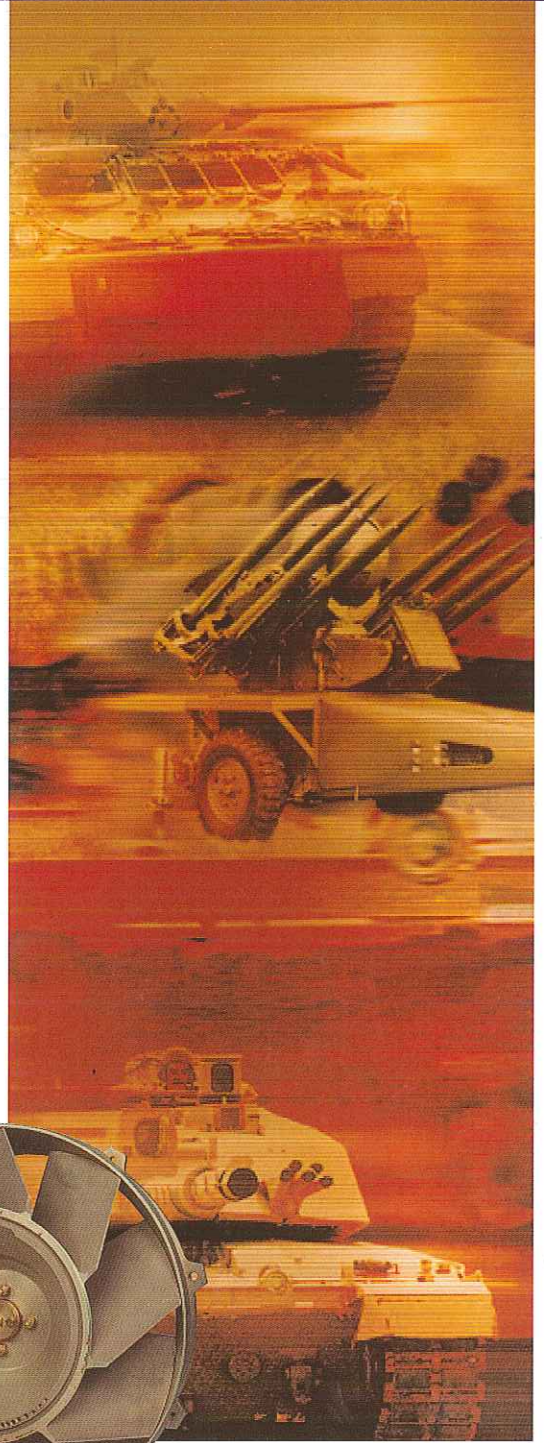
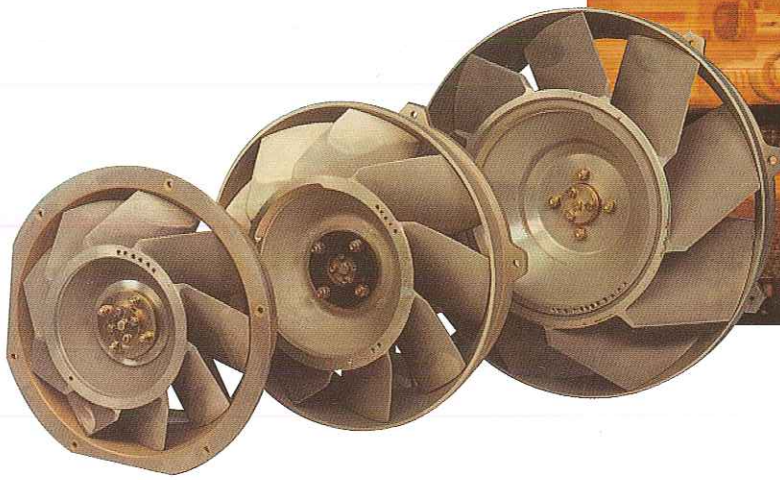


Engine Cooling Fans



AMETEK
Airscrew

MP4 Range of Mixed Flow Fans

Description

Designed for high performance with low power consumption the MP4 Mixed Flow fans manufactured in cast aluminium alloy have non-stall performance and non-overloading power characteristic, together with low noise emission levels. The backward-inclined impeller blades are particularly suited for use in dusty conditions in that the blades remain clean, thus avoiding loss of efficiency. With any fan application the geometry of the individual installation can influence final performance; the details shown here represent results achieved when tested to BS 848 conditions.

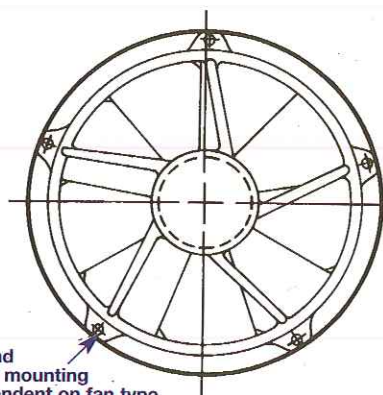
Of compact robust construction and manufactured to meet the requirements of Government defence equipment specifications, these units are especially suitable for military vehicle engine-cooling applications.

Depending on the complexity of the installation, mounting methods can be adapted to suit individual requirements. With hydraulic, belt or shaft drive options the MP4 range has the flexibility to solve virtually any specific engine-cooling problem.

Drive Options

The MP4 range offers the designer the major benefit of flexibility in choice of drive—belt, shaft or hydraulic – without sacrifice of performance.

The dimension details below include data of typical hydraulic drive version (generally with integral motor). Corresponding details for direct drive and belt drive available on application.



Technical Data

Performance

See separate curves for each fan size. Performance is subject to production tolerances.

Mounting Attitude

Unrestricted. For hydraulic drive, consideration must be given to the positioning of drainage holes.

Ambient Temperature Range

Maximum +100° C
Minimum -40° C (but subject to hydraulic fluid used)

Climatic Range

DEF STAN 07-55

Vibration

DEF STAN 07-55 and MIL-STD-810B

Acceleration

DEF STAN 07-55

Shock

DEF STAN 07-55 and MIL-STD-810B

Sand & Dust

DEF STAN 07-55

Fire Proofness

Manufactured from non-flammable materials. Fire resistant hydraulic fluids can be selected.

Endurance

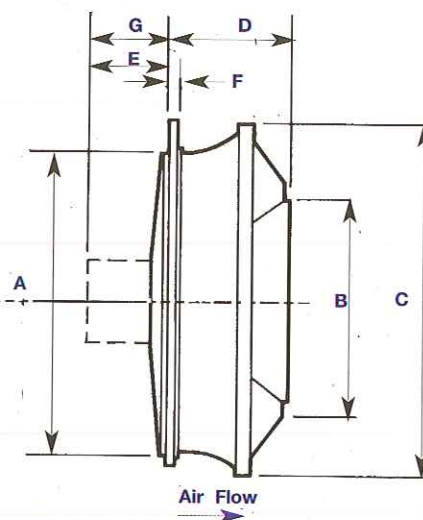
Overhaul periods depend on the application power requirements.

Weights

(Hydraulic drive version – nominal values)
305 MP4 – 18kg
380 MP4 – 25kg
475 MP4 – 40kg

Fan Types and Dimensions

The MP4 range comprises 3 standard fan sizes, designated 305, 380 and 475, each with alternative drive options, as indicated.

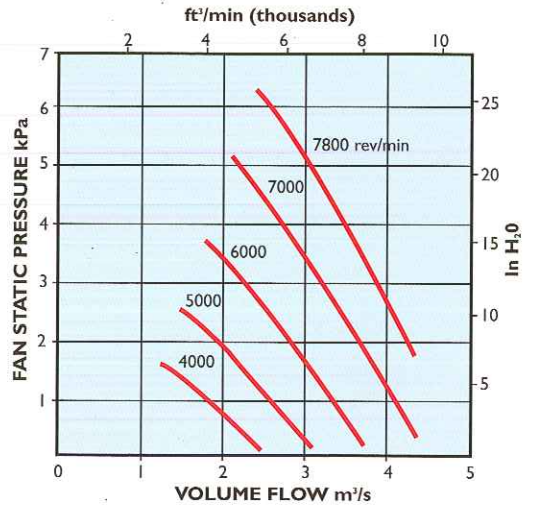
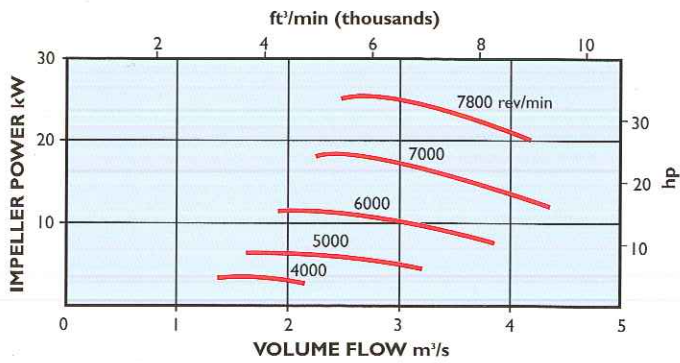


Fan Type	A (diam)	B (diam)	C (diam)	D	E	F	Hydraulic drive versions only	
							G	Oil Displacement (cm ³ /rev)
305 MP4	370.0	232.0	405.0	152.0	102.0	19.0	76.0	4.8
							109.0	10.0
380 MP4	440.0	290.0	502.0	17.0	116.0	13.0	94.0	10.0
							125.0	12.0
							143.0	19.0
475 MP4	540.0	362.0	614.0	196.0	130.0	13.6	76.0	19.0
							147.0	23.0
							156.0	28.0



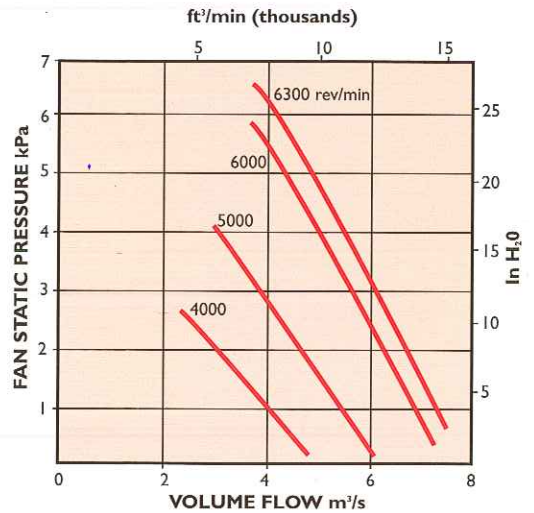
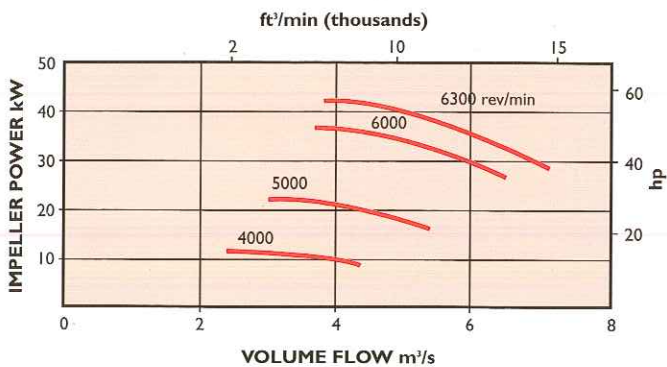
Fan Type 305 MP4

Air Density 1.2 kg/m³
Max Speed 7,800 rev/min



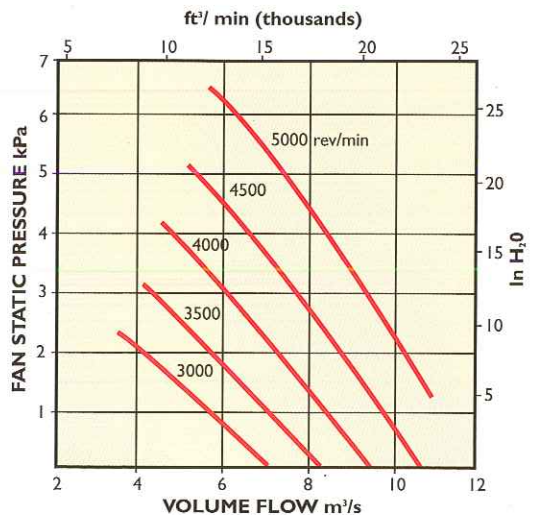
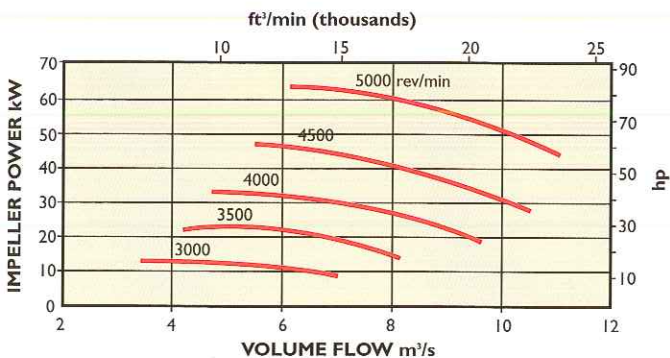
Fan Type 380 MP4

Air Density 1.2 kg/m³
Max Speed 6,300 rev/min



Fan Type 475 MP4

Air Density 1.2 kg/m³
Max Speed 5,000 rev/min



Engine Cooling

Airscrew Limited has been involved in the defence industry for over thirty years, and during this time a major area of activity has been in the design and supply of engine cooling for armoured fighting vehicles. Our engineering team incorporates some of the most experienced and knowledgeable engineers in the defence engine cooling industry. A range of open discharge mixed flow fan units have been developed for the congested environment of the military vehicle engine bay. Aerodynamically designed, these powerful high speed fan units have proved themselves to be durable and efficient in active service conditions. Available as hydraulic, belt or shaft driven units, designed to meet demanding engine bay environments.

Today's power pack designers face an ever increasing demand for cooling air through a variety of high density radiators. In addition to the engine radiators, charge coolers, transmission and hydraulic oil coolers complete with ECS condenser coils for space in the engine bay.

The pressure losses associated with these components, along with the ballistic louvers typically mounted on the air outlet demand efficient, large volume fans with high pressure capability.

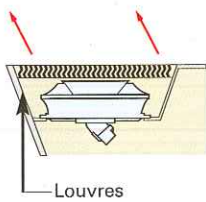
Complete System Capability

Airscrew Limited supplies engine cooling fans for the majority of British Army armoured vehicles and a number of other vehicles worldwide. The experience gained by involvement in many and varied cooling system projects places Airscrew Limited in a unique position to assist the design of vehicle power packs.

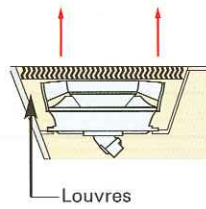
The engine cooling group is most effectively designed by careful management of the total air side system. Experienced consideration is given to louver/cooler losses and distribution factors, fan inlet and discharge conditions, avoidance of hot air recirculation etc.

MP4 Fan Range Designed for high performance ... Application Flexibility

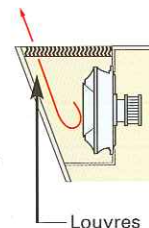
The Airscrew MP4 type fan operates effectively with various discharge configurations offering layout versatility to the vehicle cooling system designer.



Mixed Flow Discharge



De - Swirling Axial Discharge



Centrifugal Discharge

Reference List

Vehicle	Product	Vehicle	Product
CRVT/Scorpion	305-MP2-711/731	Challenger I & II	3 x 380-MP3-711/712/811
T 72	4 x 305-MP4-331	M113	465-AAI-911
AMX- 13 APC	380-MP4-821	MCV-80/Warrior	475-MP4-312
AMX- 13 VCI	380-MP4-331+ Cowl	K200AI	475-MP4-314
Stormer	380-MP4-711/1	Desert Fighting Vehicle	475-MP4-316
CET	380-MP4-333	Bionix	475-MP4-311
Piranha	380-MP4-332	XA 188/200	475-MP4-317/8
ATTC Bronco	380-MP4-331	Challenger Desert/ETS	3 x 475-MP4-315
T55	2 x 380-MP4-331		

Airscrew Limited is a business unit of AMETEK Inc. USA.

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