Selection guides for 1PH7/1PL6 motors
Terminal box/Cable cross-sections

Technical specifications

Terminal box	Cable entry	Outer cable diameter, max.	Cable entry	Outer cable diameter, max.[1]	Number of main terminals	Cross-section per terminal, max.	Current per terminal, max.[2]
Type	Valid for Order No. with 8th data position 2, 4 or 6[3]		Valid for Order No. with 8th data position 7 or 8				
		mm (in)		mm (in)		mm^2	A
1XB7322	2 x PG42	40 (1.57)	2 x M50 x 1.5	38 (1.50)	3 x M12	2 x 50	191
1XB7422	2 x M72 x 2	56 (2.20)	2 x M63 x 1.5	53 (2.09)	3 x M12	2 x 70	242
1XB7700	3 x M72 x 2	56 (2.20)	3 x M75 x 1.5	68 (2.68)	3 x 2 x M12	3 x 150	583
1XB7712	**For 1PH728.-..B / 1PH7284-..C / 1PH7284-..D motors**						
	3 x M63 x 1.5	53 (2.09)	–	–	(3+1)[4] x 3 x M16	3 x 95	450
	For 1PH728.-..F / 1PH7286-..C / 1PH7286-..D / 1PH7288-..C / 1PH7288-..D motors						
	3 x M75 x 1.5	68 (2.68)	–	–	(3+1)[4] x 3 x M16	3 x 185	710
	For 1PL628 motors						
	4 x M75 x 1.5	68 (2.68)	–	–	(3+1)[4] x 4 x M16	4 x 185	925

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1) Dependent on the design of the metric cable gland.
2) Current carrying capacity similar to EN 60204-1 for installation type C.
3) Not for 1PH728/1PL628.
4) Including ground terminal.

Technical specifications (continued)

Motor	Direction of air flow	Fan motor current consumption at			Volume of air, approx.	Sound pressure level L_{pA} (1 m)
Type		400 V 50 Hz (± 10 %)	400 V 60 Hz (± 10 %)	480 V 60 Hz (+ 5 %, - 10 %)	at 50 Hz	Motor + external fan operation 50 Hz Tolerance +3 dB Rated pulse frequency 4 kHz/2.5 kHz
		A	A	A	m^3/s (ft^3/s)	dB
Forced ventilation, 1PH7 motors						
1PH718	NDE → DE DE → NDE	0.8	1.1	1.1	0.19 (6.71)	73
1PH722	NDE → DE DE → NDE	1.9 2.8	2.2 2.8	2.2 2.8	0.36 (12.7) 0.36 (12.7)	74 76[1)]
1PH728	NDE → DE DE → NDE	2.55	2.6	2.6	0.42 (14.8)	74
Forced ventilation, 1PL6 motors						
1PL618	NDE → DE DE → NDE	0.8	1.1	1.1	0.27 (9.53)	73[2)]
1PL622	NDE → DE DE → NDE	1.9 2.8	2.2 2.8	2.2 2.8	0.38 (13.4) 0.38 (13.4)	74[2)] 76[1)2)]
1PL628	NDE → DE DE → NDE	2.55	2.6	2.6	0.52 (18.3)	74[2)]

[1)] The sound pressure level can be reduced if the air flow is from the drive end to the non-drive end with option G15 (sound attenuator).
[2)] Speed range 0 to 2000 rpm.

Technical specifications (continued)

Motor type	Bearing type	Drive type	Bearing		Continuous speed for S1 duty, max.		Speed limit, max.[1]	
			Motor end	Bearing designation	n_{S1}	n_{S1}[2]	$n_{max.}$	$n_{max.}$[2]
					rpm	rpm	rpm	rpm
1PH718/1PL618	Deep-groove ball bearing	Coupling output	DE NDE	6214 C3 6214 C3	3500	4500	5000	7000
	Cylindrical roller bearing	Belt output	DE NDE	NU22 14E 6214 C3	3500	–	5000	–
	Cylindrical roller bearing	Increased radial forces	DE NDE	NU22 14E 6214 C3	3000	–	5000	–
1PH722/1PL622	Deep-groove ball bearing	Coupling output	DE NDE	6216 C3 6216 C3	3100	3600 (for 1PH7224)	4500	5500 (for 1PH7224)
	Cylindrical roller bearing	Belt output	DE NDE	NU22 16E 6216 C3	3100	–	4500	–
1PH7224/1PH7226/ 1PL6224/1PL6226	Cylindrical roller bearing	Increased radial forces	DE NDE	NU22 16E 6216 C3	2700	–	4500	–
1PH7228/1PL6228	Cylindrical roller bearing	Increased radial forces	DE NDE	NU22 16E 6216 C3	2500	–	4000	–
1PH728/1PL628	Deep-groove ball bearing	Coupling output	DE NDE	6220 C3 6220 C3	2200	–	3300	–
	Cylindrical roller bearing	Belt output	DE NDE	NU22 0E 6220 C3	2200	–	3300	–

Bearing service life

The bearing service life is limited by material fatigue, the fatigue service life, or lubrication failure, the grease service life.

The fatigue service life, the static bearing service life L_{10h}, is primarily dependent on the mechanical load. This correlation can be seen in the radial force/axial force diagrams. The values were determined in accordance with DIN/ISO 281.

The grease lifetime is mainly dependent on the bearing size, speed, temperature as well as the vibration load. The grease lifetime can be extended by especially favorable operating conditions, e.g. low average speed, low bearing temperature, radial force or vibration load.

A reduced bearing service life can be expected for difficult operating conditions and when motors are mounted vertically.

Lifetime lubrication

On motors equipped with lifetime lubrication, the grease lifetime is harmonized with bearing service life.

Apart from the 1PH728/1PL628 motors, the 1PH7/1PL6 motors in the basic version have lifetime lubrication.

Regreasing system

For motors with regreasing systems, the bearing service life can be extended through defined regreasing intervals and influencing factors such as mounting conditions, speed, bearing size and mechanical load can be compensated.

Lubricating nipples for regreasing are provided as standard on 1PH728/1PL628 motors. With the exception of 1PH728/1PL628 motors, regreasing with lubricating nipples can be supplied as an option, order code K40.

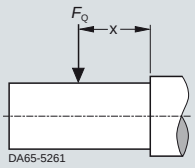
For more information, see 1PH7 and 1PL6 Configuration Manuals.

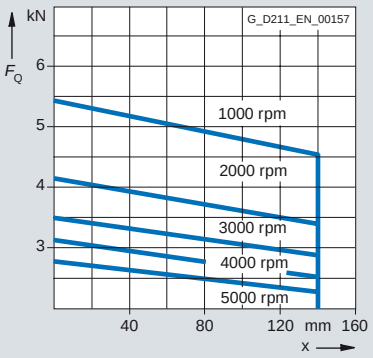
[1] For continuous duty (with 30 % n_{max}, 60 % $^2/_3$ n_{max}, 10 % standstill) for a duty cycle duration of 10 min.

[2] Version for increased maximum speed, see selection and ordering data for 1PH7.

Characteristic curves

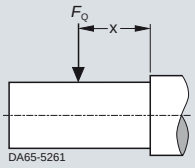
Permissible radial forces for coupling output 1PH718/1PL618 motors

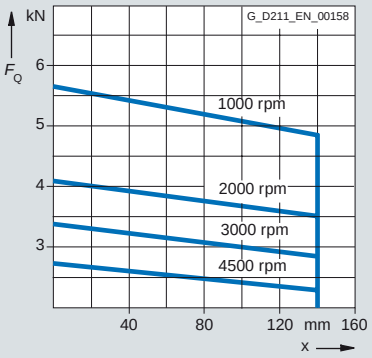




L_{10h} = 20000 h

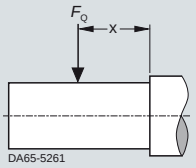
Permissible radial forces for coupling output 1PH722/1PL622 motors

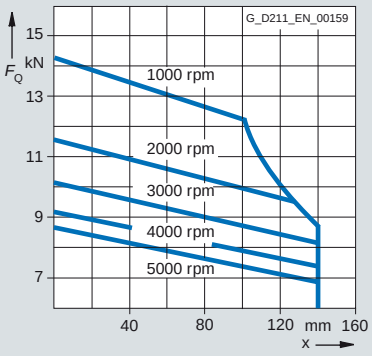




L_{10h} = 20000 h

Permissible radial forces for belt output 1PH718/1PL618 motors

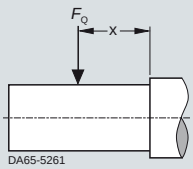


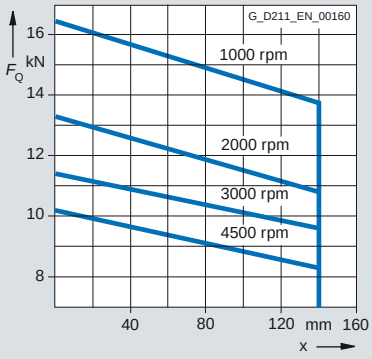


Minimum radial force 3 kN

L_{10h} = 12000 h

Permissible radial forces for belt output 1PH722/1PL622 motors

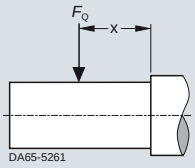


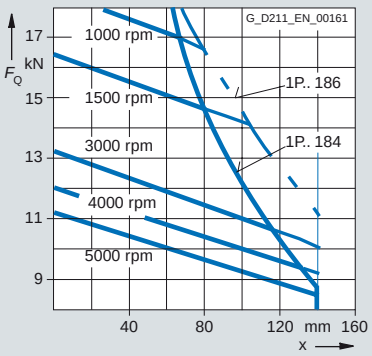


Minimum radial force 4 kN

L_{10h} = 12000 h

Permissible radial forces for belt output with increased radial force 1PH718/1PL618 motors

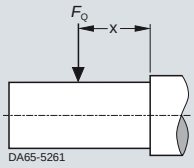


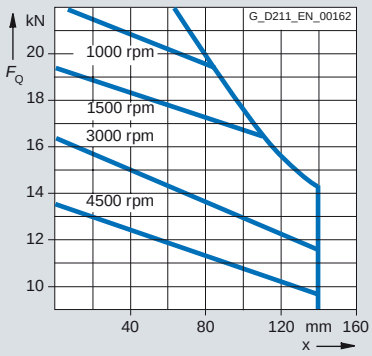


Minimum radial force 4 kN

L_{10h} = 12000 h

Permissible radial forces for belt output with increased radial force 1PH722/1PL622 motors





Minimum radial force 5 kN

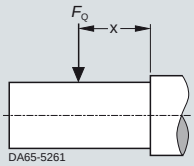
L_{10h} = 12000 h

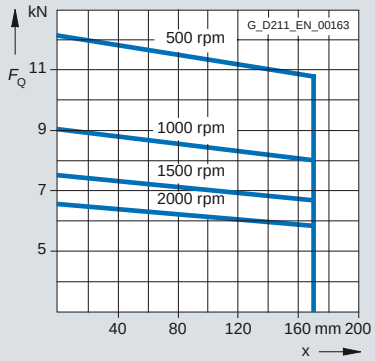
Note:
The roller bearings used here (bearings with increased radial force) could sustain damage if they are operated under no load. Observe the specified minimum radial forces!

Selection guides for 1PH7/1PL6 motors
Radial force diagrams

Characteristic curves (continued)

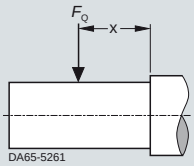
Permissible radial forces for coupling output 1PH728/1PL628 motors

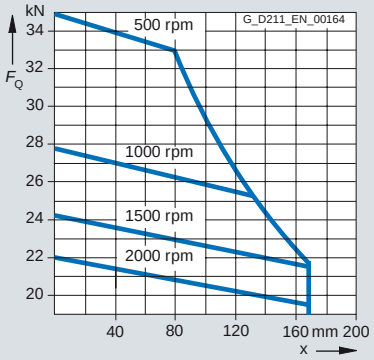




L_{10h} > 20000 h
when regreased

Permissible radial forces for belt output with increased radial force 1PH728/1PL628 motors





Minimum radial force 9 kN

L_{10h} > 12000 h
when regreased

Note:
The roller bearings used here (bearings with increased radial force) could sustain damage if they are operated under no load. Observe the specified minimum radial forces!