

TM

ROTARY MART

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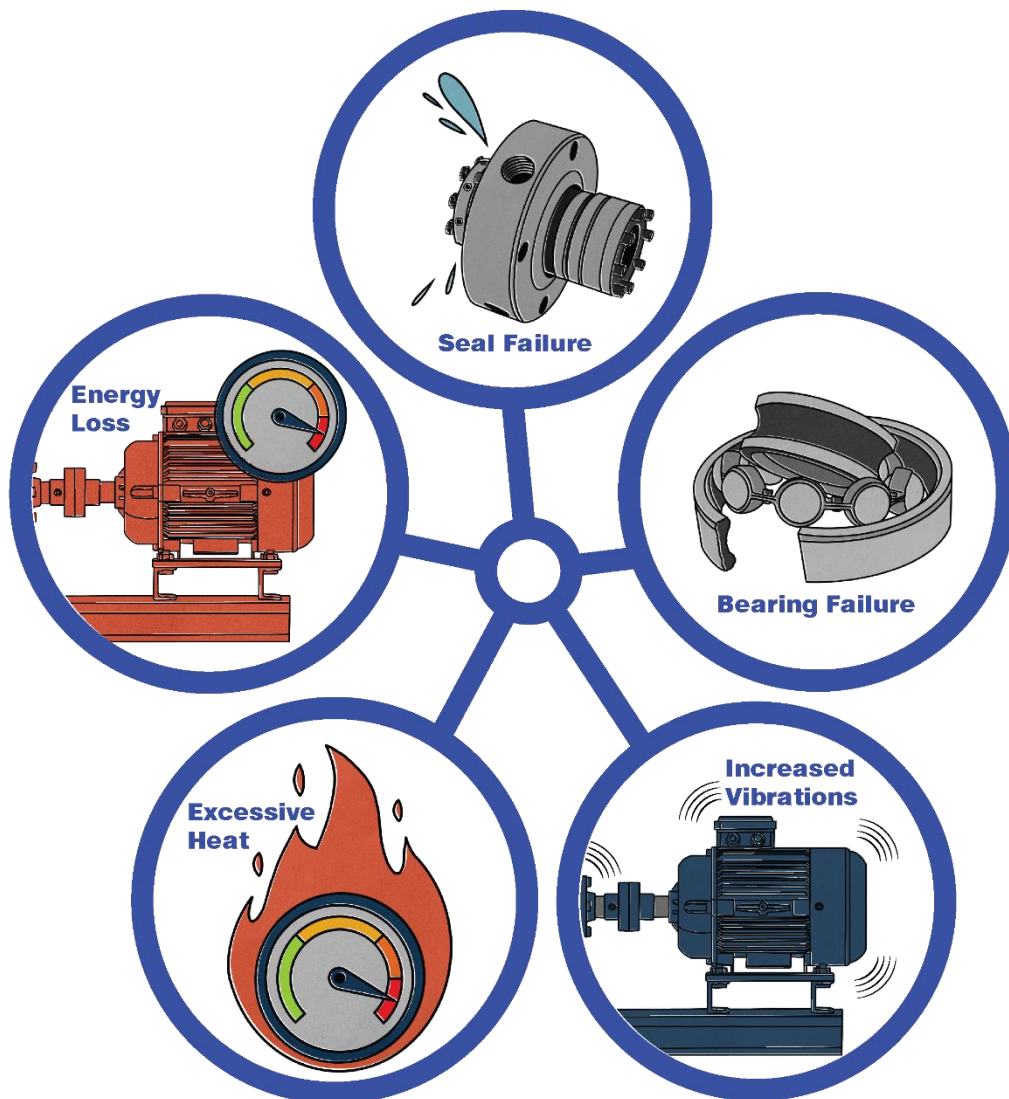


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Misalignment

Shaft alignment is the process of aligning two or more shafts with each other to within a tolerated margin. The resulting fault if alignment is not achieved within the demanded specifications is shaft misalignment, which may be **offset** (measured in **mm**) or **angular** (measured in **µm/mm**).

5 Effects of Misalignment

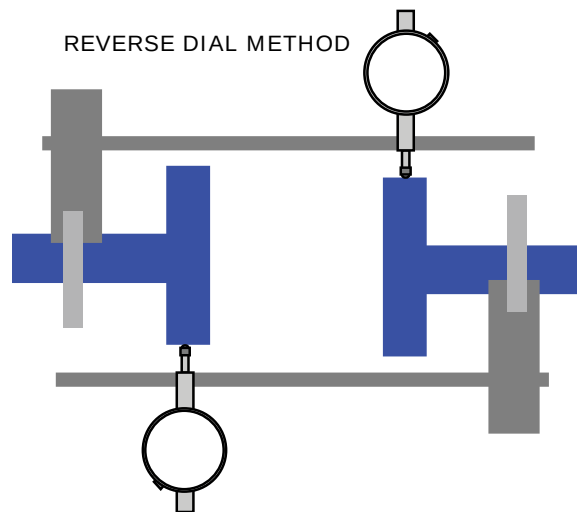


Methods of Performing Alignment

Shaft alignment is a critical process in ensuring the smooth and efficient operation of rotating machinery. Two commonly used methods for performing shaft alignment are the reverse dial method and the rim and face method.

Reverse Dial Method:

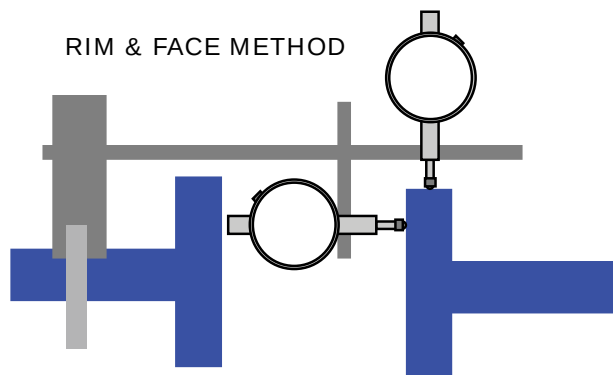
This method involves mounting a dial indicator on one shaft and aligning it with a stationary reference dial indicator on the other shaft. The alignment process involves rotating both shafts and making adjustments until the dial indicators read the same values at multiple points around the shafts.



Rim and Face Method:

The rim and face method is a popular method of shaft alignment that involves using a dial indicator to measure the gap between the coupling faces at several points around the circumference of the coupling.

Both methods require precision and care to ensure accurate alignment. The choice of method depends on the type of machinery, the level of accuracy required, and the availability of equipment.



Standard Alignment Tolerances

The ANSI/ASA S2.75 standard defines standard alignment tolerances for rotating machinery. The standard provides guidance on the acceptable levels of misalignment for different types of machinery, such as pumps, motors, and compressors.

The standard alignment tolerances are typically expressed as the maximum allowable offset and angular misalignment between the two shafts of the machinery. The specific tolerance levels vary depending on the type of machine, the speed of operation, and the distance between the shafts.

Tolerance range for flex-planes separation 75 mm or greater, or coupling with elastomeric CML	ANSI-ASA-S2.75							
	Values @ RPM							
	900		1200		1800		3600	
	OFFSET μm	ANGLE μm/mm	OFFSET μm	ANGLE μm/mm	OFFSET μm	ANGLE μm/mm	OFFSET μm	ANGLE μm/mm
Minimal ★	191	1.5	178	1.4	157	1.2	122	0.9
Standard ★★	106	0.8	97	0.7	87	0.6	66	0.5
Precision ★★★	51	0.4	46	0.3	41	0.3	30	0.2

Tolerance range for coupling spans >75 mm	Formula	Values @ RPM (μm/mm)			
	T = angle @ flex plane (μm/mm)	900	1200	1800	3600
Minimal AL4.5	$T = 4.5 \sqrt{RPM/1000 + 1}$	3.2	3.0	2.6	2.0
Standard AL2.2	$T = 2.2 \sqrt{RPM/1000 + 1}$	1.5	1.4	1.3	1.0
Precision AL1.2	$T = 1.2 \sqrt{RPM/1000 + 1}$	0.8	0.8	0.7	0.5

Alignment Kit by OTARY MART™

Specifications

Serial	Component Name	Qty.	Material/Specification
01	Precision Dial indicators	02	Type: Digital Range: 12mm & Precision: 0.01mm
02	V-Blocks	02	AISI 304
03	Chain (single strand) Fasteners	02	Stainless Steel
04	Riser Rods 4"	02	AISI 304
	Riser Rods 6"	02	AISI 304
05	Cross Span Rods 6"	02	AISI 304
	Cross Span Rods 8"	02	AISI 304
	Cross Span Rods 10"	02	AISI 304
06	Rod Clamps	02	AISI 304
07	Dial Clamps	02	AISI 304
08	Rim & Face Rod Clamp	01	AISI 304
09	T-Target Faces	02	AISI 304
10	Steel Tape Measure	01	Range: 5m