Project
Component **Unidirectional Jet Fan**

Item	Quant.	Description	Unit price €	Total price €
01		**General Requirements** The jet fans should be manufactured in a sturdy and robust manner. To avoid corrosion the jet fans and the mounting structure should be manufactured in stainless steel 1.4571 (V4A). The fans should be exchangeable. Under normal duties the jet fan has to be designed to run at temperatures between –20 and +40°C. In the event of a fire, the jet fan has to withstand a temperature of up to 400°C for 90 minutes. In order to prove this, for the relevant parts like the impeller, motor, terminal box and terminals a heat test according to EN 12101-3 of a complete unit has to be conducted. The test must be certified by an independent laboratory. Testing of single parts e.g. impeller blades is not valid or sufficient. If the manufacturer can not provide a suitable certificate, then the costs for a heat test must be included in the quoted price. **Casing** The casing and the motor support should be manufactured from heavy construction 6mm stainless steel. To avoid corrosion in cracks the flanges have to be formed at the fan casing (no welded construction). Welds must be continuous. The external terminal box in stainless steel 1.4571 is heavy duty and corrosion resistant in IP65. **Impeller** The impeller is made of corrosion-resistant, cast aluminium. The nucleus of the hub is made from stainless steel 1.4571. The impeller is directly mounted onto the motor shaft. Strong steel bolts have to be cast in the aluminium blade to ensure the necessary stability in case of fire. To ensure a high efficiency the blades should be profiled. The blade angle is adjustable at standstill. The impeller has to be carefully staticly and dynamicly balanced (min. G6.3). **Silencers** Due to corrosion protection, all components of the silencers are manufactured in stainless steel 1.4571. At the inlet side, an aerodynamicly shaped cone has to be provided. The outlet side is equipped with a defined separation edge for maximum thrust. All welds are continuous. Corrosion in cracks must be avoided. The isolation material is non-flammable mineral wool, which is		

Project
Component **Unidirectional Jet Fan**

Item	Quant.	Description	Unit price €	Total price €

fitted between the outer casing and the perforated sheet. The dimensioning of the silencers should be done according to specified sound pressure level. For silencer lengths above 1,5D measures to prevent swing must be implemented.

Motor
For jet fans, 3 phase, fully enclosed, squirrel cage motors according to IEC standards in IP 55 should be used. To reach a well balanced cooling and air stream, the motor design is IMB5 or IMB14. The motor support with integrated guide vanes is welded on the fan casing. The electrical start will be direct on line in voltage operation 400V +/- 5%.

The isolation class is H. The motors are suitable to withstand 400°C for 90 minutes. A certificate from the motor manufacturer is required.

The bearings are lubricated for life. The bearing life time is min. 20000 hours. The halogen free and flame resistant power cables are connected to the external terminal box.

Performance unidirectional Jet Fan

Thrust	N
Air density	kg/m³
Volume flow	m³/s
Outlet velocity	m/s
Speed	min^{-1}
Max. el. power consumption	kW
Sound pressure 45° 3m free field	dB(A)

Dimensions

max. outer diameter	mm
Size	mm

Materials

Fan casing	1.4571
Impeller seawater resistant	cast aluminium
Connection Blade/hub	steel bolt
Silencer casing	1.4571
Perforated sheet	1.4571

Project
Component **Unidirectional Jet Fan**

Item	Quant.	Description	Unit price €	Total price €
		Technical Data el. motor		
		Manufacturer ATB, ABB, WEG, NIDEC, or equivalent		
		Size		
		Design IMB5 /IMB14		
		Power kW		
		Voltage V		
		Frequency Hz		
		Operation DOL		
		Rated current A		
		Start up time: s		
		Efficiency %		
		Power factor		
		Protection IP55		
		Isolation class H		
		Bearing life time min. 20.000 h		
		Manufacturer ***WITT&SOHN***	_____,___	_____,___
		Type		
		Accessories The jet fans should be equipped with the following accessories.		
		Mounting structure The jet fans would be mounted in parallel to the tunnel axis at the ceiling. The mounting structure is made of stainless steel 1.4571 in a welded construction. Between the mounting structure and jet fan, suitable vibration attenuators have to be provided.	_____,___	_____,___
		Safety wires In case the mounting structures collapse, the fan is secured from falling down by safety wires, made from stainless steel 1.4401. A slack of about 10 mm must be kept.	_____,___	_____,___
		Tear of guard The mounting structure is guarded against tear of by a inductive proximity switch in IP65.	_____,___	_____,___

Project
Component **Unidirectional Jet Fan**

Item	Quant.	Description	Unit price €	Total price €
		Options ○ Thermistor protection (3 PTC) ○ Thermistor protection (3 Pt100) ○ Monitoring of the bearing temperatures (PTC) ○ Monitoring of the bearing temperatures (Pt100) ○ Space heater ○ Certified calculation note for mounting structure including calculation for case of fire ○ Anchor bolts in 1.4401 ○ Anchor bolts in 1.4529 ○ Halfenscrew in 1.4401 ○ Halfenscrew in 1.4529 ○ Vibration control at fan casing ○ Service switch in IP65 ○ Temperature sensor ○ Outlet guide vanes ○ Protection grills ○ Banana-Jet-Design		