

SUPPLEMENTARY INFORMATION

EN

Translation of the Original

OKTA ATEX

Roots pumps without motor | Requirements for customer-supplied motors





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1 About this manual



IMPORTANT

Read carefully before use.
Keep the manual for future consultation.

1.1 Validity

This document applies only to units with the following Pfeiffer Vacuum part numbers:

- Okta 500 ATEX
 - Part number series PP W33 XXX
- Okta 1000 ATEX
 - Part number series PP W43 XXX
- Okta 2000 ATEX
 - Part number series PP W63 XXX
- Okta 4000 ATEX
 - Part number series PP W73 XXX
- Okta 5400 ATEX
 - Part number series PP V60 XXX
- Okta 8100 ATEX
 - Part number series PP V61 XXX

This supplementary information describes important deviations from the standard product and is valid only in conjunction with the valid operating instructions.

The current Pfeiffer Vacuum roots pump version is designed for use only with the motor types described below.

1.2 Applicable documents

Document	Number
Operating instructions Okta 500 ATEX	PW 0150 BN
Operating instructions Okta 1000 ATEX	PW 0054 BN
Operating instructions Okta 2000 ATEX	PW 0141 BN
Operating instructions Okta 4000 ATEX	PW 0146 BN
Operating instructions Okta 5400 ATEX Okta 8100 ATEX	PW 0342 BN
Supplementary information for working on the magnetic coupling	PW 0142 BN

You can find these documents in the [Pfeiffer Vacuum Download Center](#).

2 Safety

2.1 Safety precautions



Duty to provide information on potential dangers

The product holder or user is obliged to make all operating personnel aware of dangers posed by this product.

Every person who is involved in the installation, operation or maintenance of the product must read, understand and adhere to the safety-related parts of this document.

2.2 Proper use

- ▶ Operate the vacuum pump only in conjunction with motors that meet this specification.
- ▶ Where applicable, operate the vacuum pump with a suitable frequency converter.

2.3 Foreseeable improper use

Improper use of the product invalidates all warranty and liability claims. Any use that is counter to the purpose of the product, whether intentional or unintentional, is regarded as improper use; in particular:

- Operating the vacuum pump with non-specified third-party motors.
- Operating the vacuum pump with motors that do not meet the requirements of ATEX Directive 2014/34/EU.
- Operating the Okta 8100 ATEX without using a frequency converter.

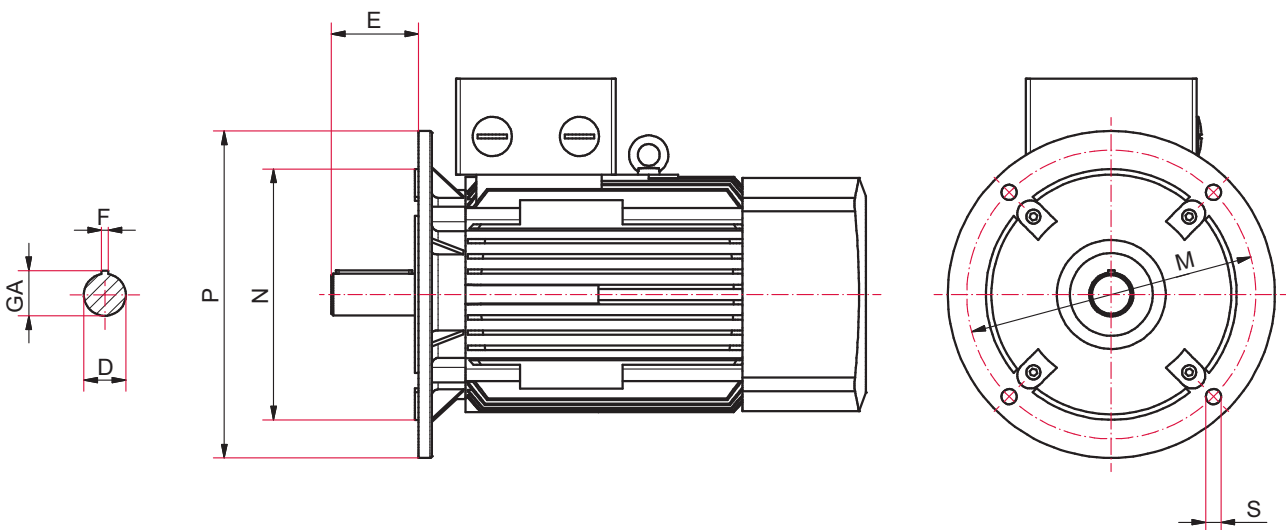
3 Installation

3.1 Basic requirements

Version	Surface-cooled three-phase motor with cage rotor and rolling bearing
Flange	B5 according to DIN EN 50347
Bearing	Fixed bearing A-side or B-side
Required guidelines	according to ATEX Directive 2014/34/EU
ATEX marking (minimum requirements)	II 2G Ex de IIC T4 Gb
Ambient temperature	-20 °C to +40 °C
Coaxiality and axial run-out of shaft end	DIN EN 50347 (reduced)
Balancing	Semi-key balancing up to 75 Hz
Protection category	at least IP 55
Motor protection	Motor protection according to DIN EN 60079 series of standards

Tbl. 1: IM B5 motors

3.2 Motor specifications



Parameter	Okta 500 ATEX	Okta 1000 ATEX	Okta 2000 ATEX
Motor type	IM B5	IM B5	IM B5
Size	90	100	132
Flange	FF 165	FF 215	FF 265
Rated power 50 Hz	1.5 kW	3 kW	5.5 kW
Rated power 60 Hz	1.8 kW	3.6 kW	6.3 kW
Synchronous speed 50 Hz	3000 rpm	3000 rpm	3000 rpm
Synchronous speed 60 Hz	3600 rpm	3600 rpm	3600 rpm
Max. breakdown torque	20.8 Nm	50.2 Nm	93.7 Nm

Parameter		Okta 500 ATEX	Okta 1000 ATEX	Okta 2000 ATEX
Dimensions	P	200 millimeters	250 millimeters	300 millimeters
	M	165 millimeters	215 millimeters	265 millimeters
	N	130 millimeters	180 millimeters	230 millimeters
	S	12 millimeters	14.5 millimeters	14.5 millimeters
	E	50 millimeters	60 millimeters	80 millimeters
	GA	27 millimeters	31 millimeters	41 millimeters
	D	24 millimeters	28 millimeters	38 millimeters
	F	8 millimeters	8 millimeters	10 millimeters
Weight		≤ 48 kg	≤ 95 kg	≤ 115 kg

Tbl. 2: IM B5 Motor specifications | Size < 160

Parameter		Okta 4000 ATEX	Okta 5400 ATEX	Okta 8100 ATEX
Motor type		IM B5	IM B5	IM B5
Size		160	160	160
Flange		FF 300	FF 300	FF 300
Rated power 50 Hz		11 kW	11 kW	18.5 kW
Rated power 60 Hz		13.2	13.2 kW	-
Synchronous speed 50 Hz		3000 rpm	3000 rpm	3000 rpm
Synchronous speed 60 Hz		3600 rpm	3600 rpm	-
Max. breakdown torque		157.5 Nm	115 Nm (without FC) 100 Nm (with FC)	100 Nm (with FC)
Dimensions	P	350 millimeters	350 millimeters	350 millimeters
	M	300 millimeters	300 millimeters	300 millimeters
	N	250 millimeters	250 millimeters	250 millimeters
	S	18.5 millimeters	18.5 millimeters	19 millimeters
	E	110 millimeters	110 millimeters	110 millimeters
	GA	45	45 millimeters	45 millimeters
	D	42	42 millimeters	42 millimeters
	F	12	12 millimeters	12 millimeters
Weight		≤ 173 kg	≤ 173 kg	≤ 200 kg

Tbl. 3: IM B5 Motor specifications | Size ≥ 160

3.3 Radial loads on the motor shaft

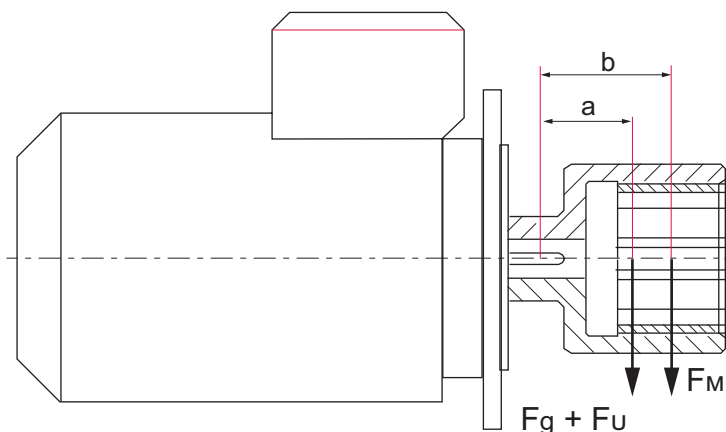


Fig. 1: Forces on the motor and coupling

Motor design

- Observe the required load values for the motor shaft bearings.

$F_g + F_U$ Total of the weight force of the magnetic coupling and the centrifugal force of the imbalance

F_M Magnetic force from eccentricity

a Distance between the center of the motor shaft and the center of gravity of the magnetic coupling

b Distance between the center of the motor shaft and the center of the magnets

Parameter	Okta 500 ATEX	Okta 1000 ATEX	Okta 2000 ATEX	Okta 4000 ATEX	Okta 5400/8100 ATEX	
					155 Nm	210 Nm
$F_g + F_U$	39.2 N	72.5 N	129.8 N	160.7 N	120.9 N	135 N
F_M	58 N	68.2 N	110.9 N	128.5 N	56.2 Nm	39.6 Nm
a	49.8 millimeters	53.5 millimeters	48.9 millimeters	66.8 millimeters	75 millimeters	85.4 millimeters
b	75 millimeters	93.2 millimeters	109.9 millimeters	160 millimeters	133.4 millimeters	143.4 millimeters

Tbl. 4: Permissible shaft loads

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