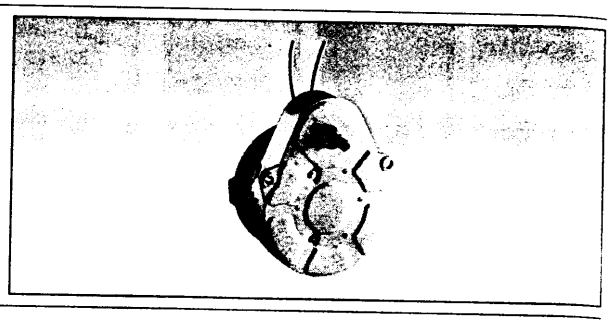
513 4933

Single direction synchronous geared motors

- Constant speed, dependent on supply frequency
- Wide range of speeds
- Direction of rotation controlled by long-life mechanical anti-return (>10⁷ starts)
- Permanent magnet rotor



Applications

- Programming devices (time base)
- Office equipment
- Medical equipment
- Motorised displays
- Scanners
- Moving light displays
- Pumps

Made to order products, non stocked

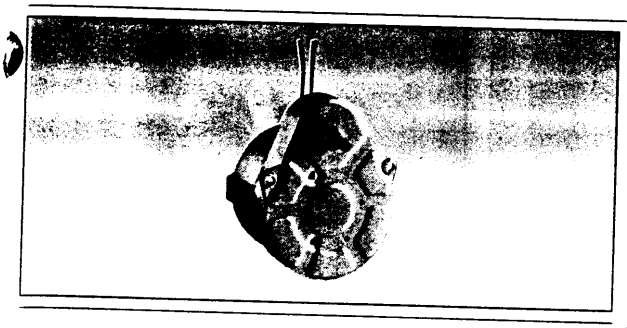
Motors :
- other voltages/frequencies
- lead length
- output lead at 120° from standard angle (clockwise or anti-clockwise)
- fixed by screws not clips

Gearboxes :
- other output speeds
- ball bearings
- special shaft
- special lubrication
- fixing by M3 holes

Types		82 344 0	82 344 0	82 344 0	82 344 0
Voltage and frequency		230 V 50 Hz	230 V 50 Hz	240 V 50 Hz	240 V 50 Hz
Direction of rotation		Anti-clockwise	Clockwise	Anti-clockwise	Clockwise
Output speeds (rpm)	Ratios (i)	**Part numbers**			
60	10	82 344 744	82 344 736	82 344 698	82 344 690
50	12	•	•	•	•
48	12.5	•	•	82 344 699	82 344 691
30	20	82 344 738	82 344 746	82 344 692	82 344 700
24	25	82 344 739	82 344 747	82 344 693	82 344 701
20	30	82 344 740	82 344 748	82 344 694	82 344 702
16.67	36	•	•	•	•
15	40	82 344 741	82 344 749	82 344 695	82 344 703
12.5	48	•	•	•	•
12	50	82 344 743	82 344 751	82 344 697	82 344 705
10	60	82 344 752	82 344 760	82 344 706	82 344 714
9.6	62.5	•	•	•	•
8.33	72	•	•	•	•
7.5	80	82 344 754	82 344 762	82 344 708	82 344 716
6	100	82 344 755	82 344 763	82 344 709	82 344 717
5	120	82 344 756	82 344 764	82 344 710	82 344 718
4.8	125	•	•	•	•
4	150	82 344 765	82 344 757	82 344 719	82 344 711
3	200	82 344 766	82 344 758	82 344 720	82 344 712
2.50	240	•	•	•	•
2.40	250	•	•	•	•
2	300	82 344 775	82 344 768	82 344 729	82 344 722
1.67	360	•	•	•	•
1.60	375	•	•	•	•
1.20	500	•	•	•	•
1	600	82 344 771	82 344 778	82 344 725	82 344 732
0.83	720	•	•	•	•
0.80	750	•	•	•	•
0.56	1080	•	•	•	•
0.5	1200	82 344 772	82 344 779	82 344 726	82 344 733
0.42	1440	•	•	•	•
0.33	1800	82 344 773	82 344 780	82 344 727	82 344 734
0.28	2160	•	•	•	•
0.25	2400	•	•	•	•
0.21	2880	•	•	•	•
0.20	3000	•	•	•	•
0.17	3600	•	•	•	•
0.10	6000	•	•	•	•
Output speeds (rev/hr)					
5.00	7200	•	•	•	•
4.00	9000	•	•	•	•
3.00	12000	•	•	•	•
2.50	14400	•	•	•	•
1.00	36000	•	•	•	•
0.83	43200	•	•	•	•
0.67	54000	•	•	•	•
0.50	72000	•	•	•	•
1/3	108000	•	•	•	•
1/4	144000	•	•	•	•
1/5	180000	•	•	•	•
1/6	216000	•	•	•	•
1/12	432000	•	•	•	•
1/24	864000	•	•	•	•
Standard gearbox shaft: see dimensions					
Options : for made to order products non stocked					
Voltages / Frequencies	24 V 50 Hz	•	•	•	•
	24 / 115 V 60 Hz				
	48 V 50 Hz				
For version with no anti-return (SAR version see page 2/4)		•	•	•	•
Free-wheel device : Y system (see page 2/28)		•	•	•	•
Torque limiter F symbol (see page 2/28)		•	•	•	•
Gearbox shaft	round 79 200 967	•	•	•	•
	pierced 79 200 779	•	•	•	•
	Ø 6 with flat 79 999 421	•	•	•	•

Other information

For basic principles, see page 2/4
The speed of a motor powered by a 60 Hz supply is 20% higher than that of a motor powered by a 50 Hz supply.

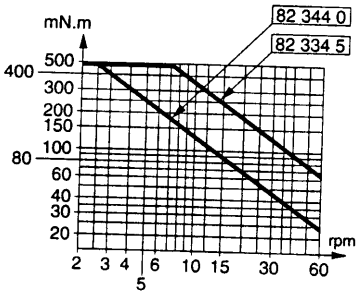


82 334 5	82 334 5	82 334 5	82 334 5	1
230 V 50 Hz	230 V 50 Hz	240 V 50 Hz	240 V 50 Hz	2
Anti-clockwise	Clockwise	Anti-clockwise	Clockwise	3
82 334 734	82 334 726	82 334 811	82 334 803	4
82 334 735	82 334 727	82 334 812	82 334 804	
82 334 728	82 334 736	82 334 805	82 334 813	
82 334 729	82 334 737	82 334 806	82 334 814	
82 334 730	82 334 738	82 334 807	82 334 815	
82 334 731	82 334 739	82 334 808	82 334 816	
82 334 733	82 334 741	82 334 810	82 334 818	
82 334 756	82 334 764	82 334 772	82 334 780	
82 334 758	82 334 766	82 334 774	82 334 782	
82 334 759	82 334 767	82 334 775	82 334 783	
82 334 760	82 334 768	82 334 776	82 334 784	
82 334 769	82 334 761	82 334 785	82 334 777	
82 334 748	82 334 742	82 334 796	82 334 789	
82 334 744	82 334 751	82 334 792	82 334 799	
		82 334 794	82 334 801	
				4
				5

General characteristics

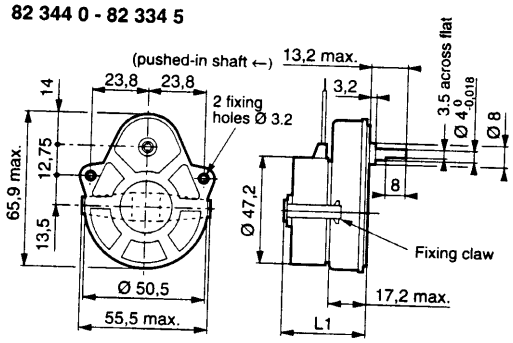
Type		82 344 0	82 334 5
Motor		82 340 0	82 330 5
Gearbox		81 021 0	81 021 0
Maximum permitted continuous rated gearbox output torque for 1 million gearbox revolutions	Nm	0.5	0.5
Axial load (static)	daN	1	1
Radial load (static)	daN	8	8
Absorbed power	W	3	3.5
Usable motor power	W	0.16	0.42
Maximum temperature rise	°C	55	55
Ambient temperature	°C	-5 +60	-5 +60
Weight	g	160	210
Lead length (approx..)	mm	250	250
Protection		IP40	IP40

Graph of torque versus speed



Dimensions

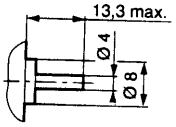
82 344 0 - 82 334 5



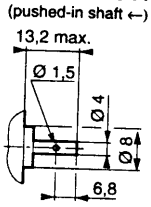
Type	L1 (mm)
82 344 0	35.6 max.
82 334 5	41.65 max.

Products available to order : gearbox output shaft

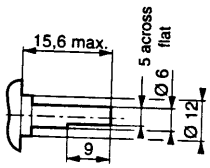
Shaft 79 200 967
(pushed-in shaft ←)



Shaft 79 200 779
(pushed-in shaft ←)



Shaft 70 999 421
SP1295-10



To order, specify

■ **Standard products**

4 Part number
Example : Synchronous geared motor - 82 344 744

• **Standard products, non stocked**

1 Type
2 Voltage and frequency
3 Direction of rotation
4 Output speed
5 Option
Example : Synchronous geared motor 82 344 0 - 230 V 50 Hz - CW - 0.80 rpm - Round shaft

• **Products available to order, please consult us**

2

Crouzet

Some principles of direct current (D.C.) motors

1 - Why choose a D.C. motor?

Many applications call for a high start-up torque. The D.C. motor. by its very nature, has a high torque vs. falling speed characteristic and this enables it to deal with high starting torques and to absorb sudden rises in load easily. The speed of the motor adjusts to the load. Furthermore, the D.C. motor is an ideal way of achieving the miniaturisation designers are constantly seeking because the efficiency it gives is high compared with other designs.

2 - Design of Crouzet D.C. motors

2.1 Safety

Crouzet D.C. motors are designed and manufactured for integration into equipment or machines which meet, for example, the requirements of the machinery standard :
EN 60335-1 (IEC 335-1, "Safety of domestic electrical appliances").
Integration of Crouzet D.C. motors into equipment or machines should, as a rule, take the following motor characteristics into account :

- no ground connection
- so-called "principal insulation" motors (single insulation)
- protection index : IP00 to IP40
- insulation classes : A to F

} (see the catalogue page details for individual motor types)

EC LOW VOLTAGE DIRECTIVE 73/23/EEC OF 19/02/73 :
Crouzet D.C. motors and geared motors are not covered by this directive (LVD 73/23/EEC applies to voltages greater than 75 VDC).

2.2 Electromagnetic compatibility (EMC)

Crouzet Ltd can provide the EMC characteristics of the various types of product on request.

EC DIRECTIVE 89/336/EEC OF 03/05/89,
"ELECTROMAGNETIC COMPATIBILITY" :
D.C. motors and geared motors are considered as components meant for integration into other equipment and therefore fall outside its field of application. However, these products are designed in compliance with EMC characteristics and consequently can be incorporated in equipment having to comply with the EMC directive.

3 - How to select from the Crouzet range

The motor unit is selected according to the required output power.

Depending on the required speed, a direct motor or a geared motor is selected.

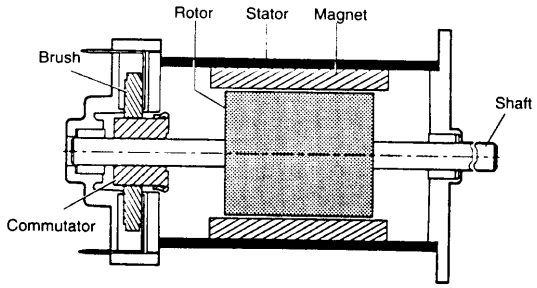
Speeds 1,000 to 5,000 rpm → Direct motor
Speeds below 500 rpm → Geared motor

The gearbox is selected depending on the maximum required torque and the duty cycle.

4 - Definition of the D.C. motor

This motor follows linear laws of operation and because of this it is easier to fully exploit its characteristics compared to synchronous or asynchronous motors.

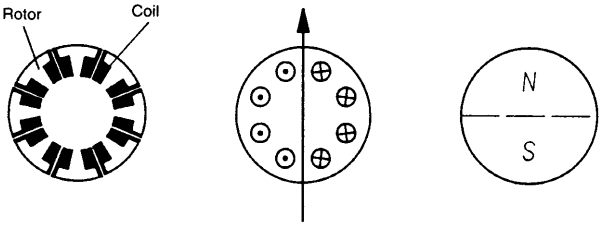
Composition of a D.C. motor



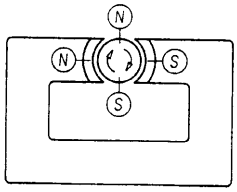
The stator is formed by a metal carcass and one or more magnets that create a permanent magnetic field inside the stator. At the rear of the stator are the brush mountings and the brush gear which provide electrical contact with the rotor.
The rotor is itself formed by a metal carcass carrying coils which are interconnected at the commutator at the rear of the rotor.
The commutator and brush assembly then select the coil through which the electric current passes in the opposite direction.

Principle of operation

Whatever the complexity of the rotor coil windings, once they are energised, they may be represented in the form of a ferromagnetic cylinder with a solenoid wrapped around it.
The wire of the solenoid is in practice the wire bundle located in each groove of the rotor. The rotor, when energised, then acts as an electromagnet, the magnetic field following the axis separating the wires of the solenoid in the direction of the current which flows through them.



The motor, therefore, consists of fixed permanent magnets (the stator) a moving magnet (the rotor) and a metal carcass to concentrate the flux (the motor body).



By the attraction of opposite poles and repulsion of like poles, a torque then acts on the rotor and makes it turn. This torque is at a maximum when the axis between the poles of the rotor is perpendicular to the axis of the poles of the stator.
As soon the rotor begins to turn, the fixed brushes make and break contact with the rotating commutator segments in turn.
The rotor coils are then energised and de-energised in such a way that as the rotor turns, the axis of a new pole of the rotor is always perpendicular to that of the stator. Because of the way the commutator is arranged, the rotor is in constant motion, no matter what its position.
Fluctuation of the resultant torque is reduced by increasing the number of commutator segments, thereby giving smoother rotation.
By reversing the power supply to the motor, the current in the rotor coils, and therefore the north and south poles, is reversed. The torque which acts on the rotor is thus reversed and the motor changes its direction of rotation. By its very nature, the D.C. motor is a motor with a reversible direction of rotation.