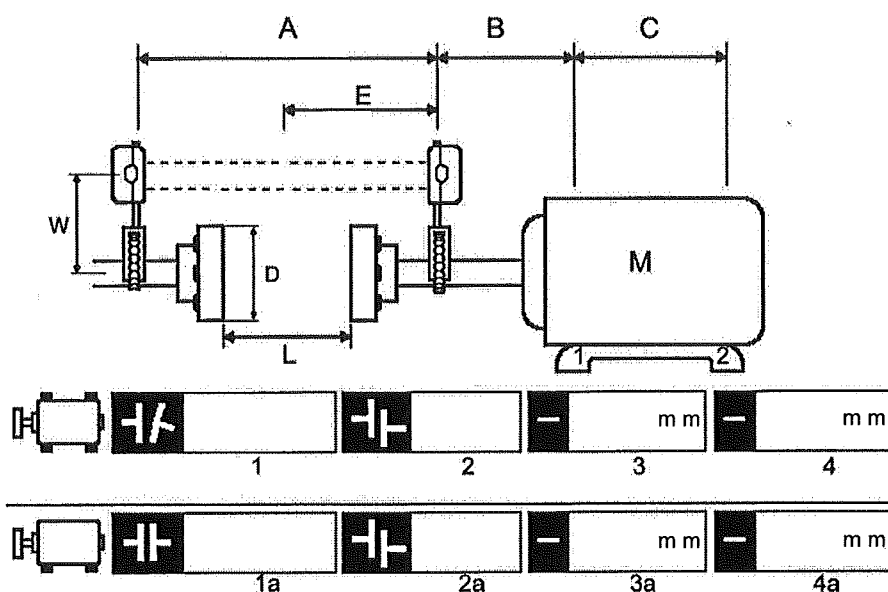


H 3 Records, forms and check lists

H 3.1 Coupling alignment record

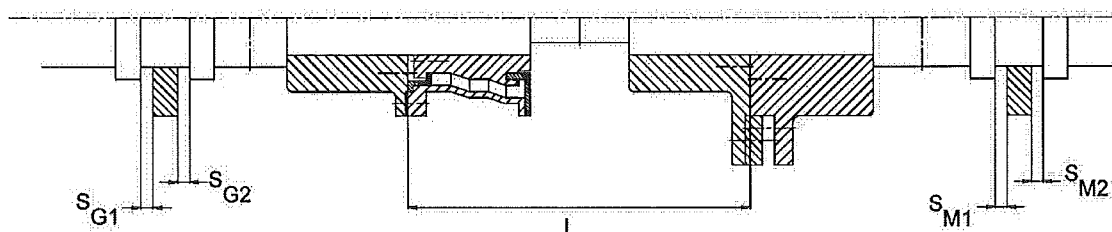
Employed laser model	
Installed coupling type	Tooth coupling, Posiflex ZEAKF-151 E 520
Δh = Displacement in height of driving machine at ambient temperature	$+ 0.15^{+0.05} \text{ mm} / 20^\circ \text{C}$ + driving machine positioned higher
Serial No.:	14 - 2275 14 - 2276



		mm		
A	Distance between the optical elements of the laser alignment equipment		1	Angular displacement of driving machine seen from above
B	Distance between optical element and centre of feet 1 of driving machine		1a	Angular displacement of driving machine seen laterally
C	Distance between feet 1 and 2 of driving machine		2	Parallel displacement of driving machine seen from above
D	Outer diameter of coupling hub		2a	Parallel displacement of driving machine seen laterally (corresponds to Δh)
E	Distance between laser element and centre of coupling spacer		3	Horizontal displacement by specified measure
M	Driving machine (moveable element)		3a	Difference in height feet 1 of driving machine
L	Length of coupling spacer	520	4	Horizontal displacement by specified measure
W	Measuring circle radius centre of shaft toward centre of laser element		4a	Difference in height feet 2 of driving machine
	Ambient temperature during alignment	°C		
	Machine temperature during alignment	°C		

H 3.2 Setting of axial clearance

L = Length of coupling spacer **520 mm**



ATTENTION

The driving machine must be aligned so as to be able to determine the total axial clearance with coupling in uncoupled state. Adherence to the permissible minimum clearance shall be imperative.

	Dim.	Specified value	Measured value		
Gearbox					
S_{G1}	mm				
S_{G2}	mm				
Driving machine			Motor		Turbine
	With axial bearing				
S_{M1}	mm				
S_{M2}	mm				
	Without axial bearing				



When aligning the motor observe marks and manufacturer's data as to mechanical and magnetic centre.

Customer			Date	Place
Atlas Copco				
Driving machine manufacturer				

H 3.3 Alignment record (template)

Ausrichtprotokoll Alignment protocol Atlas Copco Getriebe - Grundrahmen Gear - baseframe		Auftr.-Nr.: Order no.:	
		Masch.-Nr.: Serial. no.:	
Messungen mit Wellenwasserwaage, Genauigkeit: ein Teilstrich = 0,1 mm/m Measurement with spirit level, precision: one graduation mark = 0,1mm/m		Kennwort: Plant code:	

W = Welle / Shaft
 L / R = Ausrichtleiste Links / Rechts
 Alignment board left / right
 S = Spaltprüfung Getriebe zum Grundrahmen
 Check gap gear to baseframe
 X = Kompressorachse
 Compressor center line
 Y = Querachse
 Traverse axis

Montagephase / steps of erection			
Werksmontage in workshop	1. Aufbau first erection	Endausrichtung final alignment	
→ A			
S1			
S3			
S5			
S8			
S10			
S12			
→ B			
Y6			
Y7			
Y3			
Y10			
Y13			
Y14			
Y15			
Y16			

Bemerkungen / Notes		
Abnahme / Approved:	Kunde / Client	Atlas Copco
Datum / Date:		
Name / Unterschrift / Sign.:		

H 3.4 Checklist for installation

- ☐ Check of scope of delivery inspected against the packing list.
- ☐ Components are: Undamaged - Damaged
- ☐ Check that the foundations are ready for storing of packages and are dimensionally correct, level and flat, and that the foundation bolt holes and their locations are as per foundation plan.
- ☐ Check the correct assembling of coolers and base frame.
- ☐ Place the supplied levelling spindles on each side of each foundation bolt pocket as shown on the foundation plan. Lower the compressor base frame, with anchor bolts bolted in the frame, onto the levelling spindles.
- ☐ Level the base across the foundation.
- ☐ Assemble compressor unit (core unit)
- ☐ Lower the main drive motor onto it's support frame, roughly align it with the compressor and bolt it into position. Position the levelling spindles.
- ☐ Prepare site data for northing and easting. Recheck the alignment, adjusting as necessary, and adjust spindles equally to obtain correct height reference to the site height datum.
- ☐ Check the Motor/compressor shaft alignment and tighten the motor holding down bolts. Do not install the coupling spool.
- ☐ Grout in anchor bolts for the compressor base frame up to the top of the foundation (refer to the foundation plan).
- ☐ When the grout has set tighten the nuts on the foundation bolts, check alignment.
- ☐ Check the motor/compressor shaft alignment and tighten the motor holding down bolts. Do not install the coupling spool.
- ☐ Before connecting the compressor suction pipework check the operation of the compressor guide vane system.
- ☐ Fit internal process pipework acc. P&I diagram.
- ☐ Manufacture and fit interconnecting pipework with supports.
- ☐ Recheck compressor and shaft alignment and confirm that no changes of alignment accrued caused by the last assembling step.
- ☐ Connect the cooling water and oil pipework. Connect any other miscellaneous pipework

- ☐ Connect all piping termination points customer's pipework (see customer's piping interconnecting drawing).
- ☐ Recheck compressor and shaft alignment and confirm that no changes of alignment accrued caused by the last assembling step.
- ☐ Check and complete with the customer's electrical engineer and complete all electrical wiring to the motors, heaters and instrument junction boxes, etc.

If the work listed in this section has been satisfactorily completed the compressor is ready for precommissioning.

H 3.5 Checklist for commissioning

The objective of this procedure is to ensure the full and correct pre-commissioning activities are carried out and recorded prior to handover of the package for operation as part of the process commissioning.

It is intended that at the end of these checks the motor spin tests uncoupled has been carried out.

- ☐ Check integrity/security of holding down bolts in foundation.
- ☐ Carry out full flowsheet check to ensure mechanical, electrical and instrument construction and assembly are complete.
- ☐ Check rotation and operation of auxiliary lube oil pump motor and oil demister motor.
- ☐ Ensure demister is operating correctly and check for correct vacuum.
- ☐ Fill tank with specified oil. Start auxiliary oil pump and ensure that the pump primes. Flush oil skid pipework at max temp.(use oil heater to warm up the oil) for 6 hours or until clean, cleaning the filter as required. Stop the pump.
- ☐ Inspect and change oil filter elements at completion of flushing unless filter differential pressure indicates a problem sooner.
- ☐ Functionally check alarm and trip systems for the ,permissive start and ,shut down"
- ☐ Simulate motor operation and check protective circuits. At least one trip check shall be conducted with the switch gear in the test position.
- ☐ Check that all pressure and differential pressure gauges are accurate and serviceable.
- ☐ Check that all pressure and differential pressure transmitter's are accurate and serviceable.
- ☐ Check that all temperature indicators are accurate and serviceable.
- ☐ Check that all temperature elements (TE) and switches (TS) are accurate and serviceable. Record the settings of all temperature switches,
- ☐ Check the function of the lube oil heaters. Check the operation of the heater controllers (TC) and record the set point of the heater temperature switches (TS).
- ☐ Check the function of all level switches.
- ☐ Check gap voltage of all vibration probes and check all vibration monitors for acceptable read-out and operation.

- ☐ Check and record settings of all vibration alarms and trips.
- ☐ Check Operation of IGVs. Stroke fully open and fully closed and check the function of the limit switch adjust the guide vane stops if necessary.
- ☐ Check operation stroke and failure action of bypass valve . Check and record stroke time fully open to fully closed.
- ☐ Check operation and record settings of all control valves.
- ☐ Prepare the machine for a mimic start ensuring that the IGVs are closed and blow off valve is open and the ready to start light is on with all trips cleared.
- ☐ Disconnect suction line to compressor and blow out suction with compressed air. Inspect suction strainer and pulse clean if necessary. Reinstall suction line.
- ☐ Ensure that cooling water system external to the machine is operating correctly.
- ☐ Liaise with the customer's electrical engineer and prepare motor for uncoupled run. Ensure correct cooling water and lube oil supply is maintained.
- ☐ Start the motor. Carry out an uncoupled run and check correct rotation start and run down time. Stop the motor.
- ☐ Recheck alignment and install coupling spacer and guard and check and record the axial displacement of coupled unit to ensure axial float is within safe operating limits of motor bearings. Ensure that cooling water system external to the machine is operating correctly.



The compressor is now ready for handing over for the process commissioning.