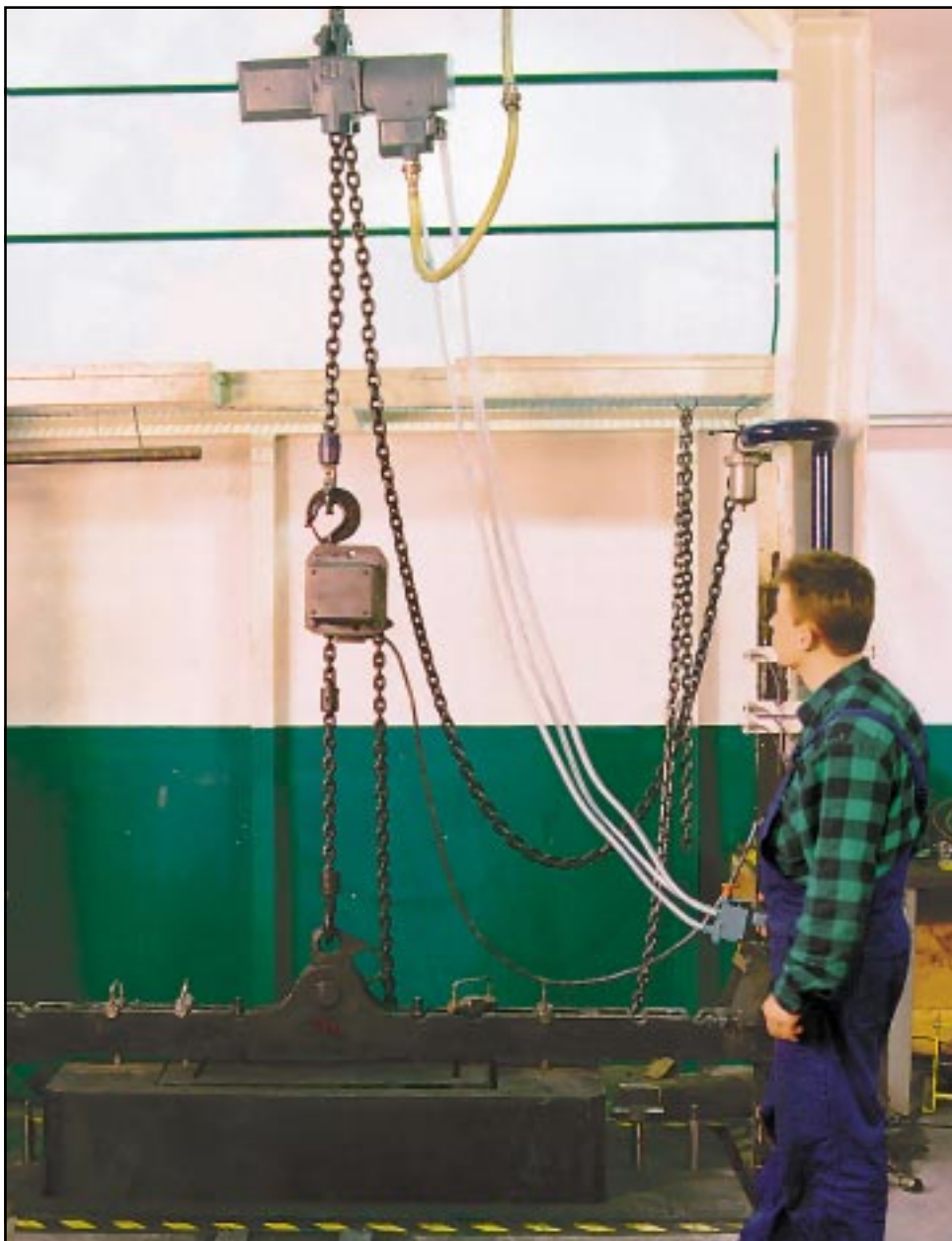


## MOTORS

• AIR



# FUNCTION

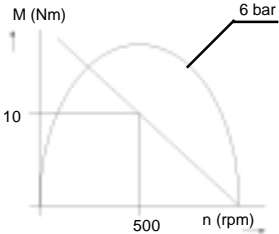
1. The design size determines the output and defines the torque / speed values.

At a given operating pressure, the speed is adjusted according to the reduction in the torque.

Example: 6 bar  
Torque  
Speed

$M = 10 \text{ Nm}$   
 $n = 500 \text{ rpm}$

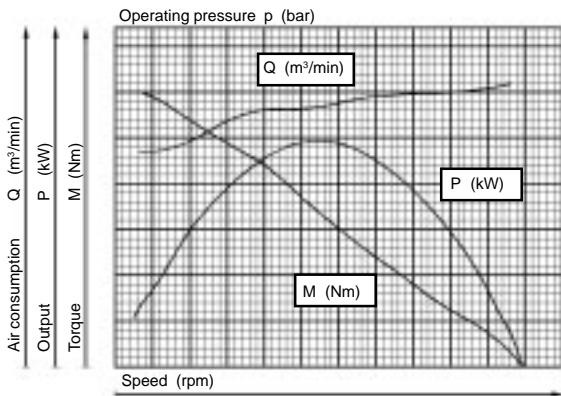
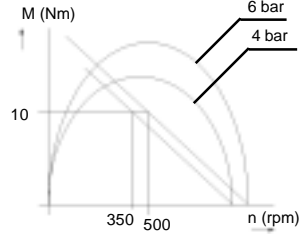
Optimum operating point approx. half of idling speed.



2. Reducing the operating pressure changes the profile of the performance curve.

Other speeds can only be set by changing the pressure.

Torque  
Speed  
at 4 bar  
 $M = 10 \text{ Nm}$   
 $n = 350 \text{ rpm}$



The torque output of the motor automatically adjusts to the load. Low loads produce a high speed, while the torque required and produced is small. As the load increases, the speed drops and the torque produced increases. Optimum torque output is achieved at approximately half the idling speed of the air motor.

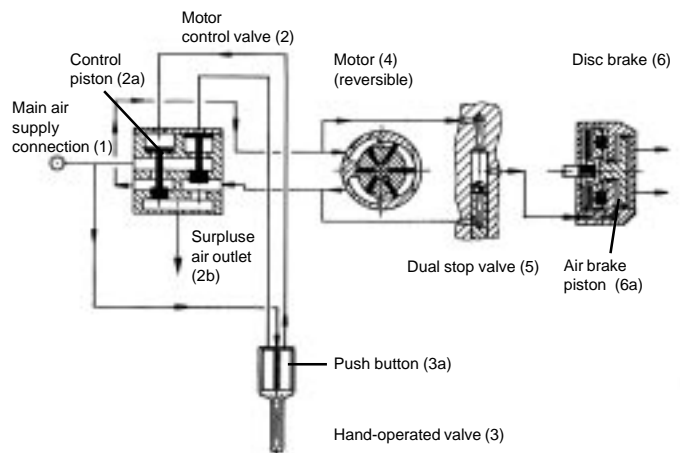
# FUNCTION

The main air supply (1) is connected at the 4/3-way motor control valve (2) - where valve is flanged to motor - and the hand-operated valve (3).

Depressing the push button (3a) on the hand-operated valve (3) actuates the motor control valve (2) - control piston (2a) opens the air channel - so that the motor (4) and at the same time the dual stop valve (5) and the disc brake (6) are ventilated.

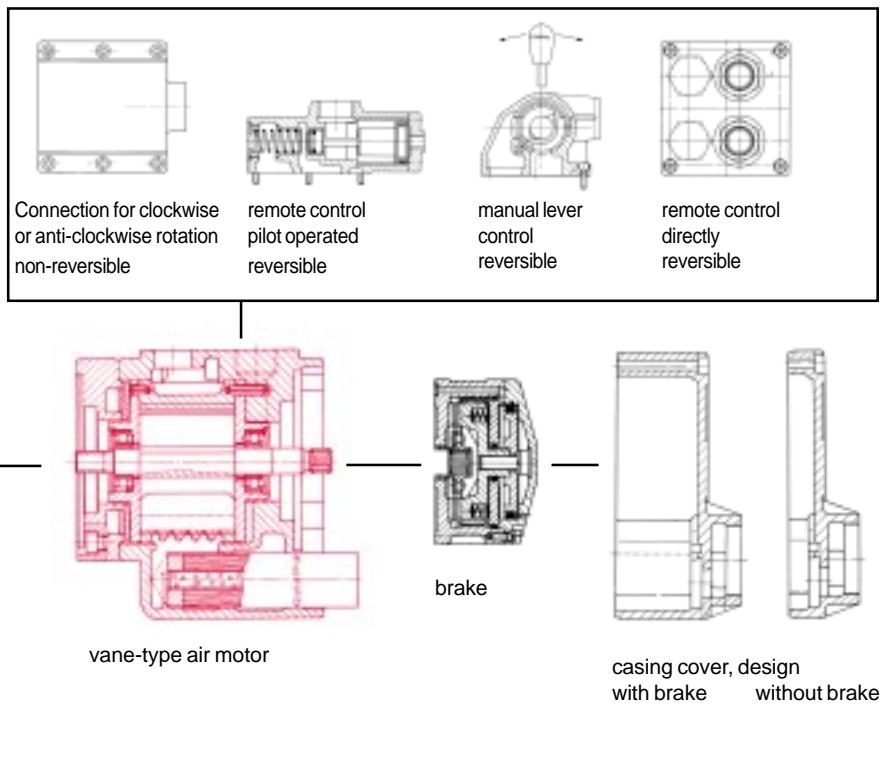
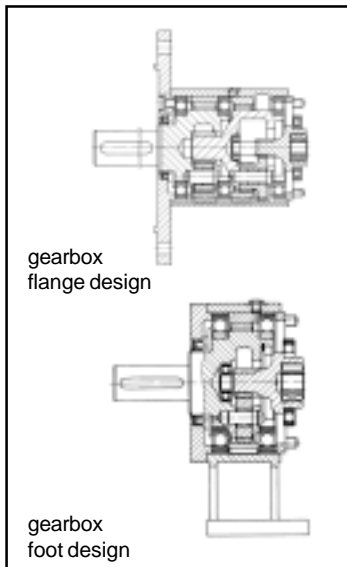
The air brake piston (6a) releases the brake disc and the motor (4) can rotate. When the push button (3a) is released, the control piston (2a) reverts to its original position, as shown in (2b), and bleeds the brake (6) and motor (4) via the two lines (average bled setting). The brake is locked through spring pressure.

If the air supply fails (e.g. hose bursts), the brake locks as described above. The motor remains in the position reached.



# DESIGN

## Our modular kit system



## MOTORS

We build clockwise or anti-clockwise rotating and reversible air motors with a nominal output of 0.2 kW to 10 kW as you require, in flange or foot design, with or without a brake.

The output specifications are based on 6 bar operating pressure up to 4.5 kW and 5 bar from 4.5 kW.

We also build round motors with 125 W, 250 W, 500 W, 700 W and 1000 W nominal output.

These motors come with a thread connection, in the foot or round flange version.

Please ask for output charts and data sheets separately.

## CONTROL SYSTEMS

### Non-reversible

For non-reversible motors you select the direction of rotation, i.e. clockwise or anti-clockwise. These motors are actuated with a simple, commercially available stop valve. The valve itself is either attached directly to the motor or connected to the motor via a pipeline or hose line, as required.

With reversible motors, you chose between:

### Manual lever control

In this type of actuation, the reversing valve is attached directly to or inside the motor. Reversing from one direction of rotation to the other is performed manually. The reversing mechanism in the valve can be provided by a rotary valve, piston slide or two differential pistons.

### Direct remote control

No actuating mechanism is attached to the motor. The operating air is fed directly to the motor via two main air connections. Wherever possible, actuation is performed by a 4/3-way control slide.

### Pilot-operated remote control

The main reversing valve attached to the motor housing is first actuated by one or two small pilot valves, setting the motor to the required direction of rotation.

## GEAR BOXES

We offer spur gears, single- and multiple-speed planetary gears with variants 1=2 to 1=350.

## FAIL SAFE BRAKE

The locked disc brake is unlocked with compressed air and closes as result of spring pressure when the air supply is shut off or fails.

## PROPERTIES



Illustrations: Examples for application of vane-type air motors. By courtesy of our customers Cyklop, Kippes and Yale.

## ADVANTAGES

The vane-type air motor is robust, compact and usable in a wide range of applications. It is not sensitive to dirt, moisture, temperature fluctuations or overloading. The vane-type air motor is fully enclosed. Ambient air, often infiltrated with dust or dirt, cannot penetrate the motor.

There is no need for an additional supply of cooling air. Cooling is performed by the operating air. As the air is released during rotation of the motor it cools the motor.

Due to the special design of the vane-type motor, it can also be used under extreme conditions, such as under water or on seafaring vessels, without any additional equipment.

It also withstands overloads without any damage. Even after weeks of being stationary under overload, it will restart once the overload has been reduced.

The units can be operated with both compressed air and other compressed gasses. Commercially available natural gas makes just as suitable a drive medium as bottled nitrogen.

These motors are characterised by a low power-weight ratio (only approx. 0.3 kW per kg) and a particularly compact design.

The vane-type motor can be regulated for a wide speed range by simply throttling the air cock. Built-in enclosed fail safe disc brakes are possible for almost all motors.

All vane-type air motors operate spark-free and are thus suitable for use in explosive atmospheres in zone 1 and 2 areas.

## ACCESSORIES

Please refer to the leaflet "ACCESSORIES FOR AIR MOTORS" for the accessories available for our motor design, such as the 4/3-way pilot valve, oilers or service units.

# SPITZNAS

Maschinenfabrik GmbH, Fellerstraße 4, D-42555 Velbert, Germany  
Tel: +49-(0)2052-605-0 Fax: +49-(0)2052-605-29  
E-mail: [vertrieb@spitznas.de](mailto:vertrieb@spitznas.de) Internet: <http://www.spitznas.de>

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