introduced



Picture 1

The compressed air motor is one of the most robust and diverse drives to manufacturers today. It can be infinitely regulated over a wide range of speeds and gives its greatest torque when most needed: at start up.

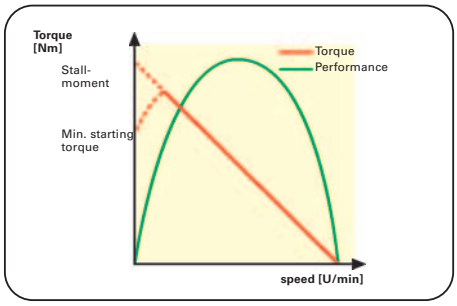
The performance of a compressed air motor is depentant on the flow pressure. At a constant input pressure, unregulated motors demonstrate the characteristic liner relationship between torque and speed (figure 1).



Picture 2

Simple regulation of the air feed via a choke valve or pressure regulation allows easy an dsimple modification of the performance of a compressed air motor.

The neutral speed an dthe torque of DLM motors can be down regulated by up to 50 % (figure 2).

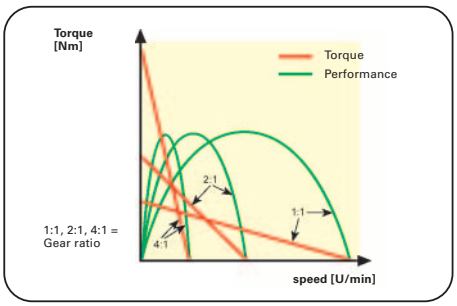


Picture 3

All compressed air motors generate a variable starting torque depending on the position of the blates in the motor. The deviation varies between individual motor types and must be checked individually.

The performance of a compressed air motor is a simple function of torque and speed. All unregulated compressed air motors have the same characteristic performance curve, where the highest performance is achieved at around 50% of the neutral speed. The torque generated at this point is denoted as the nominal moment.

The performance curves for an unregulated compressed air motor at a constant operating pressure are illustrated in figure 3.



Picture 4

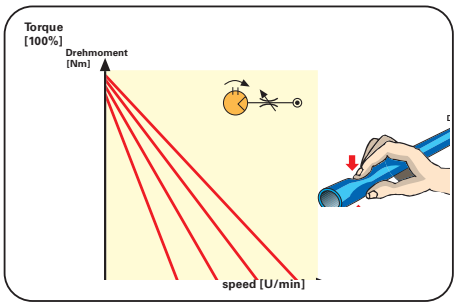
Use of transmissions

Compressed air motors work with high rotation speeds and, although regulable over broad range of speeds, are not always suitable for the task intended.

In order to achieve the desired data, a suitable gear must be selected. Figure 4 shows how the torque and speed can be changed in this way.

The planetary and spur transmissions have a high efficiency, which can be 100% loaded. Whilst the torque/speed ratio undergoes a considerable change, the performance remains practically unchanged.

Ways of adapting motor performance

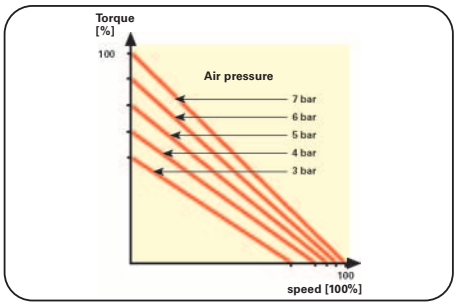


Picture 5

Flow control

Depending on requirement (torque, speed change), flow control valve can be installed in the ingoing or outgoing motor air.

If a high start torque must be maintained but the speed reduced, then the installation of choke valves is the best way of changing the motor performance (figure 5).



Picture 6

Pressure regulation

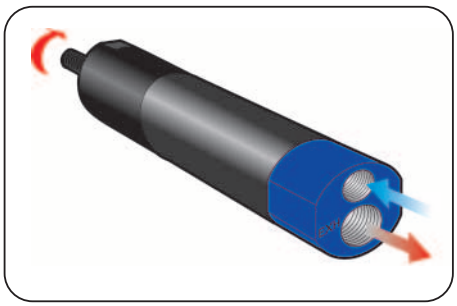
A pressure regulator is allways installed in the motor input hose. The use of a pressure regulator is ideal if the stalling torque has to be regulated and a high start torque is less important (figure 6).

Handling of the catalogue

Motor specifications and performance diagrams

The following data can be seen in the catalogue fo revery motor-transmission combination:

1. Data tables – overview of the significant performance data
2. Dimension sketches
3. Performance diagrams

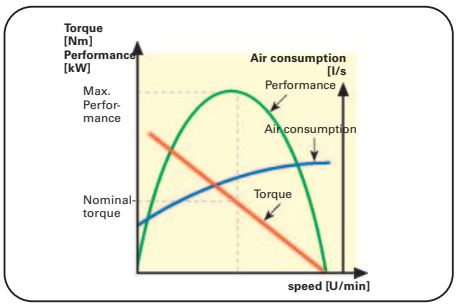


Picture 7

Explanation of the performance diagrams

The performance data given in this catalogue apply for operating pressure of 6 bar. The specifications for air requirement refer to the volume of air in the state relaxed back to atmospheric pressure.

Non-reroutable motors turn clockwise when facing the connecting plate. Figure 7 shows a dextrorotary motor.



Picture 8

Remark: the generate starting torque of the compressed air motor oscillate. It depends of the position of the plates. The diagram shows not the starting torque-the starting torque is shown in the table which the respectively lowest value.

To understand the performance diagrams

The performance of a compressed air motor is easy to read off from its performance diagram (figure 8). For every motor/transmission combination, the performance, torque and air requirement are specified as a function of the rotation speed.

The diagrams shown refer to a positive flow pressure 6 bar. For performance calculation at other pressuers, see page 44.

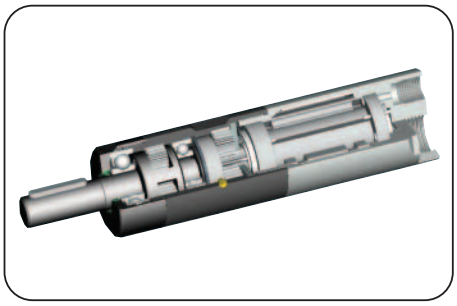
Motor selection

Information on the selection of the motor is given on page 44, „selction of the appropriate motor".

Installation

General installation recommendations can be found on page 46. Specific data in the individual motors are given in the corresponding sections

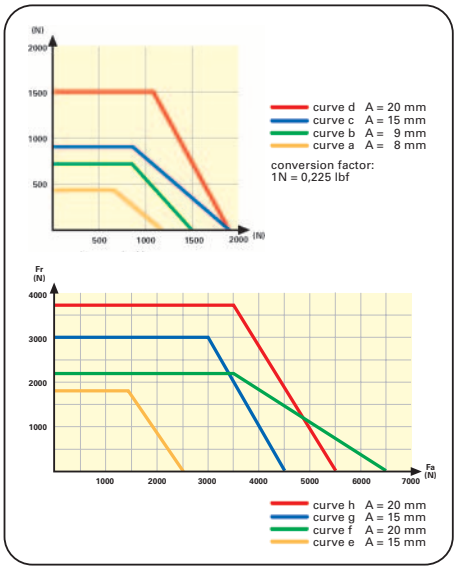
Compressed air motors – presentation



Picture 9

Compressed air motors from Sommer-automatic are efficient and very reliable. They are characterised by high output performance with a compact structure (figure 9).

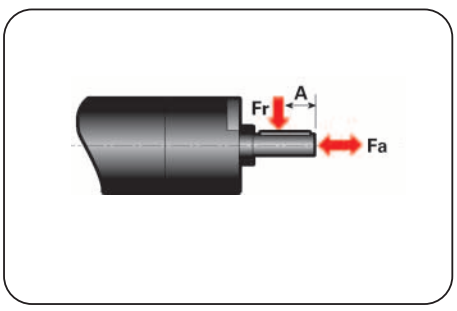
The rotor shape – small diameter relative to lenght – allows for low wear peripheral slat speeds at high rotation speeds and low leakage due to the short gap between rotor end and cylinder discs. The five slats are preesed sealed against the cylinder wall by compressed air (air spring); this ensures good starting behaviour with a high start torque. Single or multi stage compact palnetary transmissions provide practice-oriented translation of the motor performance into various torques and speeds.



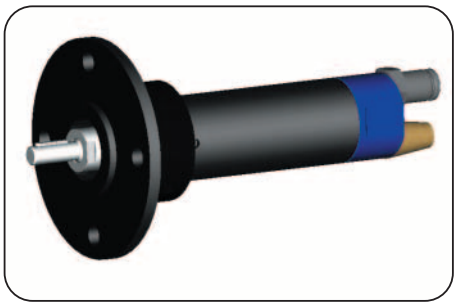
Picture 10

Shaft load code

The authorised shaft loads for the various motor-transmission combination can be determined from figure 10. The shaft load curve for a specific unit can be identified using the load codes listed in the table data. The drive shafts and ball bearings are designed for a durability of 10 million load cycles. In order to achieve a durability of 100 million load cycles, the load factor has to be halved.



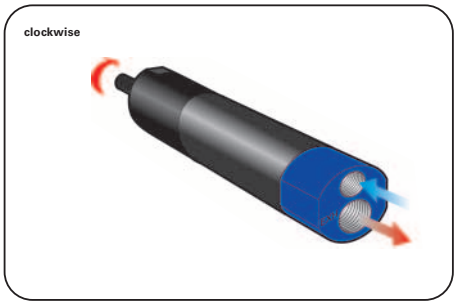
cylindrical shaft



Picture 11

Installation position

The installation position of compressed air motors can be selected at will. Installation may b emade easier by the flange availabel for each motor.

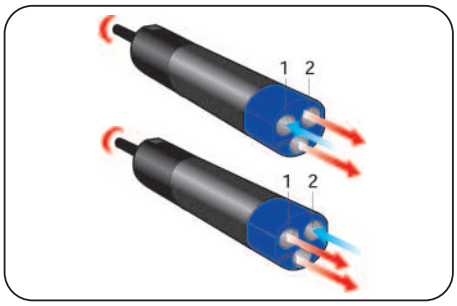


Picture 12

Connections

Non-steerable motor

The compressed air is connected to th eincoming air connection, as shown in figure 12. If the outgoing air is to be diverted, then a hose must be connected to the vent (EXH).



Picture 13

Reroutable motor

The compressed air line must be connected to the inlet which determines the desired direction of rotation (figure 13).

The unused connection serves as an additional outgoing air outlet; it must not be closed off with a sealing plug.

Hose dimensions

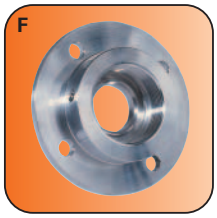
Detailed specifications of suitable hose dimensions for compressed air motors are listed in the table. The hose diameters are designed for a hose length of 3 m. Greater lengths require greater hose diameters.

Motor Typ	Ingoing air connection-thread	Outgoing air connection-thread [BSP]	Ingoing air hose inner–Ø [mm]	Outgoing air hose inner–Ø (non reversibile) [mm]	Outgoing air hose inner–Ø (reversibile) [mm]
DLM-RK- 150/DLM-RLK- 95	1/8"	1/8"	5	8	6
DLM-RK- 235/DLM-RLK-150	1/8"	1/4"	6	10	8
DLM-RK- 370/DLM-RLK-225	1/4"	1/4"	8	10	8
DLM-RK- 610/DLM-RLK-500	1/4"	1/2"	10	13	13
DLM-RK-1130/DLM-RLK-770	3/8"	1/2"	13	16	13

95-150 Watt

Ø 27 mm

Accessory list

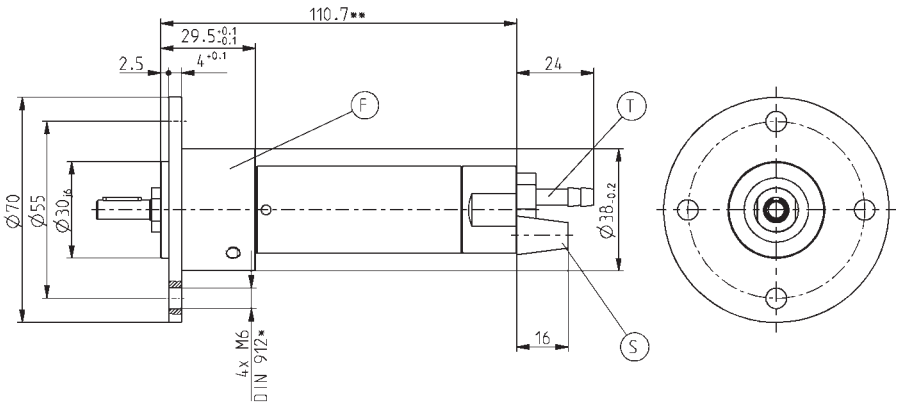


Fixing flange
Order no. DLM-F01

Pneumatic fitting
Order no. GV1/8x5ID*
Order no. GV1/8x8ID**

Sound absorber
Order no. SD18

Accessories



(**) + 9,8 mm at RK-150-530 RLK 95-380
RK-150-330 RLK 95-230

** replaced by*
DIN EN ISO 4762

** Ingoing air connection*
*** Outgoing connection*

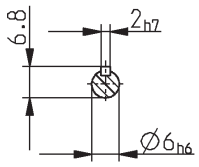
Subject to change without prior notice

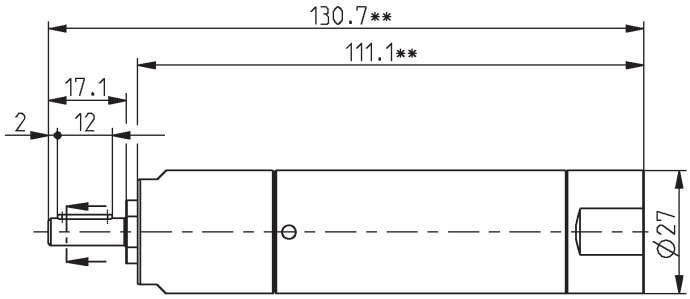
Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min. starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-150-9100	150	9100	0,16	0,26	19500	0,25	3/7	-20/100	300	a
DLM-RK-150-2200	150	2200	0,67	1,00	4700	0,25	3/7	-20/100	300	a
DLM-RK-150-1400	150	1400	1,05	1,70	2800	0,25	3/7	-20/100	300	a
DLM-RK-150-530	150	530	2,76	4,20	1100	0,25	3/7	-20/100	330	a
DLM-RK-150-330	150	330	4,47	7,00	690	0,25	3/7	-20/100	330	a
Reversibile										
DLM-RLK-95-6500	95	6500	0,14	0,19	13000	0,22	3/7	-20/100	300	a
DLM-RLK-95-1600	95	1600	0,57	0,78	3100	0,22	3/7	-20/100	300	a
DLM-RLK-95-950	95	950	0,95	1,30	1900	0,22	3/7	-20/100	300	a
DLM-RLK-95-380	95	380	2,40	3,10	760	0,22	3/7	-20/100	330	a
DLM-RLK-95-230	95	230	3,90	5,00	460	0,22	3/7	-20/100	330	a

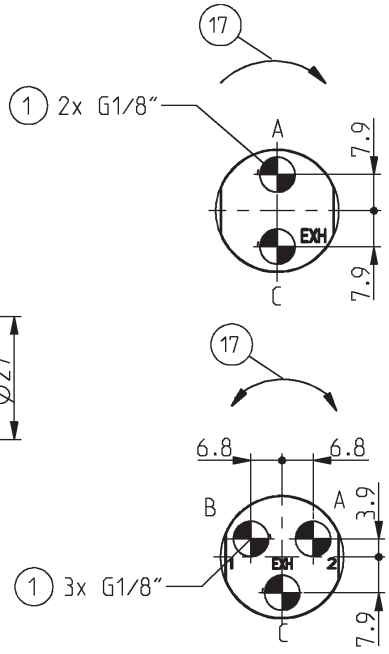
All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

(1) Energy supply
(17) Rotation direction
(A) Clockwise
(B) Counterclockwise
(C) Outgoing air





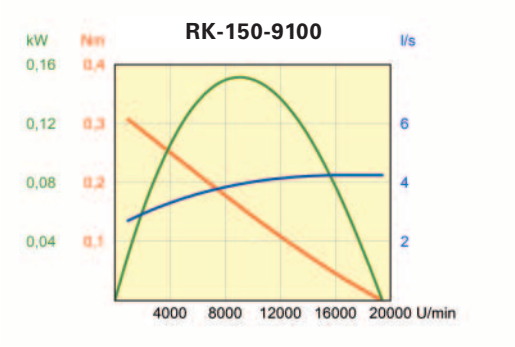


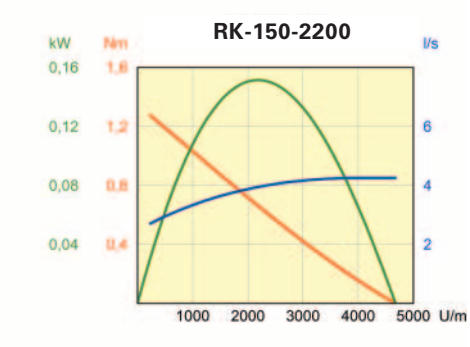
(**) + 9,8 mm at RK-150-530 RLK 95-380
RK-150-330 RLK 95-230

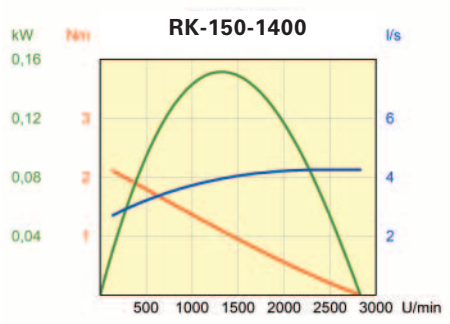
Subject to change without prior notice

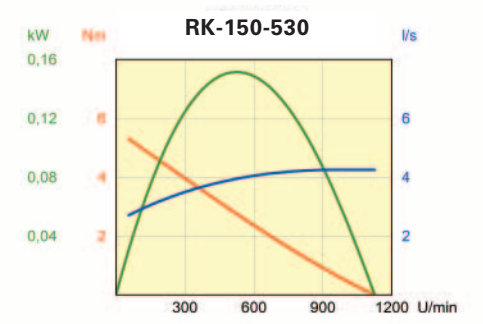
DLM-RK-150 Performance diagrams at operating pressure of 6 bar

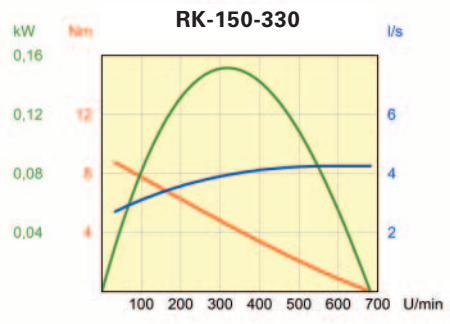
Not reversible, clockwise rotation











*Conversion factor *)*

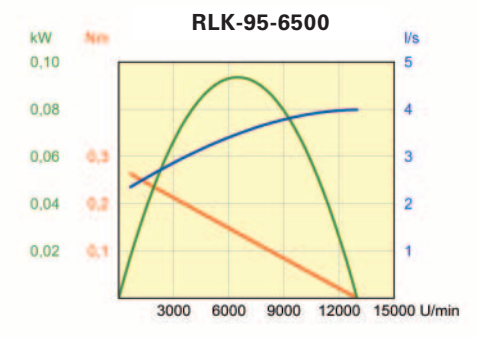
1 kW = 1.34 hp
1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

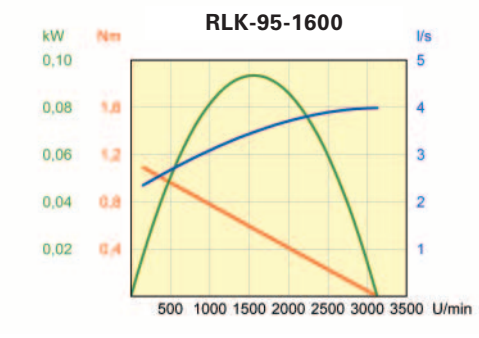
1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

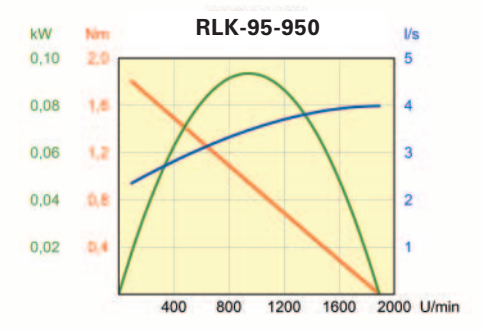
**) For more information, see page 7*

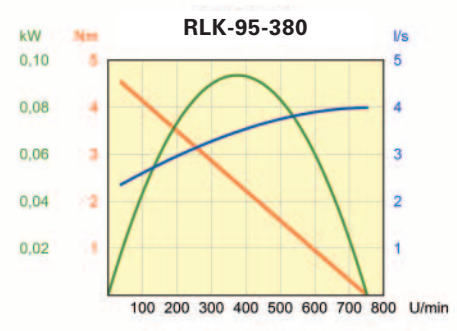
DLM-RLK-95 Performance diagrams at operating pressure of 6 bar

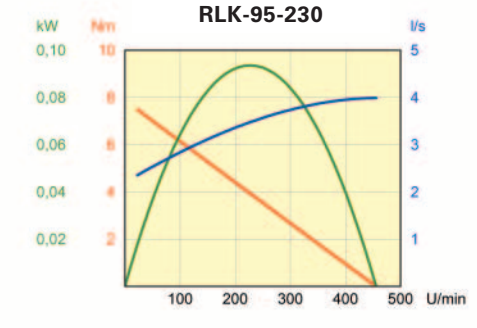
Reversibile











*Conversion factor *)*

1 kW = 1.34 hp
1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

**) For more information, see page 7*

Air Vane **Motors**

150-236 Watt

Ø 36 mm

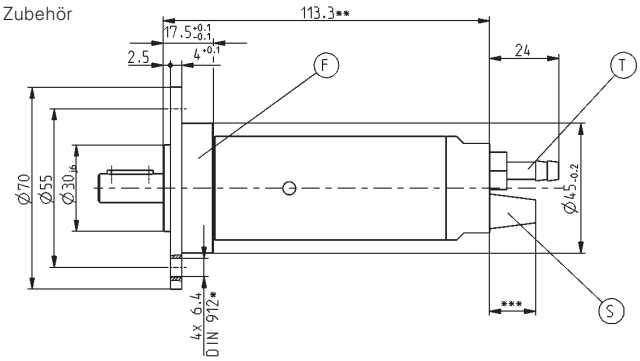
Accessory list

Fixing flange
Order no. DLM-F02

Pneumatic fitting
Order no. GV1/8x6ID*
Order no. GV1/4x10ID**

Sound absorber
Order no. SD14 (RK)
Order no. SD18 (RLK)

Zubehör



(**) + 31 mm at	*RK-235-535*	*RLK 150-310*
	RK-235-380	*RLK 150-240*
	RK-235-235	*RLK 150-140*
(***)	*RK-21 mm*	*RLK = 16 mm*

** replaced by DIN EN ISO 4762*

** Ingoing air connection*
*** Outgoing connection (RK)*

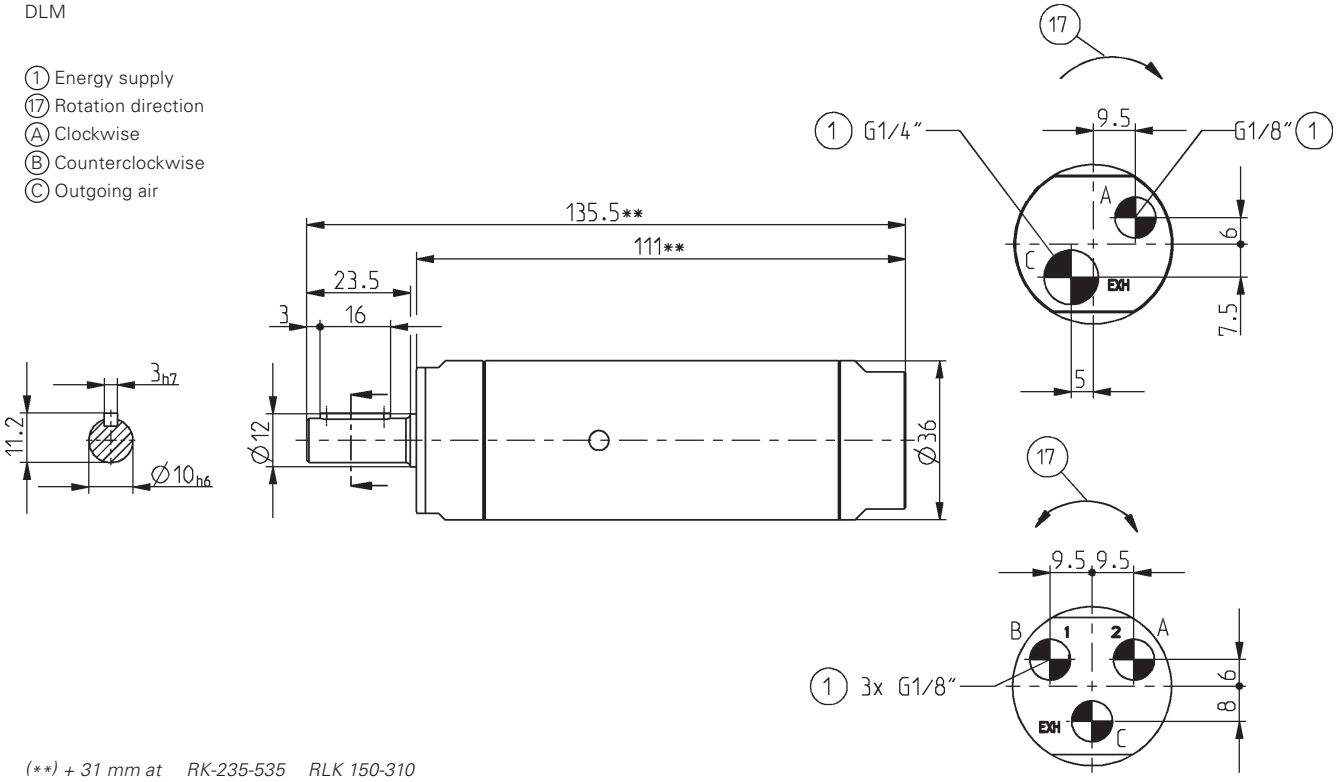
Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min. starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-235-9600	236	9600	0,24	0,45	21500	0,32	3/7	-20/100	550	b
DLM-RK-235-2200	236	2200	1,05	2,00	5000	0,32	3/7	-20/100	550	b
DLM-RK-235-1650	236	1650	1,43	2,70	3750	0,32	3/7	-20/100	550	b
DLM-RK-235-1040	236	1040	2,28	4,50	2250	0,32	3/7	-20/100	550	b
DLM-RK-235-535	225	535	4,10	8,00	1140	0,32	3/7	-20/100	750	b
DLM-RK-235-380	225	380	5,70	10,50	850	0,32	3/7	-20/100	750	b
DLM-RK-235-235	225	235	9,41	17,00	510	0,32	3/7	-20/100	750	b
Reversibile										
DLM-RLK-150-6500	150	6500	0,23	0,35	13800	0,30	3/7	-20/100	550	b
DLM-RLK-150-1390	150	1390	1,05	1,30	3000	0,30	3/7	-20/100	550	b
DLM-RLK-150-1050	150	1050	1,43	1,80	2200	0,30	3/7	-20/100	550	b
DLM-RLK-150-650	150	650	2,30	3,00	1350	0,30	3/7	-20/100	550	b
DLM-RLK-150-310	150	310	4,75	5,90	680	0,30	3/7	-20/100	750	b
DLM-RLK-150-240	150	240	6,37	8,00	500	0,30	3/7	-20/100	750	b
DLM-RLK-150-140	150	140	10,30	13,40	300	0,30	3/7	-20/100	750	b

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air

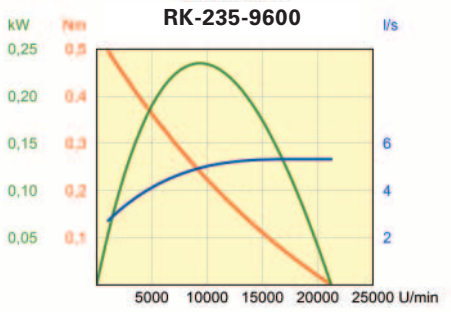


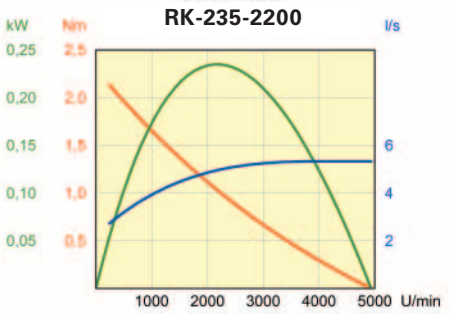
(**) + 31 mm at *RK-235-535* *RLK 150-310*
RK-235-380 *RLK 150-240*
RK-235-235 *RLK 150-140*

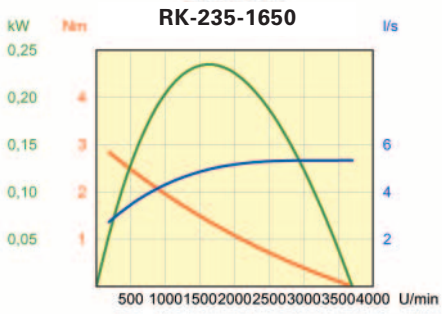
Subject to change without prior notice

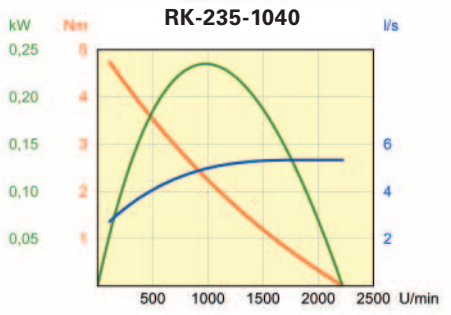
DLM-RK-235 Performance diagrams at operating pressure of 6 bar

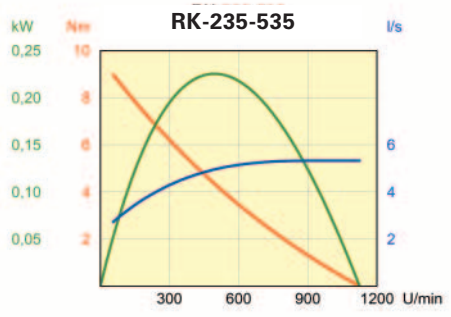
Not reversible, clockwise rotation

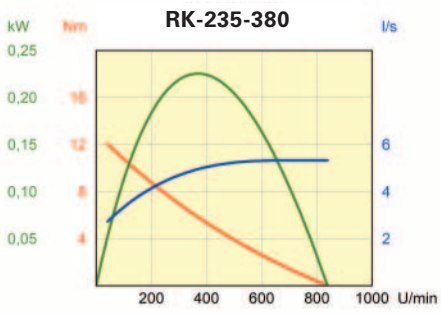


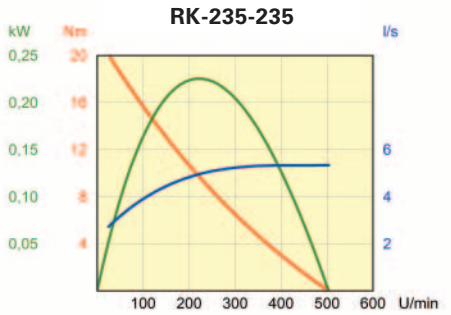












*Conversion factor *)*

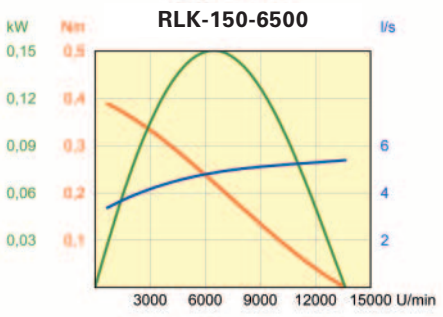
1 kW = 1.34 hp
1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

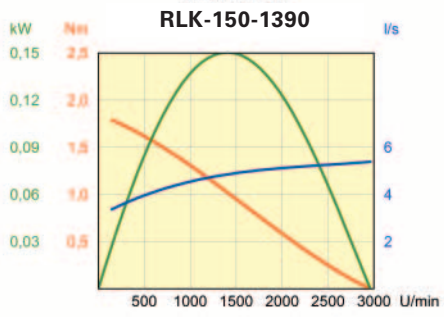
1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

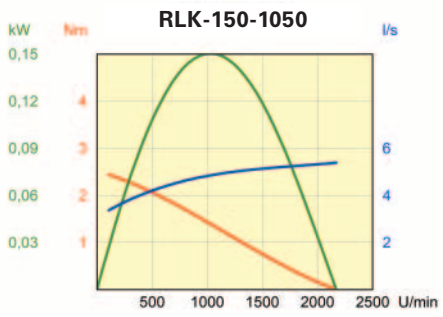
**) For more information, see page 7*

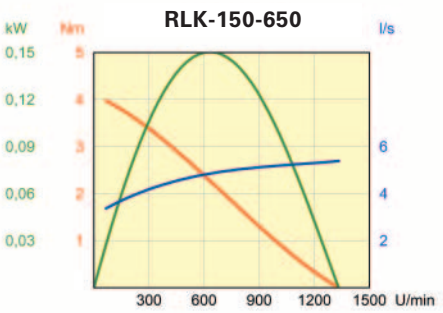
DLM-RLK-150 Performance diagrams at operating pressure of 6 bar

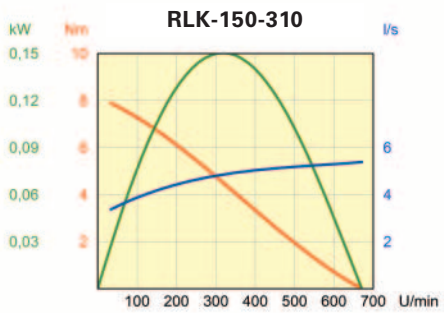
Reversibile

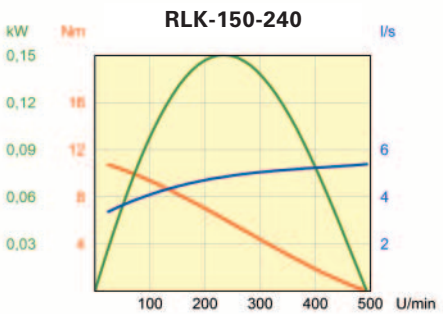


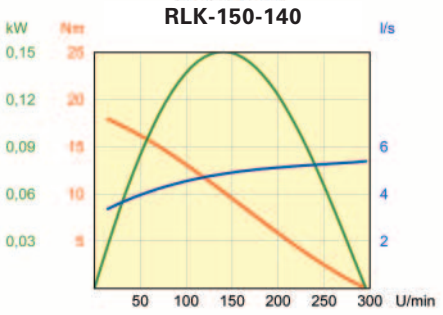












*Conversion factor *)*

1 kW = 1.34 hp
1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

**) For more information, see page 7*

Air Vane **Motors**

218-370 Watt

Ø 41,5 mm

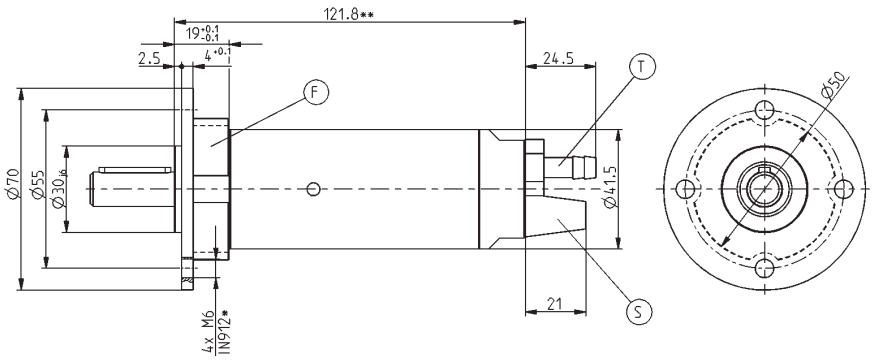
Accessory list

Fixing flange
Order no. DLM-F03

Pneumatic fitting
Order no. GV1/4x8ID*
Order no. GV1/4x10ID**

Sound absorber
Order no. SD14

Accessories



(**) + 33,5 mm at RK-370-580, RK-370-320, RK-370-260, RLK 225-435, RLK 225-240, RLK 225-190

** replaced by DIN EN ISO 4762*

** Ingoing air connection*
*** Outgoing connection*

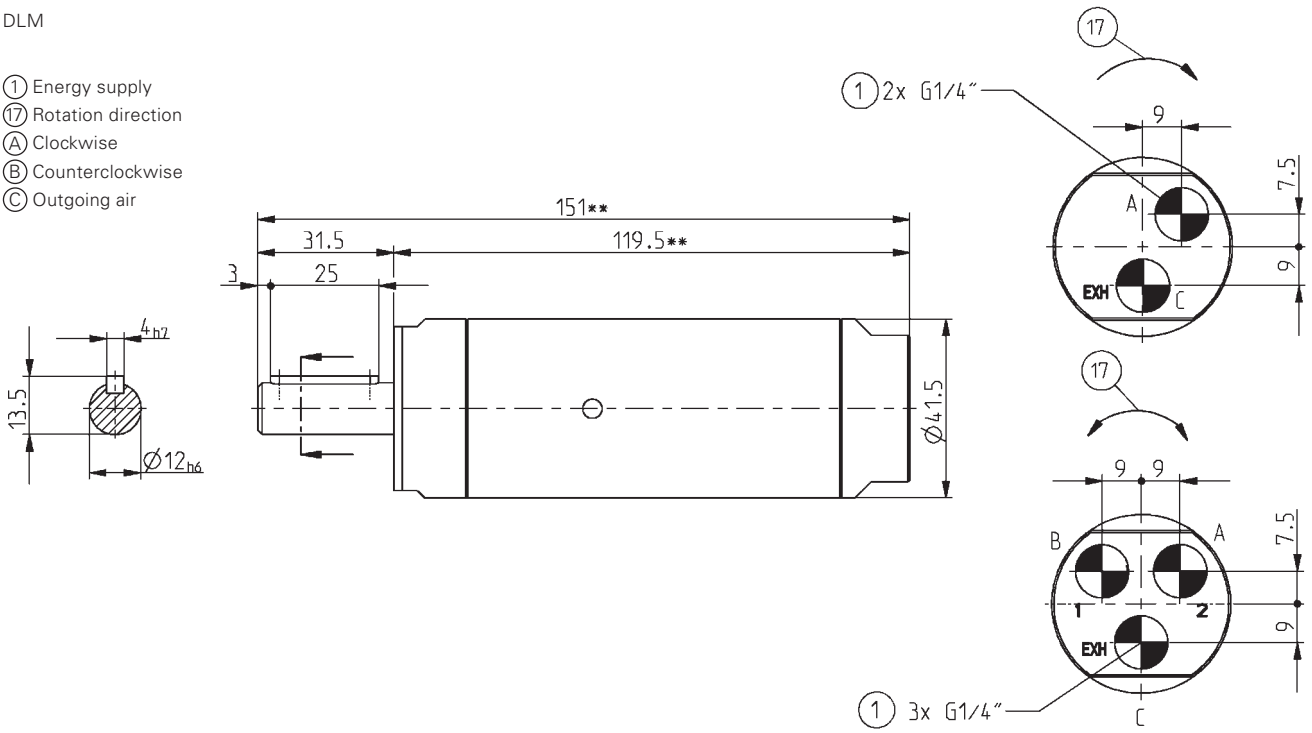
Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min.starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-370-9400	370	9400	0,38	0,8	20000	0,50	3/7	-20/100	0,8	c
DLM-RK-370-2600	370	2600	1,33	2,7	5600	0,50	3/7	-20/100	0,8	c
DLM-RK-370-1460	370	1460	2,47	4,9	3100	0,50	3/7	-20/100	0,8	c
DLM-RK-370-1180	370	1180	3,00	6,1	2500	0,50	3/7	-20/100	0,8	c
DLM-RK-370-580	360	580	5,99	12,0	1230	0,50	3/7	-20/100	1,0	c
DLM-RK-370-320	360	320	10,70	21,6	680	0,50	3/7	-20/100	1,0	c
DLM-RK-370-260	360	260	13,30	26,8	550	0,50	3/7	-20/100	1,0	c
Reversibile										
DLM-RLK-225-7000	225	7000	0,32	0,5	14000	0,47	3/7	-20/100	0,8	c
DLM-RLK-225-1960	225	1960	1,14	1,6	3840	0,47	3/7	-20/100	0,8	c
DLM-RLK-225-1090	225	1090	2,00	3,0	2090	0,47	3/7	-20/100	0,8	c
DLM-RLK-225-880	225	880	2,60	3,7	1760	0,47	3/7	-20/100	0,8	c
DLM-RLK-225-435	218	435	4,70	7,0	840	0,47	3/7	-20/100	1,0	c
DLM-RLK-225-240	218	240	8,60	12,6	480	0,47	3/7	-20/100	1,0	c
DLM-RLK-225-190	218	190	10,80	15,6	385	0,47	3/7	-20/100	1,0	c

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air



(**) + 33,5 mm at *RK-370-580* *RLK 225-435*
RK-370-320 *RLK 225-240*
RK-370-260 *RLK 225-190*

Subject to change without prior notice

218-360 Watt

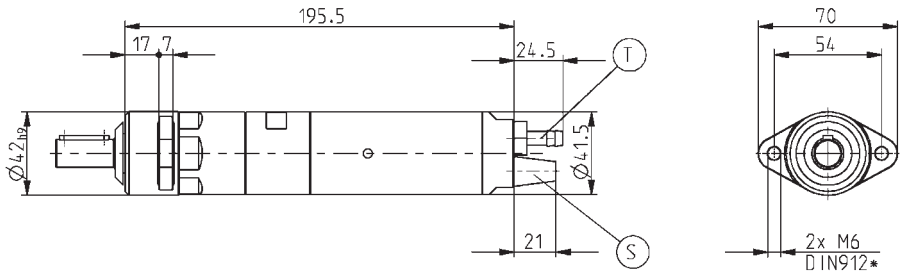
Ø 41,5 mm

Accessory list

Pneumatic fitting
Order no. GV1/4x8ID*
Order no. GV1/4x10ID**

Sound absorber
Order no. SD14

Accessories



* *Ingoing air connection*
** *Outgoing connection*

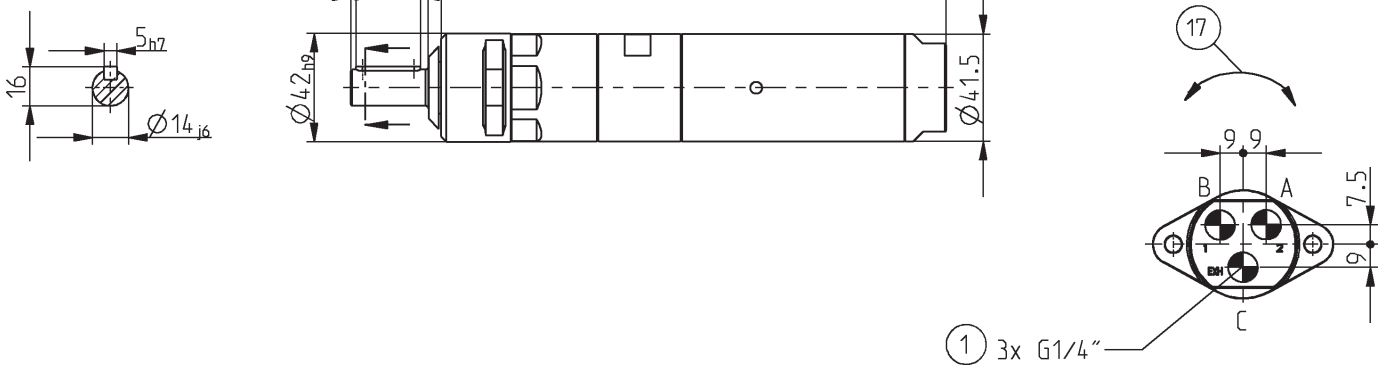
Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min.starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-370-160	360	160	20,4	40,7	340	0,50	3/7	-20/100	1,5	d
Reversibile										
DLM-RLK-225-120	218	120	17,4	20,0	240	0,47	3/7	-20/100	1,5	d

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air

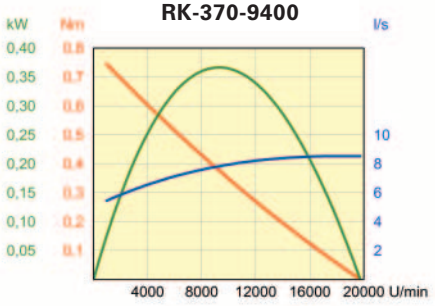


Subject to change without prior notice

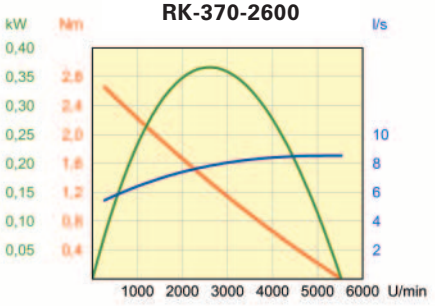
DLM-RK-370 Performance diagrams at operating pressure of 6 bar

Not reversible, clockwise rotation

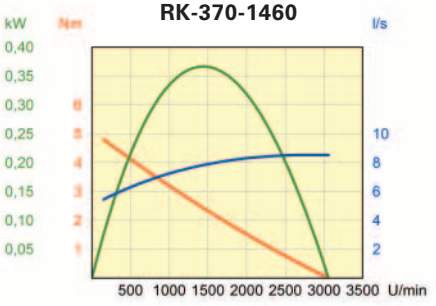
RK-370-9400



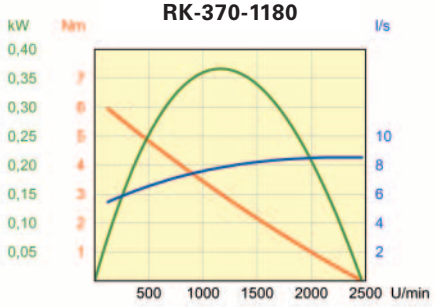
RK-370-2600



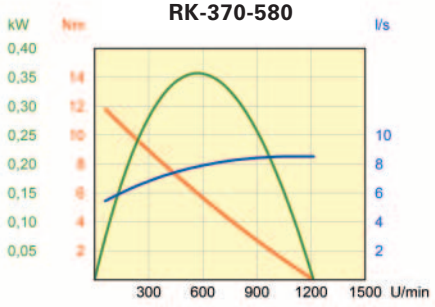
RK-370-1460



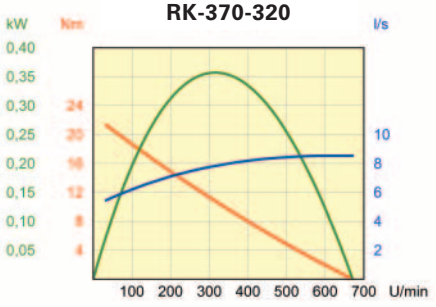
RK-370-1180



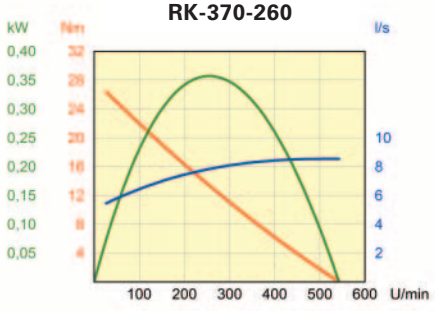
RK-370-580



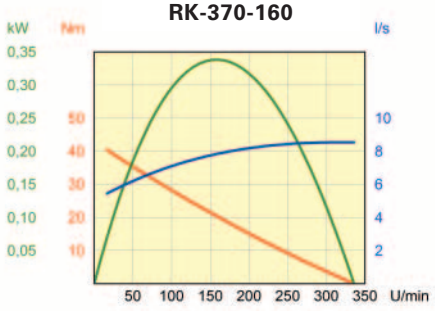
RK-370-320



RK-370-260



RK-370-160



*Conversion factor *)*

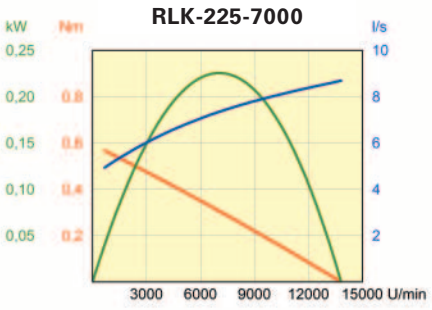
1 kW = 1.34 hp
1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

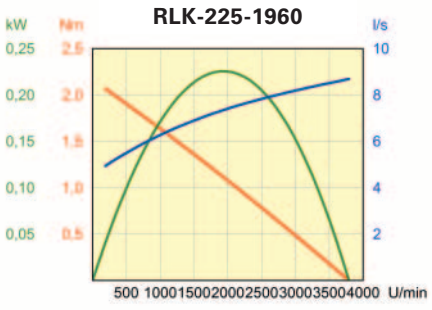
1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

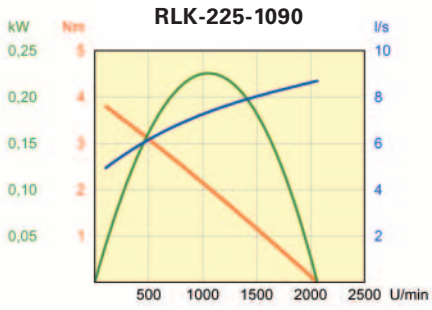
**) For more information, see page 7*

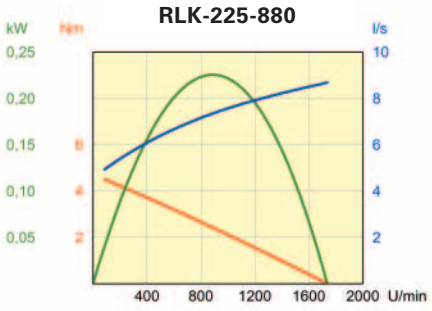
DLM-RLK-225 Performance diagrams at operating pressure of 6 bar

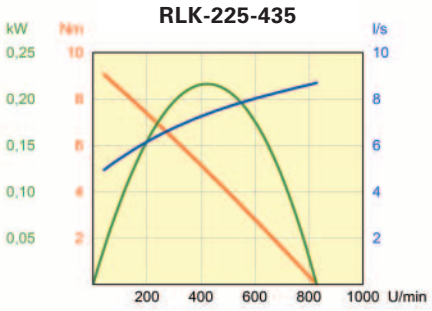
Reversibile

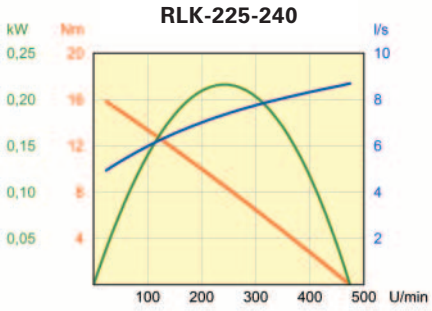


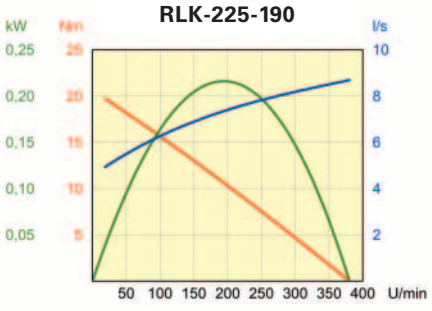


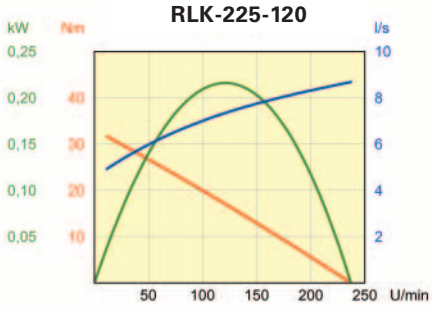












*Conversion factor *)*

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1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

**) For more information, see page 7*

Air Vane **Motors**

218-360 Watt

Ø 41,5 mm

Accessory list

F

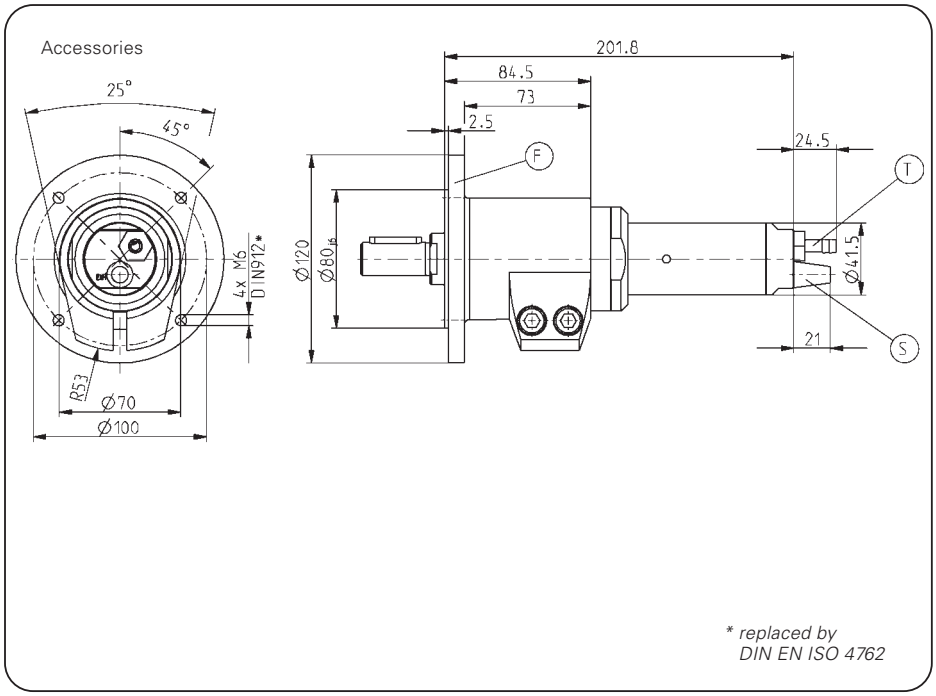
Fixing flange
Order no. DLM-F04

T

Pneumatic fitting
Order no. GV1/4x8ID*
Order no. GV1/4x10ID**

S

Sound absorber
Order no. SD14



* *Ingoing air connection*
** *Outgoing connection*

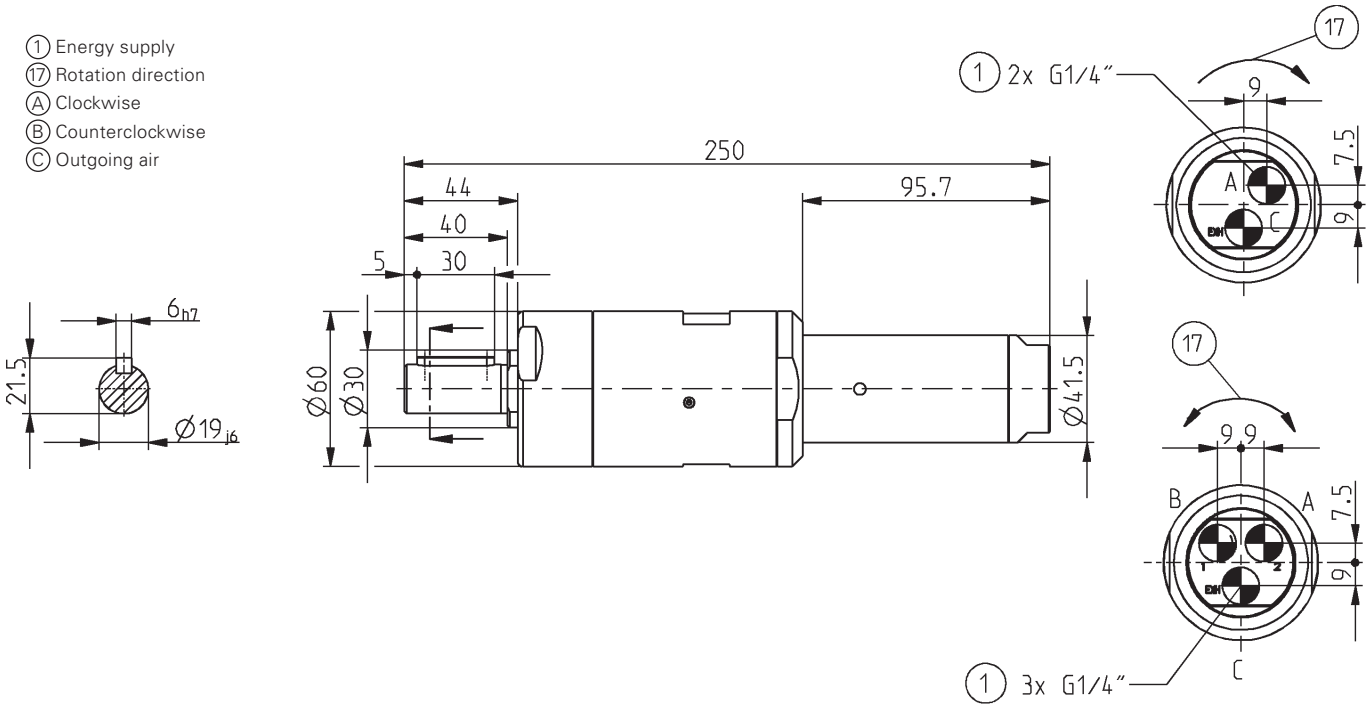
Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-370-104	360	104	31,4	66	212	0,50	3/7	-20/100	2,6	g
DLM-RK-370-77	360	77	41,8	90	156	0,50	3/7	-20/100	2,6	g
DLM-RK-370-58	360	58	56,1	118	118	0,50	3/7	-20/100	2,6	g
DLM-RK-370-43	360	43	75,1	158	87	0,50	3/7	-20/100	2,6	g
DLM-RK-370-34	360	34	95,0	200	70	0,50	3/7	-20/100	2,6	g
Reversibile										
DLM-RLK-225-71	218	71	29,5	41	143	0,51	3/7	-20/100	2,6	g
DLM-RLK-225-53	218	53	39,9	56	105	0,51	3/7	-20/100	2,6	g
DLM-RLK-225-40	218	40	52,3	74	80	0,51	3/7	-20/100	2,6	g
DLM-RLK-225-29	218	29	71,3	100	59	0,51	3/7	-20/100	2,6	g
DLM-RLK-225-24	218	24	88,4	125	48	0,51	3/7	-20/100	2,6	g

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air



Subject to change without prior notice

218-360 Watt

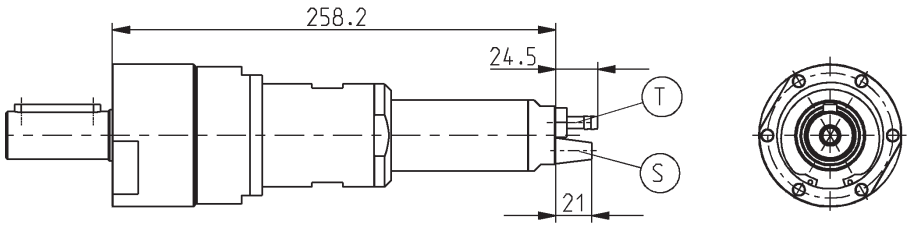
Ø 41,5 mm

Accessory list

Pneumatic fitting
Order no. GV1/4x8ID *
Order no. V1/4x10ID **

Sound absorber
Order no. SD14

Accessories



* *Ingoing air connection*
** *Outgoing connection*

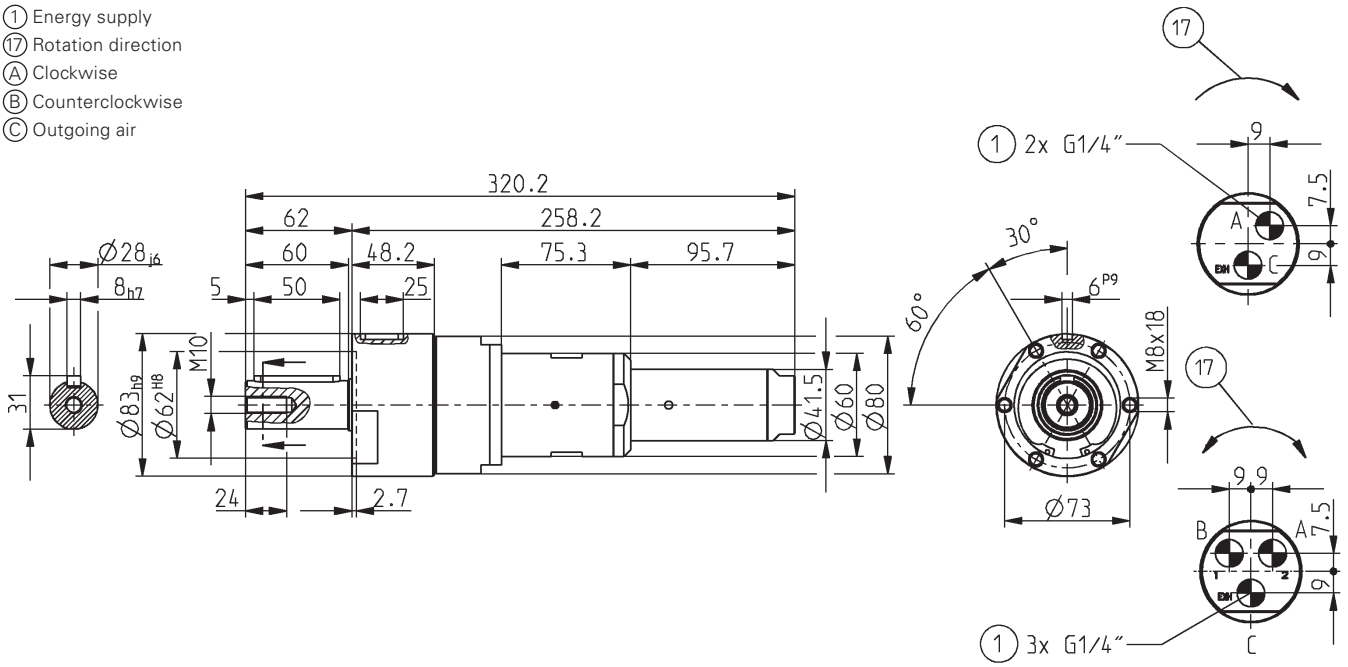
Subject to change without prior notice

Order no.:	Nominal-Perfor-mance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min. starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-370-25	360	25	130,2	274	52	0,50	3/7	-20/100	5	h
DLM-RK-370-19	360	19	171,0	360	38	0,50	3/7	-20/100	5	h
DLM-RK-370-14	360	14	232,8	490	29	0,50	3/7	-20/100	5	h
DLM-RK-370-10	360	10	323,0	680	21	0,50	3/7	-20/100	5	h
Reversibile										
DLM-RLK-225-18	218	18	118,8	169	35	0,51	3/7	-20/100	5	h
DLM-RLK-225-13	218	13	160,6	230	26	0,51	3/7	-20/100	5	h
DLM-RLK-225-10	218	10	209,0	305	20	0,51	3/7	-20/100	5	h
DLM-RLK-225-07	218	7	289,8	412	14	0,51	3/7	-20/100	5	h

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air

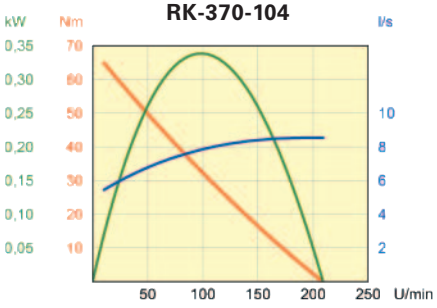


Subject to change without prior notice

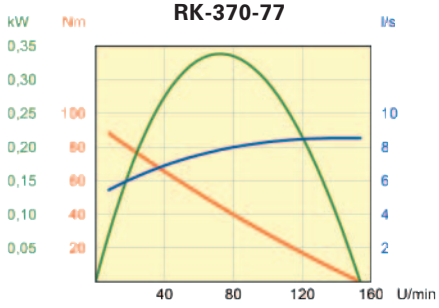
DLM-RK-370 Performance diagrams at operating pressure of 6 bar

Not reversible, clockwise rotation

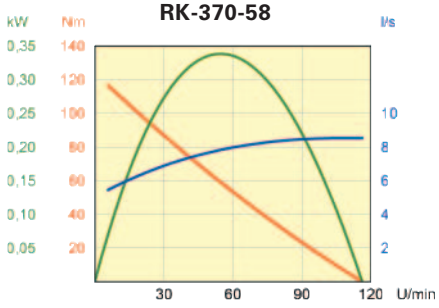
RK-370-104



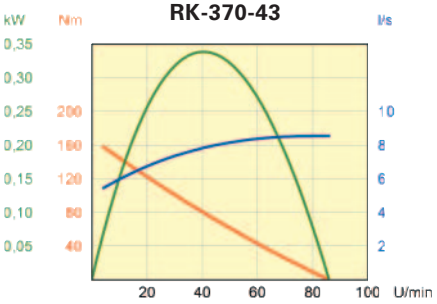
RK-370-77



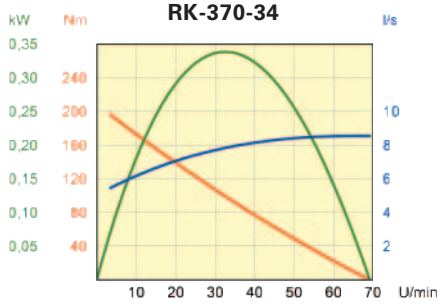
RK-370-58



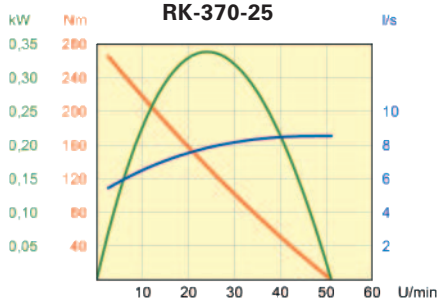
RK-370-43



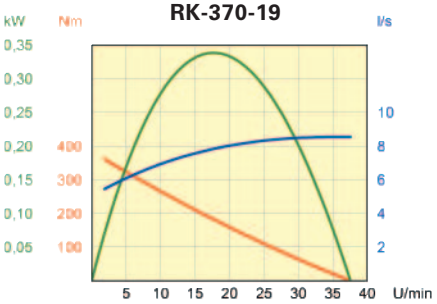
RK-370-34



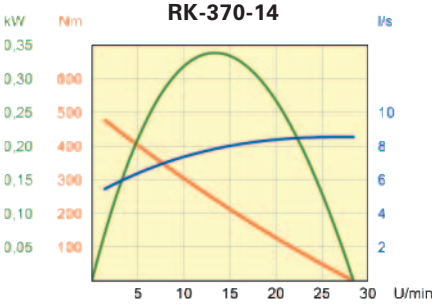
RK-370-25



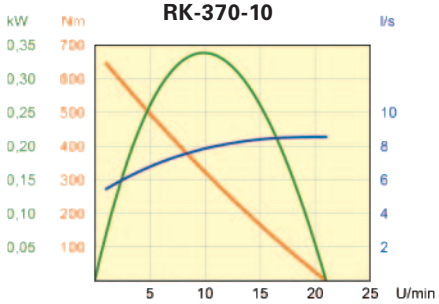
RK-370-19



RK-370-14



RK-370-10



*Conversion factor *)*

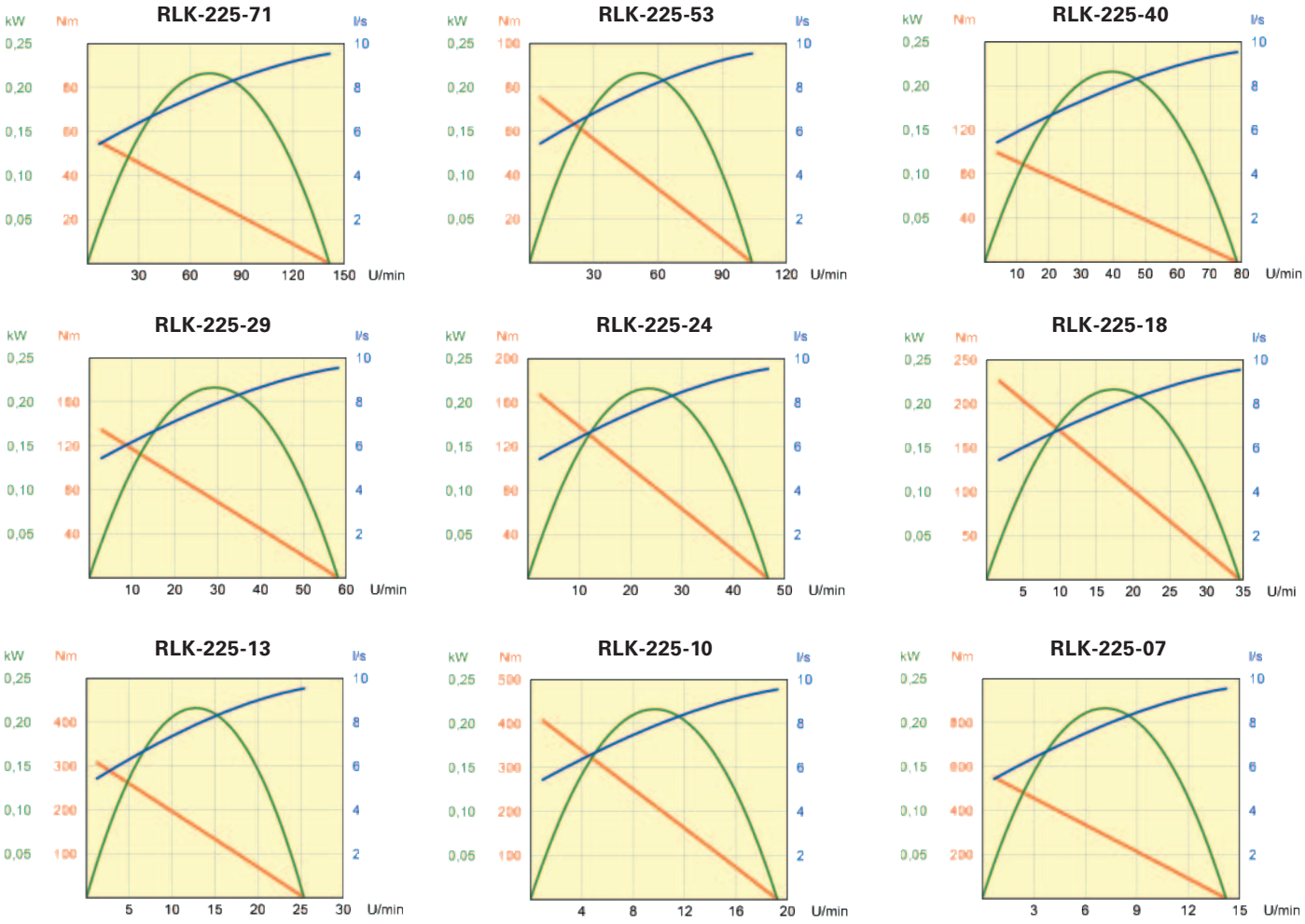
1 kW = 1.34 hp
1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

**) For more information, see page 7*

DLM-RLK-225 Performance diagrams at operating pressure of 6 bar

Reversibile



*Conversion factor *)*

1 kW = 1.34 hp
1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

**) For more information, see page 7*

Air Vane **Motors**

490-610 Watt

Ø 46 mm

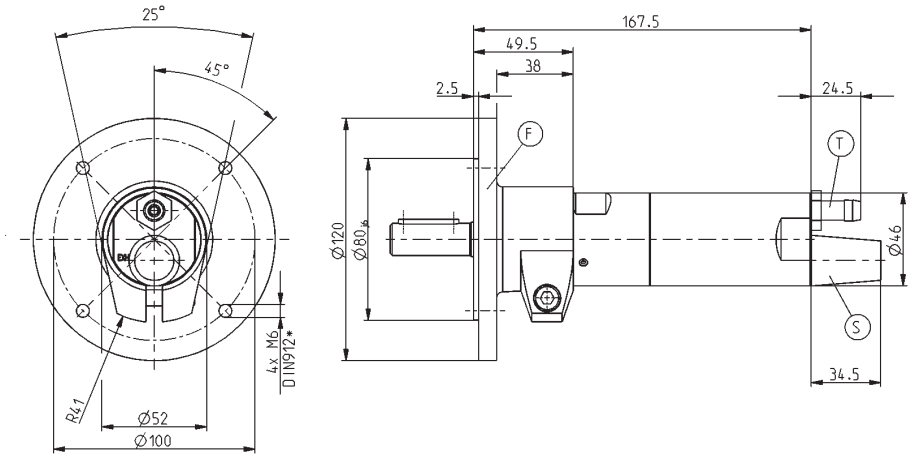
Accessory list

Fixing flange
Order no. DLM-F05

Pneumatic fitting
Order no. GV1/4x10ID*
Order no.GV1/2x13ID**

Sound absorber
Order no. SD12

Accessories



** replaced by DIN EN ISO 4762*

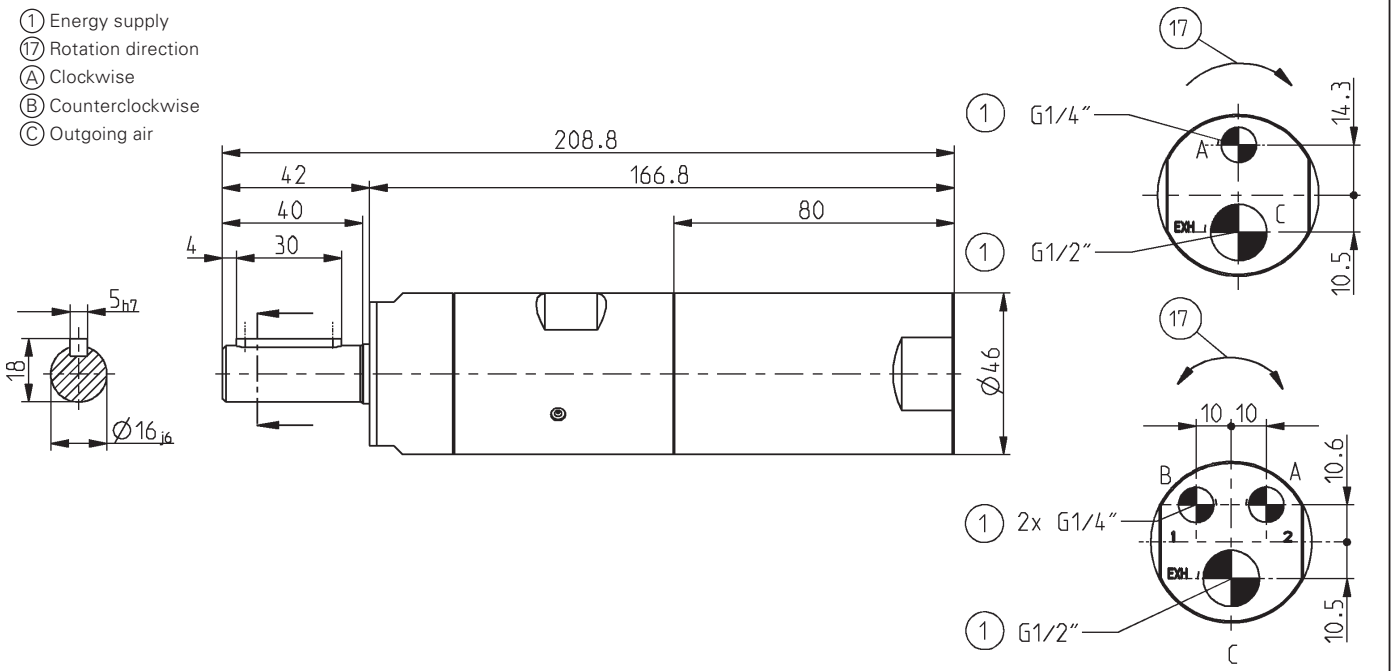
* *Ingoing air connection*
** *Outgoing connection*

Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min. starting torque [Nm]	Idling-speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-610-10500	610	10500	0,6	1,1	21000	0,78	3/7	-20/100	1,2	e
DLM-RK-610-3200	610	3200	1,8	3,5	6600	0,78	3/7	-20/100	1,2	e
DLM-RK-610-2000	610	2000	2,8	5,5	4200	0,78	3/7	-20/100	1,2	e
DLM-RK-610-1200	610	1200	4,7	9,0	2500	0,78	3/7	-20/100	1,2	e
DLM-RK-610-730	602	730	8,1	15,0	1450	0,78	3/7	-20/100	1,3	e
DLM-RK-610-460	602	460	12,3	23,0	950	0,78	3/7	-20/100	1,3	e
DLM-RK-610-280	602	280	20,9	40,0	550	0,78	3/7	-20/100	1,3	e
Reversibile										
DLM-RLK-500-8100	500	8100	0,59	0,7	16000	0,75	3/7	-20/100	1,2	e
DLM-RLK-500-2500	500	2500	1,90	2,2	4900	0,75	3/7	-20/100	1,2	e
DLM-RLK-500-1600	500	1600	2,90	3,5	3100	0,75	3/7	-20/100	1,2	e
DLM-RLK-500-950	500	950	5,00	5,9	1900	0,75	3/7	-20/100	1,2	e
DLM-RLK-500-560	490	560	8,45	9,7	1100	0,75	3/7	-20/100	1,3	e
DLM-RLK-500-350	490	350	13,30	15,0	700	0,75	3/7	-20/100	1,3	e
DLM-RLK-500-215	490	215	21,85	25,0	420	0,75	3/7	-20/100	1,3	e

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM



Subject to change without prior notice

480-585 Watt

Ø 46 mm

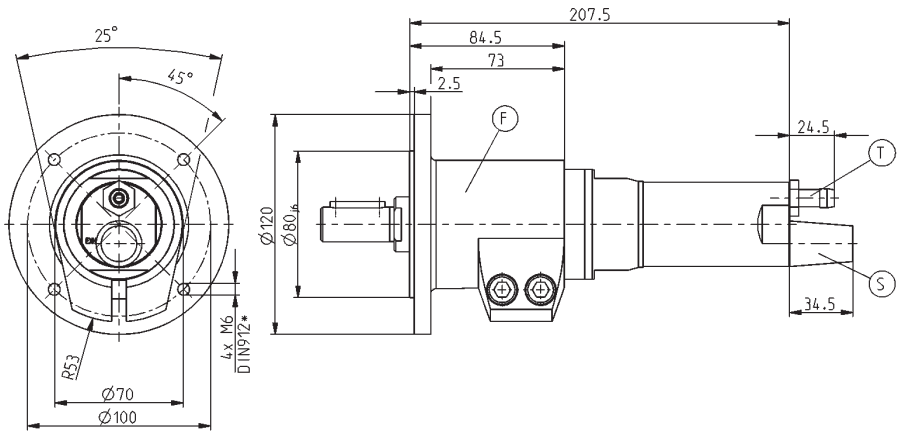
Accessory list

Fixing flange
Order no. DLM-F04

Pneumatic fitting
Order no. GV1/4x10ID*
Order no.GV1/2x13ID**

Sound absorber
Order no. SD12

Accessories



* *Ingoing air connection*
** *Outgoing connection*

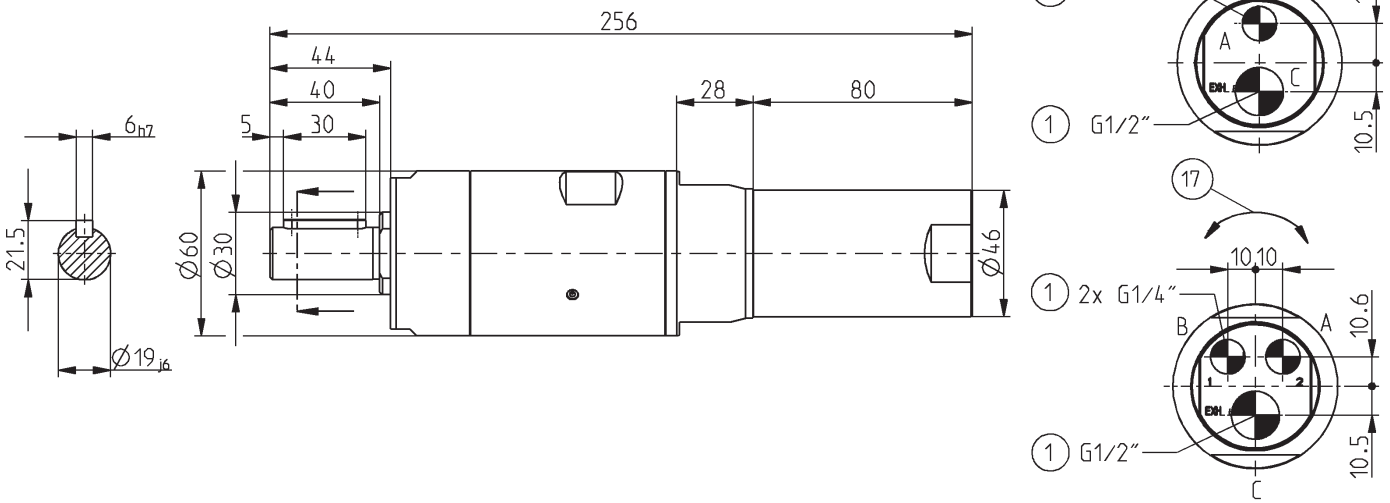
Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min. starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-610-160	585	160	35,1	65	320	0,78	3/7	-20/100	2,7	g
DLM-RK-610-100	585	100	56,0	105	200	0,78	3/7	-20/100	2,7	g
DLM-RK-610-60	585	60	93,1	175	120	0,78	3/7	-20/100	2,7	g
Reversibile										
DLM-RLK-500-120	480	120	38,0	44	240	0,75	3/7	-20/100	2,7	g
DLM-RLK-500-77	480	77	59,8	70	150	0,75	3/7	-20/100	2,7	g
DLM-RLK-500-46	480	46	99,7	115	90	0,75	3/7	-20/100	2,7	g

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air



Subject to change without prior notice

470-575 Watt

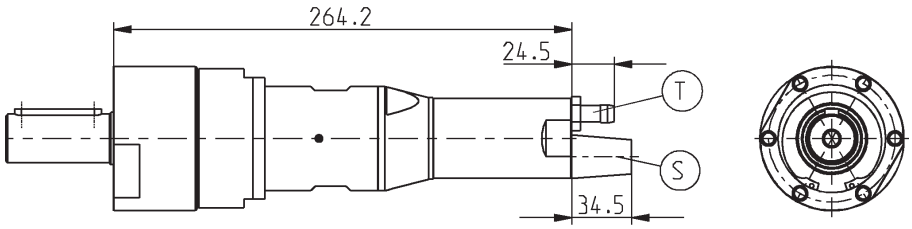
Ø 46 mm

Accessory list

Pneumatic fitting
Order no. GV1/4x10ID*
Order no.GV1/2x13ID**

Sound absorber
Order no. SD12

Accessories



* *Ingoing air connection*
** *Outgoing connection*

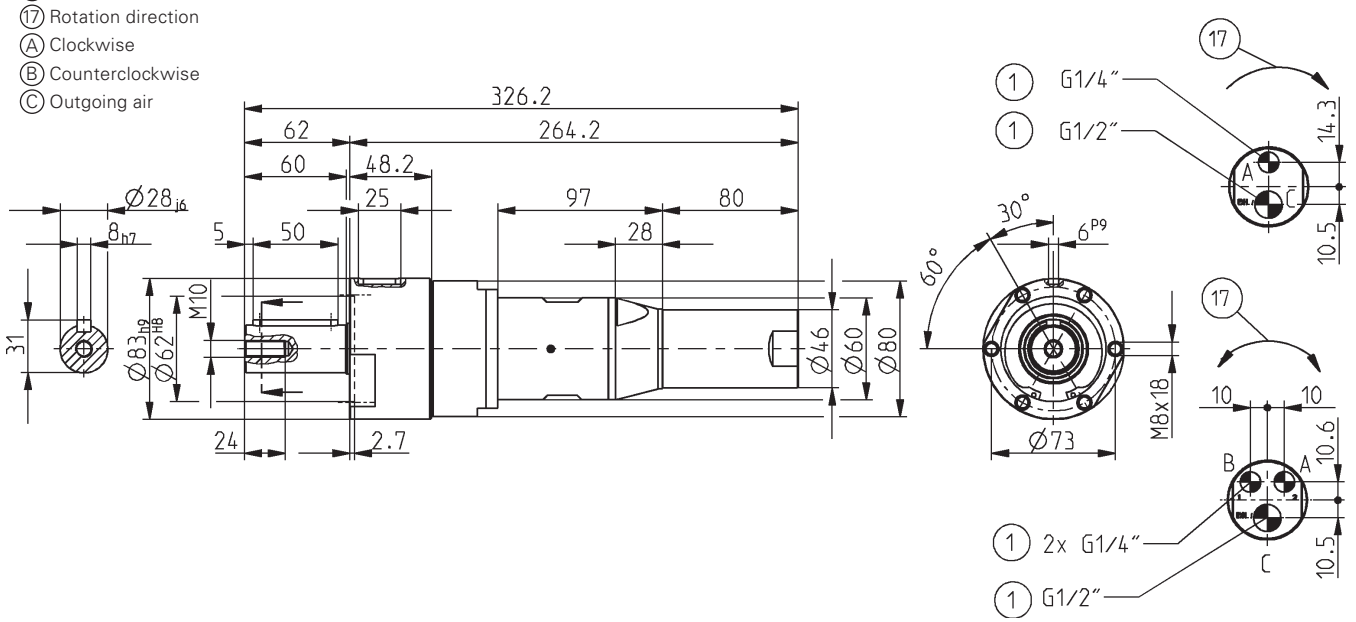
Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min. starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-610-39	575	39	142,5	275	75	0,78	3/7	-20/100	4,9	h
DLM-RK-610-25	575	25	224,2	430	50	0,78	3/7	-20/100	4,9	h
Reversibile										
DLM-RLK-500-30	470	30	152,0	170	60	0,75	3/7	-20/100	4,9	h
DLM-RLK-500-19	470	19	237,5	270	37	0,75	3/7	-20/100	4,9	h

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air

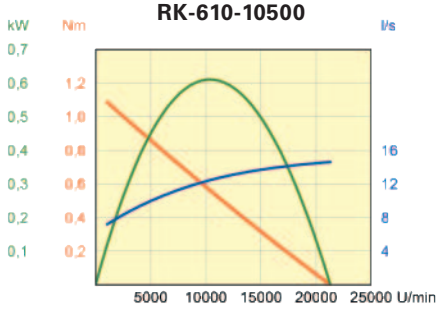


Subject to change without prior notice

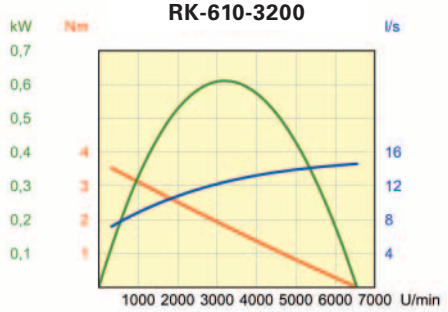
DLM-RK-610 Performance diagrams at operating pressure of 6 bar

Not reversible, clockwise rotation

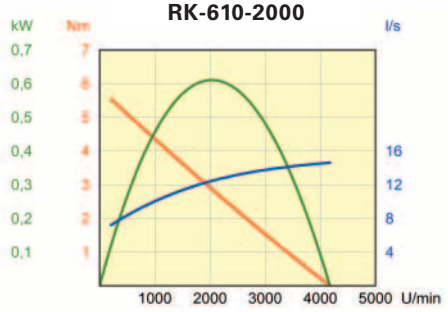
RK-610-10500



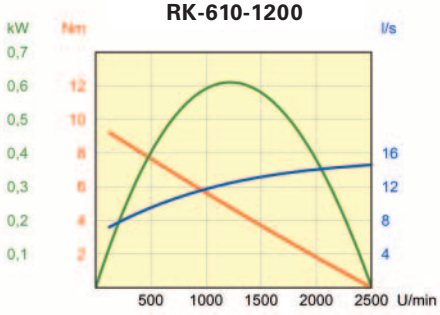
RK-610-3200



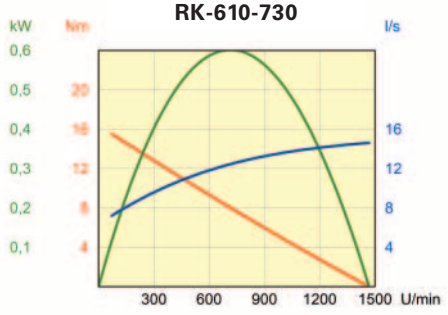
RK-610-2000



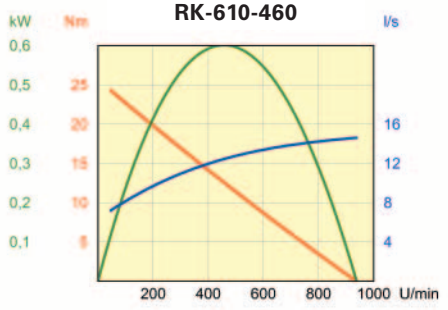
RK-610-1200



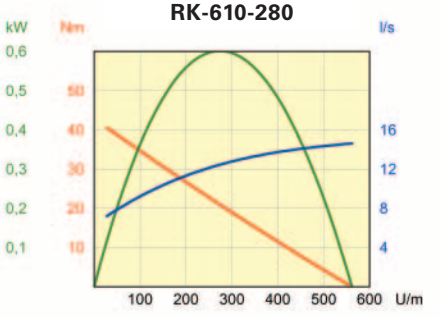
RK-610-730



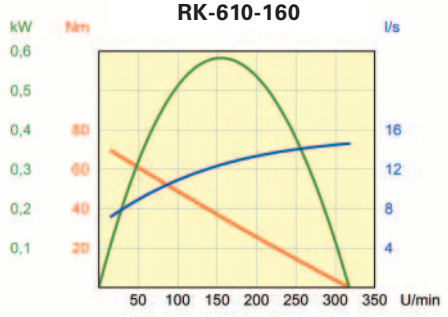
RK-610-460



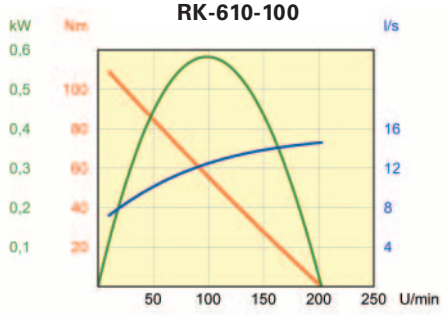
RK-610-280



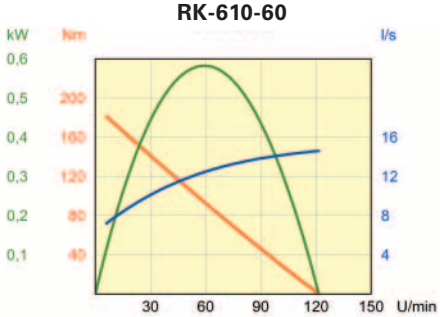
RK-610-160



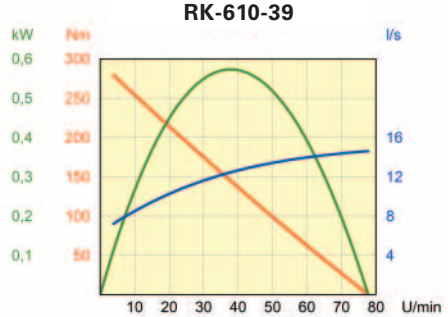
RK-610-100



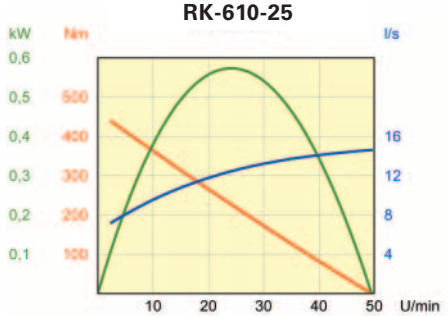
RK-610-60



RK-610-39



RK-610-25



*Conversion factor *)*

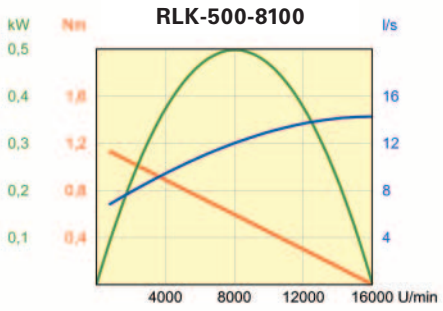
1 kW = 1.34 hp
1 Nm = 0.74 lbf / ft
1 l/s = 2.1 cfm = 0,06 m³/min

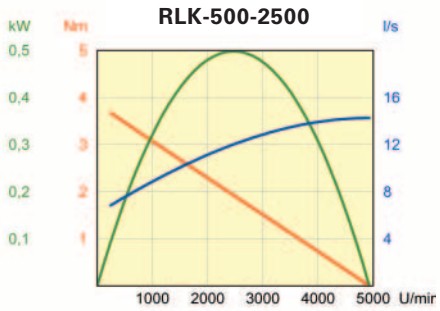
1 hp = 0,75 kW
1 lbf / ft = 1,36 Nm
1 cfm = 0,47 l/s = 0,03 m³/min

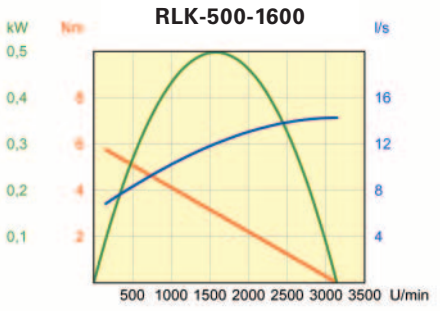
**) For more information, see page 7*

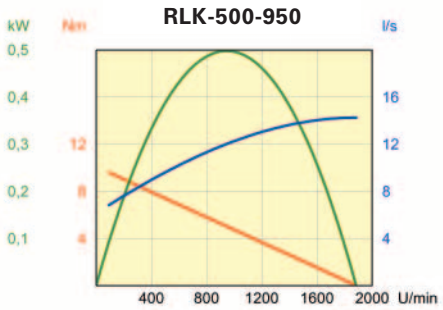
DLM-RLK-500 Performance diagrams at operating pressure of 6 barbar

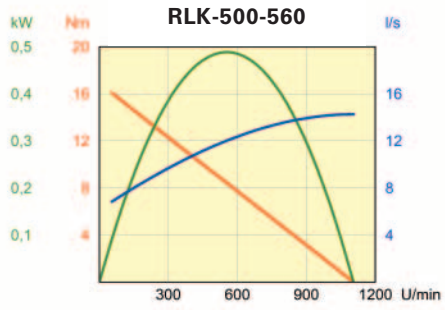
Reversibile

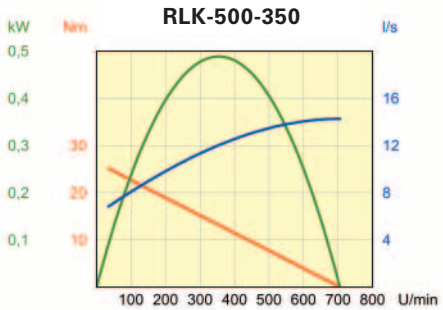


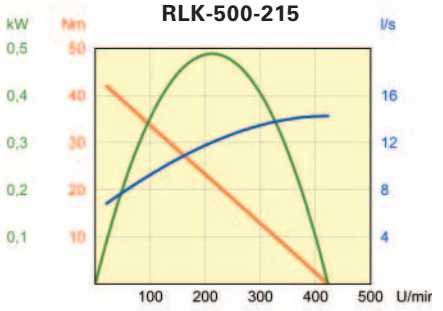


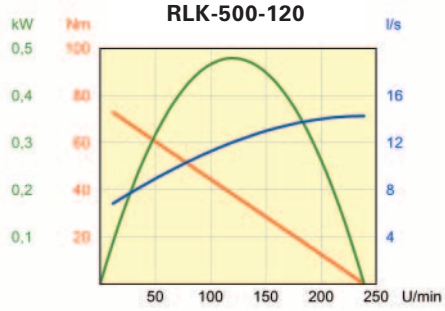


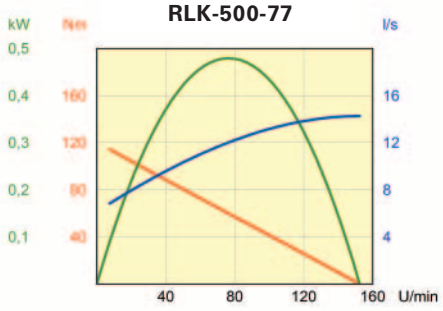


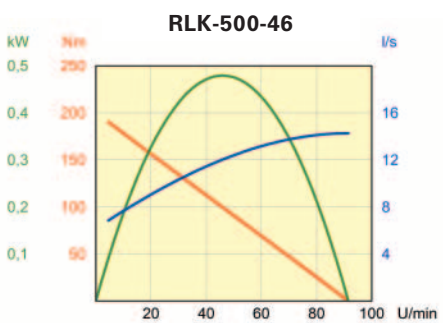


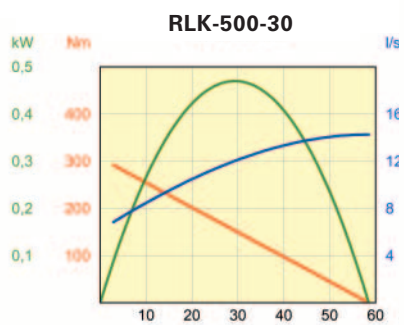


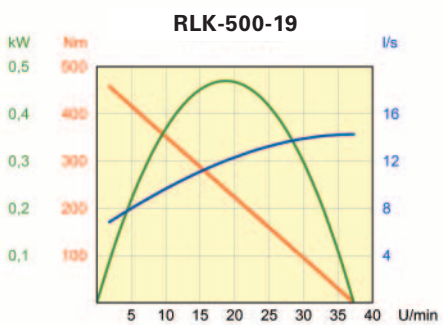












*Conversion factor *)*

1 kW	*= 1.34 hp*	*1 hp*	*= 0,75 kW*
1 Nm	*= 0.74 lbf / ft*	*1 lbf / ft*	*= 1,36 Nm*
1 l/s	*= 2.1 cfm = 0,06 m³/min*	*1 cfm*	*= 0,47 l/s = 0,03 m³/min*

**) For more information, see page 7*

Air Vane **Motors**

752-1130 Watt

Ø 56 mm

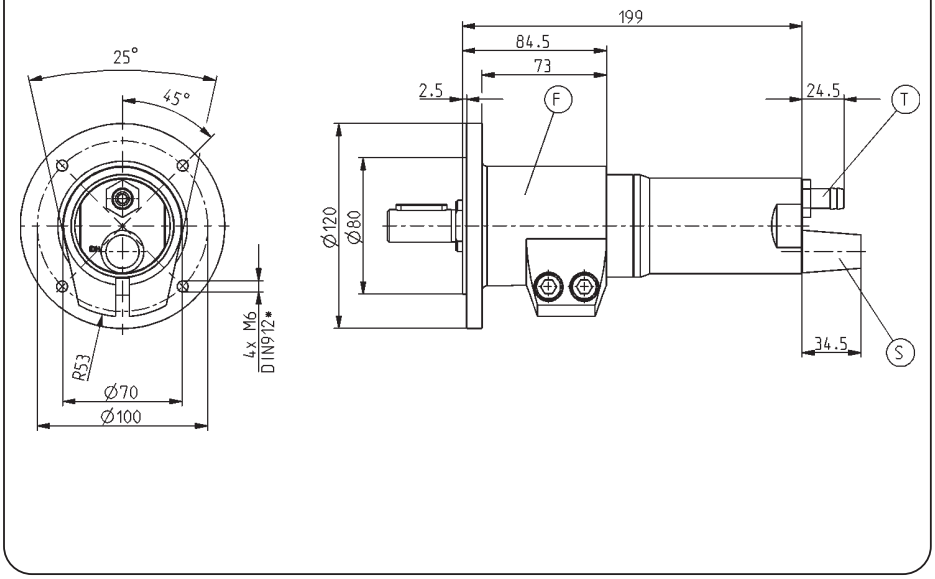
Accessory list

Fixing flange
Order no. DLM-F04

Pneumatic fitting
Order no. GV3/8x13ID*
Order no.GV1/2x16ID**

Sound absorber
Order no. SD12

Accessories



* *Ingoing air connection*
** *Outgoing connection*

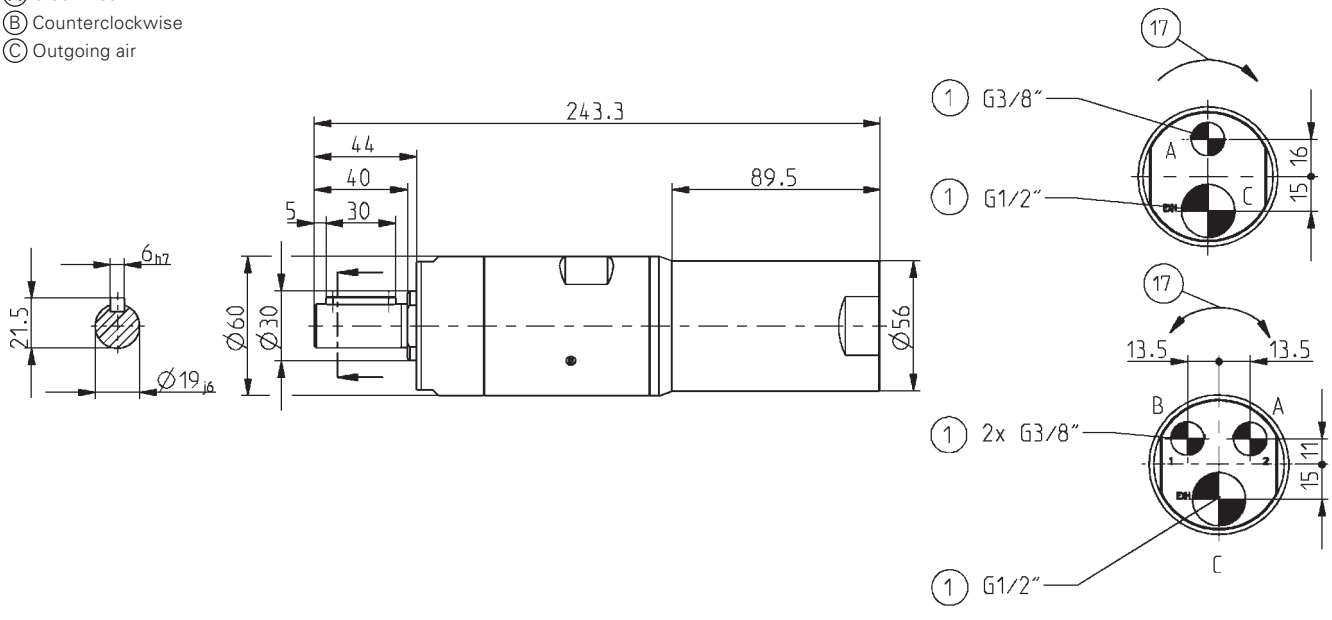
Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min. starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-1130-9300	1130	9300	1,2	1,8	18000	1,35	3/7	-20/100	2,4	g
DLM-RK-1130-2700	1130	2700	4,1	6,5	5200	1,35	3/7	-20/100	2,4	g
DLM-RK-1130-1600	1130	1600	6,7	10,0	3100	1,35	3/7	-20/100	2,4	g
DLM-RK-1130-1200	1130	1200	9,1	13,5	2300	1,35	3/7	-20/100	2,4	g
DLM-RK-1130-590	1100	590	18,1	28,0	1120	1,35	3/7	-20/100	2,5	g
DLM-RK-1130-360	1100	360	29,5	47,0	680	1,35	3/7	-20/100	2,5	g
DLM-RK-1130-260	1100	260	39,9	64,0	500	1,35	3/7	-20/100	2,5	g
Reversibile										
DLM-RLK-770-6800	772	6800	1,14	1,3	13000	1,05	3/7	-20/100	2,4	g
DLM-RLK-770-1970	772	1970	3,80	4,3	3850	1,05	3/7	-20/100	2,4	g
DLM-RLK-770-1200	772	1200	6,20	7,1	2350	1,05	3/7	-20/100	2,4	g
DLM-RLK-770-890	772	890	8,40	9,6	1730	1,05	3/7	-20/100	2,4	g
DLM-RLK-770-425	752	425	17,10	20,0	835	1,05	3/7	-20/100	2,5	g
DLM-RLK-770-260	752	260	27,60	31,0	500	1,05	3/7	-20/100	2,5	g
DLM-RLK-770-190	752	190	38,10	43,0	375	1,05	3/7	-20/100	2,5	g

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air



Subject to change without prior notice

733-1080 Watt

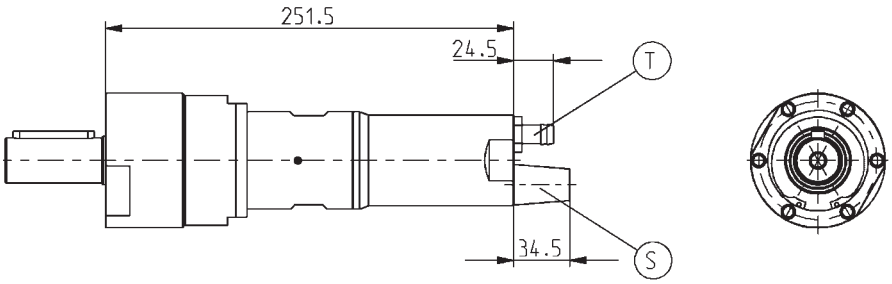
Ø 56 mm

Accessory list

Pneumatic fitting
Order no. GV3/8x13ID*
Order no.GV1/2x16ID**

Sound absorber
Order no. SD12

Accessories



* *Ingoing air connection*
** *Outgoing connection*

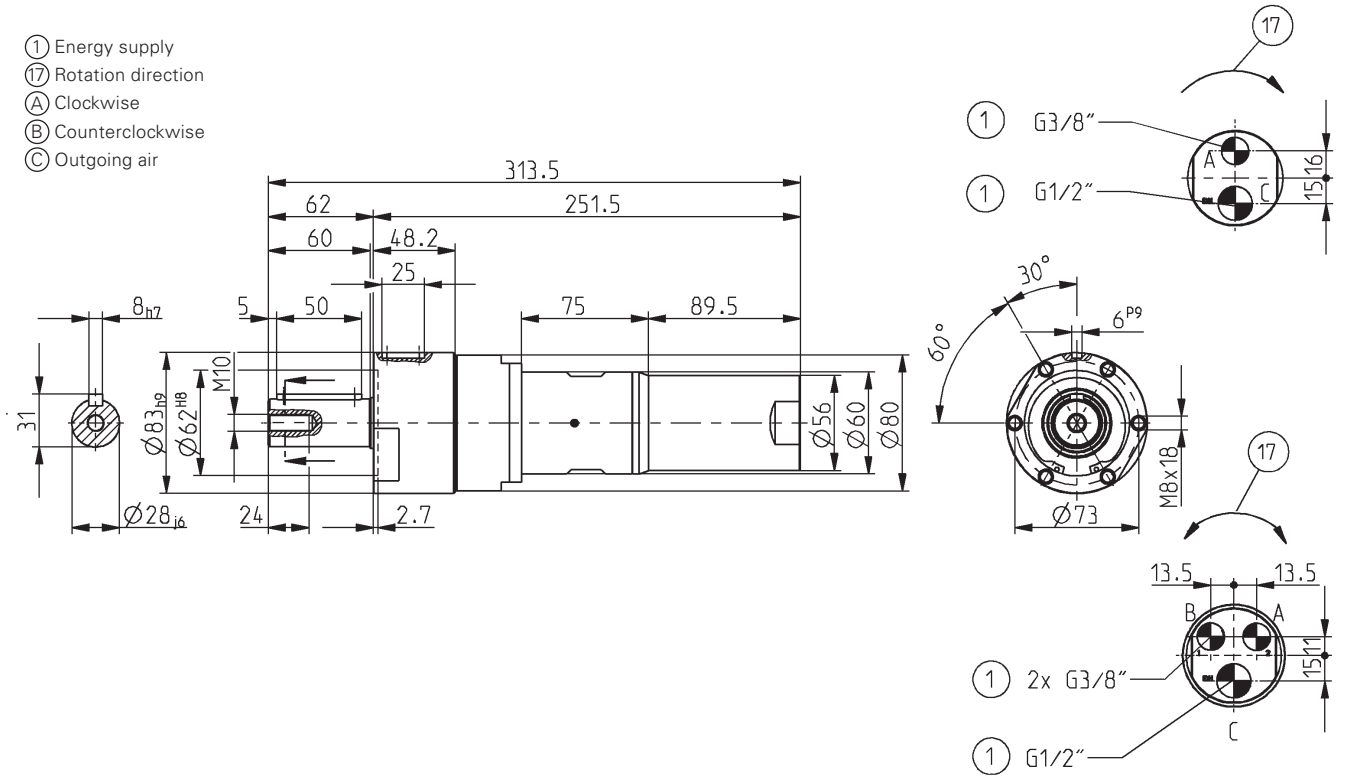
Subject to change without prior notice

Order no.:	Nominal-Performance [Watt]	Nominal-speed [U/min]	Nominal-torque [Nm]	Min. starting torque [Nm]	Idling speed [U/min]	Air consumption at nominal performance [m³/min]	Operating pressure min./max. [bar]	Opreating temperature min./max. [°C*]	Weight [kg]	Shaftload code**
Not reversible, clockwise rotation										
DLM-RK-1130-140	1080	140	74,1	22,5	275	1,35	3/7	-20/100	4,7	h
DLM-RK-1130-85	1080	85	123,5	165,0	165	1,35	3/7	-20/100	4,7	h
DLM-RK-1130-65	1080	65	166,3	125,0	125	1,35	3/7	-20/100	4,7	h
Reversibile										
DLM-RLK-770-100	733	100	70,3	80,0	200	1,05	3/7	-20/100	4,7	h
DLM-RLK-770-65	733	65	109,3	125,0	125	1,05	3/7	-20/100	4,7	h
DLM-RLK-770-45	733	45	156,8	179,0	90	1,05	3/7	-20/100	4,7	h

All data measured at 6 bar
** At temperature below 5°C, possibility of icing*
*** Shaft load curve see page 8*

DLM

① Energy supply
⑰ Rotation direction
Ⓐ Clockwise
Ⓑ Counterclockwise
Ⓒ Outgoing air

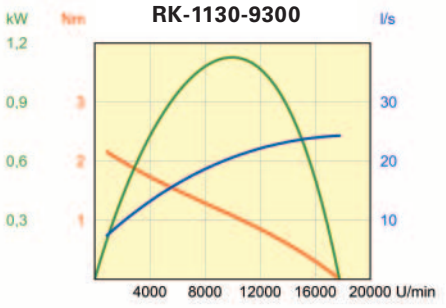


Subject to change without prior notice

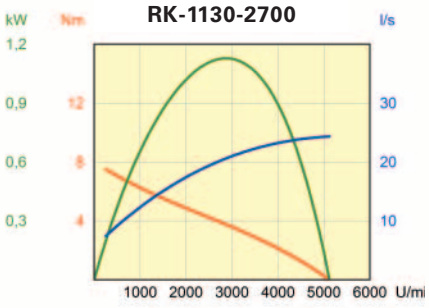
DLM-RK-1130 Performance diagrams at operating pressure of 6 bar

Not reversible, clockwise rotation

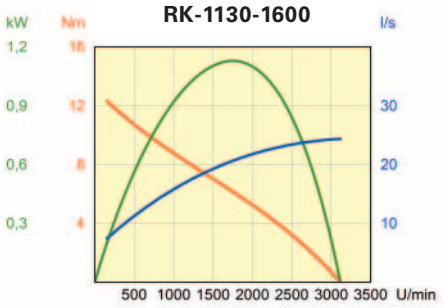
RK-1130-9300



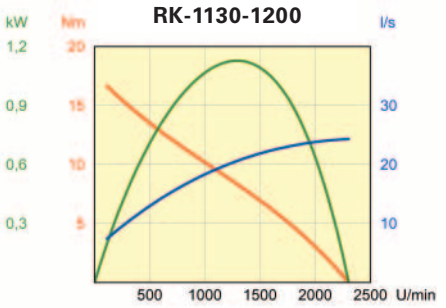
RK-1130-2700



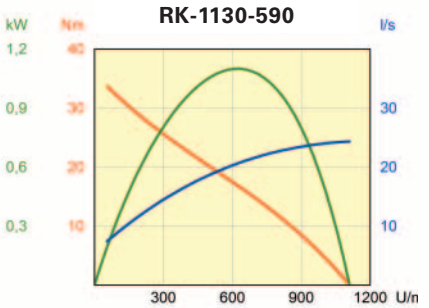
RK-1130-1600



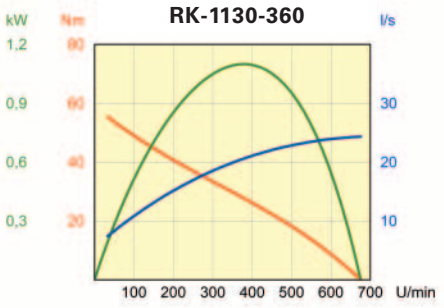
RK-1130-1200



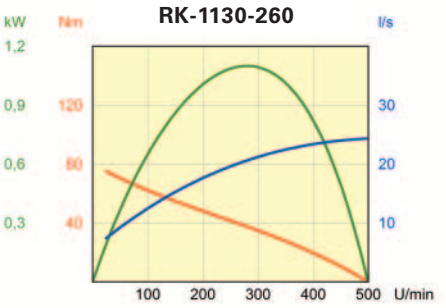
RK-1130-590



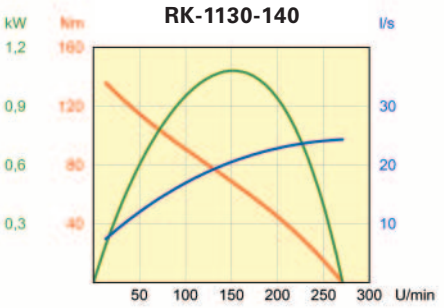
RK-1130-360



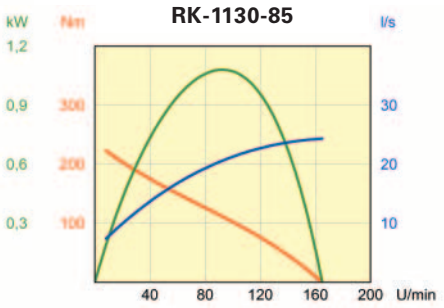
RK-1130-260



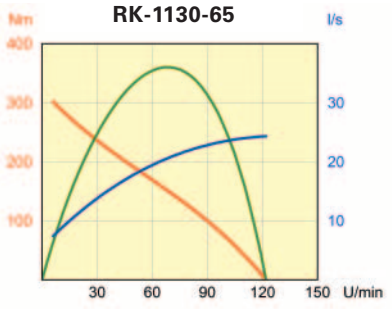
RK-1130-140



RK-1130-85



RK-1130-65



*Conversion factor *)*

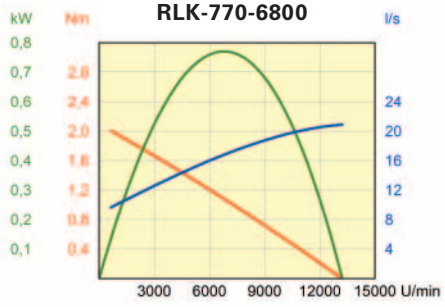
1 kW	*= 1.34 hp*	*1 hp*	*= 0,75 kW*
1 Nm	*= 0.74 lbf / ft*	*1 lbf / ft*	*= 1,36 Nm*
1 l/s	*= 2.1 cfm = 0,06 m³/min*	*1 cfm*	*= 0,47 l/s = 0,03 m³/min*

**) For more information, see page 7*

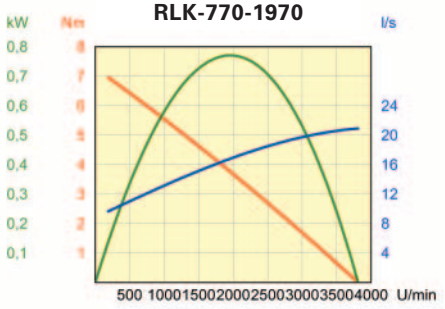
DLM-RLK-770 Performance diagrams at operating pressure of 6 bar

Reversibile

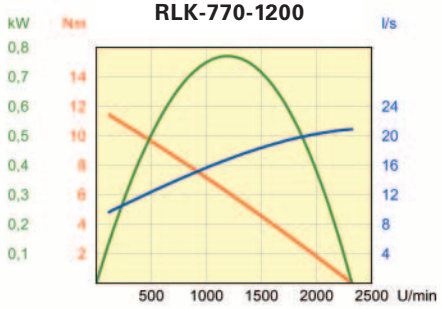
RLK-770-6800



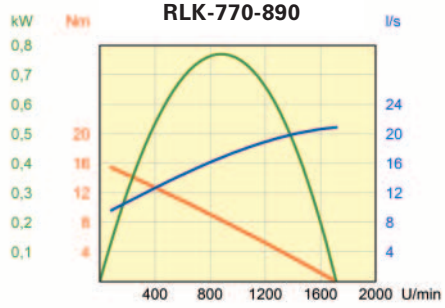
RLK-770-1970



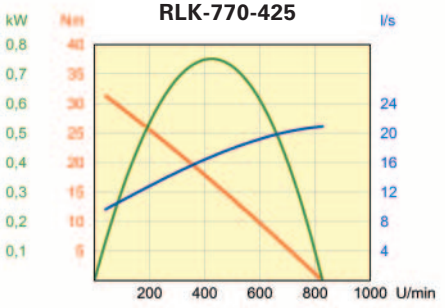
RLK-770-1200



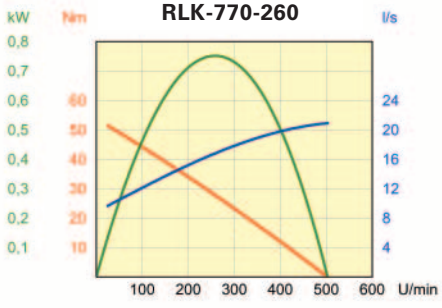
RLK-770-890



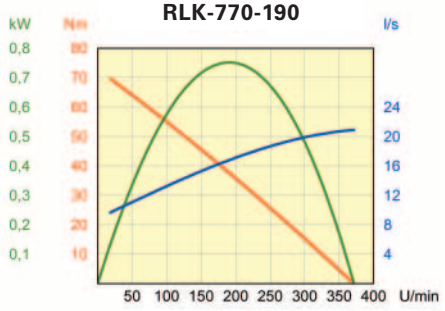
RLK-770-425



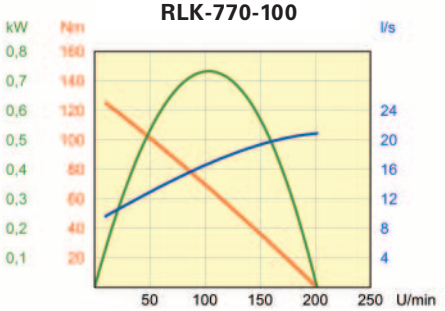
RLK-770-260



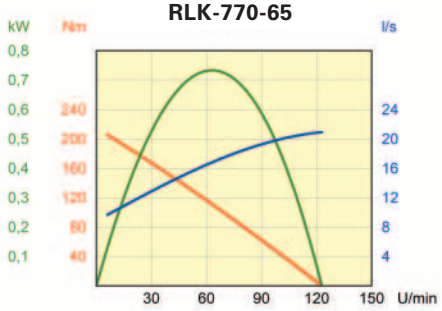
RLK-770-190



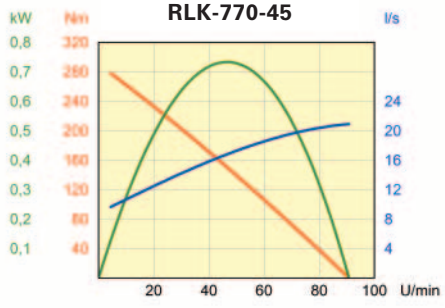
RLK-770-100



RLK-770-65



RLK-770-45



*Conversion factor *)*

1 kW	*= 1.34 hp*	*1 hp*	*= 0,75 kW*
1 Nm	*= 0.74 lbf / ft*	*1 lbf / ft*	*= 1,36 Nm*
1 l/s	*= 2.1 cfm = 0,06 m³/min*	*1 cfm*	*= 0,47 l/s = 0,03 m³/min*

**) For more information, see page 7*

Selection of the appropriate motor

The operating point

When selecting a motor, it is first necessary to determine the so-called operating point for the application. This is the point described by the desired operating speed of the motor and the torque required at this speed.

The working area of the compressed air motor makes it probable that several motors can be run at the desired operating point. However, as it is most economical to operate a compressed air motor at its nominal speed, a motor should be selected of which the nominal output develops near to the operating point.

The performance required at the operating point is calculated as follows:

$$\text{Performance} = \frac{\pi \times M \times n \ [W]}{30}$$

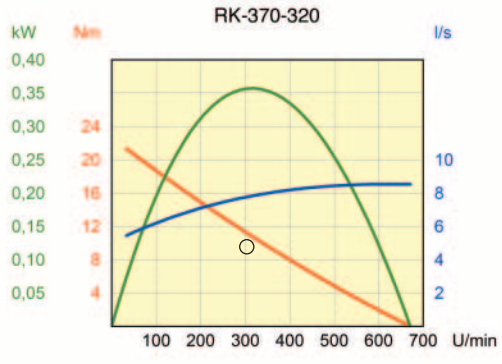
M = Torque at the operating point (in Nm)
n = Speed at the operating point (in r.p.m.)

Example:

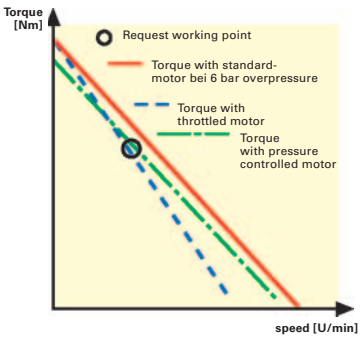
A non-reroutable motor should achieve a torque of 10 Nm at a speed or 300 r.p.m.
The correct motor size is calculated as follows:
Required performance (W) = 3,14 x 10 x 300/30 = 314.
The tables shown on the individual product pages, show that the correct motor size for the non-reroutable motor in this application would be the DLM-RK-320.

Once the motor size is determined it is necessary only to observe the performance diagrams for the individual motor variants. Finally, the motor selected is the one which comes as close as possible to the operating point. For the above example, this would be the DLM-RK-370-320 (figure 14).

If necessary, the motor performance can be precisely aligned with the operating point by slowing down or by pressure regulation (figure 15).



Picture14



Picture 15

Pressure regulation

On some systems or compressed air networks, the positive flow pressure may not come to 6 bar. In such cases, the motor performance must be converted, in order to ensure that the operating point can also be reached.

Calculation of the performance data for operating pressures under 6 bar is by multiplication of the data with the individual correction factors from the table.

Supplementary correction values

Operating pressure [bar]	Performance	Speed	Torque	Air-requirement
7	1,20	1,04	1,15	1,15
6	1,00	1,00	1,00	1,00
5	0,75	0,96	0,81	0,81
4	0,55	0,87	0,63	0,63
3	0,36	0,75	0,47	0,47

The intersection point of both values in the diagram of figure 16 gives the required positive operating pressure.

Example:

At a speed of 1155 r.p.m., a DLM-RK-235-1650 should develop a torque of 1.2 Nm.
Calculate the required positive operating pressure for this:

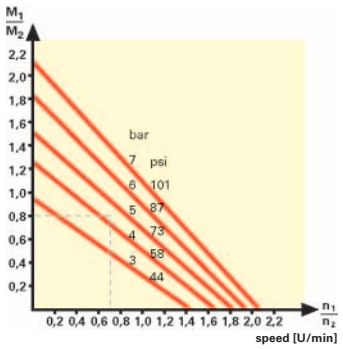
The nominal torque for this motor is equal to 1.5 Nm and its nominal speed is 1650 r.p.m.

This give M1/M2 = 0.8 and n1/n2 = 0.7

The required positive operating pressure is 4.2 bar.

M1 = desired torque
n1 = desired speed
M2 = nominal torque
n2 = nominal speed

Calculate the ratios of M1/M2 and n1/n2 and enter both values in the diagram (figure 16).



Picture 16

The intersection point of both values in the diagram of figure 16 gives the required positive operating pressure.

Start and stalling torque

Many applications require a motor to have a high start torque. For such cases, the minimum start torque for a given motor can be read from the data tables. If it is necessary to change the motor performance but maintain a high start torque, this can be achieved by reducing the air quantity.

For other applications, the stalling torque must not exceed a given value. The stalling torque of a motor can be calculated by multiplying the nominal torque by two. It remains to be noted that the maximum start torque is equal to the stalling torque.

Acceleration of a load to a specific speed

In some cases, a load must be accelerated to a specific speed. Here, selection of the motor requires highly complex calculation. With respect to this problem, we recommend that you contact us.

Physical considerations

Please always check whether the motor also fits in the position intended for installation and that the assembly fixings are suitable. You will find the dimensions of all sommer-automatic standard motors,transmissions and assembly equipment in this catalogue.

Always ensure that the shaft loads remain within the authorised values.

Sound damping

The noise generated by a compressed air motor comes mainly from the expanding outgoing air. The noise level increases with the speed and is at its highest in neutral. All summer-automatic motors have an outgoing air opening with a thread, into which a sound damper can be screwed to reduce the noise level. Of course, an outgoing air hose can be used, which - in conjunction with a sound damper - will further reduce the noise level. The effects of the various noise reduction measures are shown in table 1.

Temperature

Sommer-automatic motors can be operated reliably at ambient temperatures of -20 °C to +100 °C. However, at temperatures below +5 °C, there is a risk of freezing.

It may be possible to operate the motors at significantly higher temperatures. However, please speak to us first in such cases.

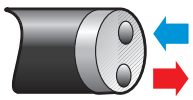
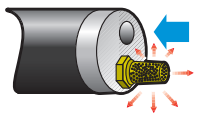
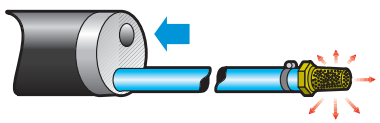
Dangerous conditions of use

Compressed air motors are often used in dangerous working environments. This usually requires only small or no changes. Such working environments are typically:

Corrosive, explosive, radioactive, hot, damp, dusty, electrically charged environments or even applications under water.

A compressed air motor can also be operated with a variety of compressed gases, e.g. nitrogen or natural gas.

However, in order to guarantee safe and reliable operation, we recommend that you speak to us before using your motor in dangerous working environments.

0.36 kW motor, neutral speed, echo-free room distance 1m	Noise level measures	Level in dB(A)
	None	94
	only Noise-damping	77
	Hose only	84
	Hose with Noise-damping	75

The use of a sound damper can lead to increased pressure build up and therefore reduced performance.

tabel 1

Installation of a compressed air motor

Compressed air lines

The recommended line dimensions are given in the introductory chapters for each motor type. Please observe that the outgoing air hose has a larger diameter than the ingoing air hose.

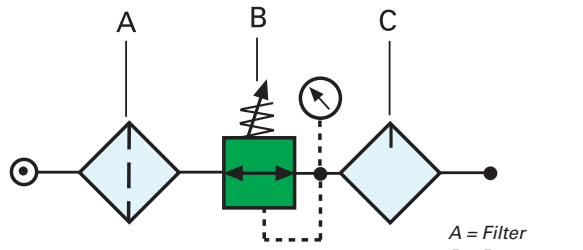
The recommendations only apply for hose lengths up to 3 m. For distances between 3 and 15 m, the hose diameter must be selected one number larger; for distances between 15 and 50 m, two numbers larger.

Compressed air processing

Safe and reliable operation is guaranteed by the installation of an air filter and lubricator in the intake line - not more than 5 m away from the motor.

It is recommended that a pressure regulator be integrated into the compressed air maintenance unit. This keeps the desired operating pressure constant and at the same time serves as a line regulator, in order to match it exactly to the application requirements.

When selecting a maintenance unit, ensure that no more pressure is lost than is absolutely necessary, i.e. all components have sufficient flow cross-section, so the motor can yield its full performance. A typical maintenance unit is illustrated in figure 17.



A = Filter
B = Pressure regulator
C = Lubrication

Picture17

Lubrication

As well as the standard versions, the DLM-95-150, DLM-150-235 and DLM-225-370 summer-automatic compressed air motors are also available on request in oil-free design.

A compressed air motor achieves optimum stand time and performance if supplied with 50 mm 3 oil per cubic metre of air (1000 l).

Insufficient lubrication results in quicker wear on slats and reduced performance.

The following example shows how to calculate the quantity of lubricating oil for a motor with a known performance.

Example:

A non-reroutable motor of type DLM-610-280, operated at full performance, consumes air at 0.78 m^3/min.

In one minute, the motor must be supplied with the following quantity of lubricating oil:

0,78 x 50 = 39 mm^3/min

In this case, a mist lubricator must be set to the calculated quantity.

The lubricating oil used must have a viscosity of between 50 and 300 x 106 m^2/s at the operating temperature of the motor.

However, if the oil quantity emitted by the motor with the outgoing air has to be reduced and an outgoing air line or filter is not possible, the oil quantity can be reduced.

Although a thin lubrication has a negative effect on the motor, the performance may still be acceptable. The table shows the possible effect of reduced lubrication on the durability and performance of a motor.

Lubricating oil quantity [mm^3 Oil /m^3]	Durability [hours]	Nominal performance [%]
50	1000 – 3000	100
10	500 – 1000	100
1	200 – 500	90
0.1	100 – 300	80
0	10 – 30	30

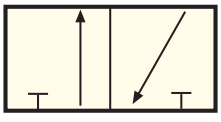
1 drop oil = 15 mm^3

Control valves

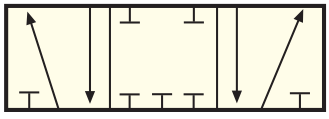
These valves are used to start or stop a motor or to change the direction of rotation. It is normal to use a so-called 5/3 way valve to control a reroutable motor. For a non-reroutable motor, a 3/2 way valve is used.

When selecting a control valve, check that the flow cross-sections are calculated sufficiently.

These are the symbols used to represent the directional control valves on the circuit diagram.



3/2-way valve



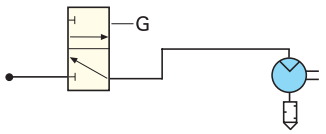
5/3-way valve

Picture 18

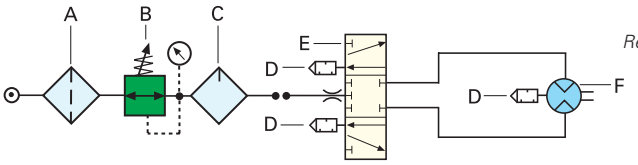
Installation examples

Installation diagrams for DLM motors together with the relevant filters, regulators, lubricators and sound dampers.

DLM Diagram

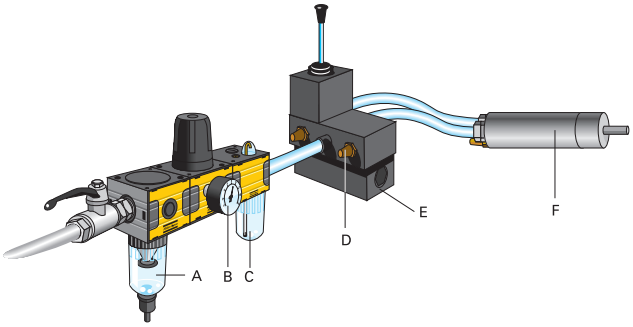


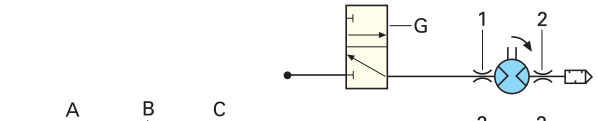
Non reversible



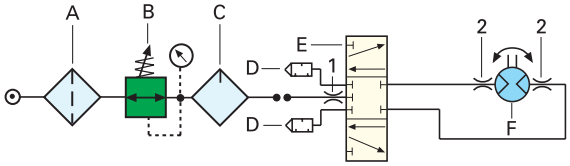
Reversible

The direction of rotation is controlled manually by a lever-operated 5/3-way valve. The air preparation unit ensures that the motor is supplied with clean air and lubrication. The built-in pressure regulator can also be used to modify the output of the motor

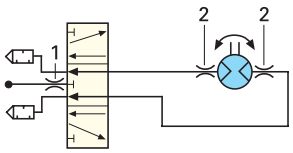




Not reversible with 3/2- Way valve



Reversible with 5/3-Way valve mid-position closed



Reversible with 5/3-Way valve mid-position closed

A = Filter
B = Pressure regulation
C = Lubrication
D = Sound absorber
E = 5/3-way valve
F = Air Vane motor
G = 3/2-way valve

1 = Supply ai rflow control
2 = Exhaust air flow control

Picture 19