Kaeser Energy Saving System

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1. What volume of air must the compressors deliver?

1.1 Demand of existing pneumatic tools and machines

Tools, machines	Air requirement per tool, machine m³/min		Number of tools, machines		Utilisation factor		Simultaneous working factor		Actual calculated air demand m³/min
		x		x		x		=	
		x		x		x		=	+
		x		x		x		=	+
		x		x		x		=	+
		x		x		x		=	+
		x		x		x		=	+

Air demand of all tools = V_{tools} m³/min

\+

1.2 Other consumers — V_{other} m³/min

\+

1.3 Airmain leakages — $V_{leakage}$ m³/min

\+

1.4 Reserve — $V_{reserve}$ m³/min

Min. effective FAD = V_{FAD} m³/min

2. Are compressors already installed?

☐ **no**

☐ **yes**

Designation	Maker	Model	Working pressure bar	FAD m³/min	Continued use planned? yes	no
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐
					☐	☐

Total FAD of installed compressors to continue in use

= $V_{installed}$ _____ m³/min

Installed air treatment components:

Type/model (dryer, filter, drain..)	manufacturer	designed for m³/min	bar (g)	additional information e.g. wrong layout

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3. Are standby compressors installed (reserve/security)?

☐ **yes**, how many? _____

☐ **no** ☐ **future planned:** _____

4. Is a master controller available?

☐ **yes**, which? _____

☐ **no**

future planned:
☐ simple base load sequencer
☐ SAM __ / __
☐ VESIS

5. Will heat be recovered?

☐ **yes**, purpose: _____

☐ **no** ☐ **future planned:** _____

6. What air quality is needed?

(see technical files air treatment and condensate treatment)

Central air demand m³/min	**Local air demand** m³/min	**Class of air quality according to ISO 8573-1**		
		Remaining water	**dust**	**oil**
☐	☐			
☐	☐			
☐	☐			
☐	☐			

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7. What max. pressure(g) should the compressors provide

7.1 **Min. working pressure required by the consumers**				p_{Wmin}	bar
7.2 **Pressure losses**					
				+	
air main pipework				p_{am}	bar
pipe material					
length of the main			m		
				+	
activated carbon adsorber	p_{ACTmin}		bar	p_{ACTmax}	bar
				+	
sterile filter	p_{FSTmin}		bar	p_{FSTmax}	bar
				+	
microfilter	p_{FFGmin}		bar	p_{FFGmax}	bar
				+	
microfilter combination	$p_{FE/FFmin}$		bar	$p_{FE/FFmax}$	bar
				+	
other filter	p_{FDmin}		bar	p_{FDmax}	bar
				+	
dryer				p_{Dry}	bar
				+	
7.3 **Compressor control differential**				p_{Dif}	bar

Required max. compressor pressure = **p_{max}** **bar**

Compressor minimum pressure (p_{max} - p_{dif}) p_{min} bar

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8. Operating conditions

8.1 **Max. air inlet temperature**		t_{Amax}	℃
8.2 **Min. ambient air pressure** (at max. inlet temperature)		p_{Amin}	bar
8.3 **Max. relative humidity** (at max. inlet temperature)		$F_{relAmax}$	%
8.4 **Min. air inlet temperature**		t_{Amin}	℃

8.5 Cooling

☐ **air-cooled**

☐ **water-cooled**

☐ enclosed loop	water inlet temperature	t_{inmax}	℃
☐ open loop		t_{inmin}	℃
cooling water quality	water return temperature	t_{retmax}	℃
☐ to KAESER standard		t_{retmin}	℃
	water initial pressure	p_{cwip}	bar
	Max. permisible cooling water pressure drop	p_{cwpd}	bar

8.6 Heat recovery

☐ **Warm air** Application:

☐ **Warm water** Application:

water inlet temperature	t_{wi}	°C
water return temperature	t_{wr}	°C
volume	Vw	m³/h

8.7 Ambient conditions in the compressor room

Degree of dustiness

☐ **low**

☐ **high**

General level of cleanliness

☐ **low**

☐ **high**

Air inlet aperture

☐ **available,** **m²**

☐ **not available**

Air discharge aperture

☐ **available,** **m²**

☐ **not available**