

## Traverse motors with progressive start and stop

A few problems such as swinging of suspended loads, slipping of trolley wheel on rails, the breakage of some delicate mechanisms can occur on traverse applications. All these problems can be solved using progressive start/stop systems such as clutches, hydraulic couplings, slip-ring motors or soft start devices. Experience has shown that progressive start/stop brake motor is a valid alternative to all the other adducted systems. Traverse motors are provided with a flywheel whose dimension and weight are calculated in order to have an adequate moment of inertia. The ratio of rated torque to starting (locked rotor) torque is calculated in order to achieve the best progressive performance.

The flywheel accumulates energy during the start and gives it back during the stop resulting in a progressive change of the rotating speed. **PV series motors** don't need adjustments with load change or any special maintenance and the progressive action is directly proportional to the load increase. During the planning stage it is necessary to carefully choose the proper motor power as an insufficient power could cause overheating while a too powerful motor could reduce the effect of the flywheel progression.

PV series motors are designed with a special rotor to reduce the starting (locked rotor) current so to allow heavy start/stop duty cycle, even if the starting period doesn't have to be too long in order to avoid overheating.

BAPV series motors provide a reduced brake torque, resulting in a really progressive braking action. The brake torque of BAPV motors is about the half of the corresponding BA standard brake motors while BM and BMPV series motors have the same brake torque.

BAPV motors are fitted with a flywheel strongly secured to the motor shaft while BMPV motors are fitted with cast-iron cooling fan replacing the thermoplastic one.

PV series motors are available with the following features or option:

- Separate brake supply,
- Manual brake release,
- Suitable for mounting in any position (vertical, horizontal, etc.)
- Two speeds

The table below shows the moment of inertia increase (Kgm<sup>2</sup>) for BAPV and BMPV series.

Motor Type	63	71	80	90	100	112	132	160
BAPV	-	$2.97 \cdot 10^{-3}$	$6.78 \cdot 10^{-3}$	$1.11 \cdot 10^{-2}$	$1.82 \cdot 10^{-2}$	$2.89 \cdot 10^{-2}$	$5.8 \cdot 10^{-2}$	$14.3 \cdot 10^{-2}$
BMPV	$3.1 \cdot 10^{-4}$	$1.93 \cdot 10^{-3}$	$3.12 \cdot 10^{-3}$	$9.97 \cdot 10^{-3}$	$1.52 \cdot 10^{-2}$	$1.52 \cdot 10^{-2}$	-	-

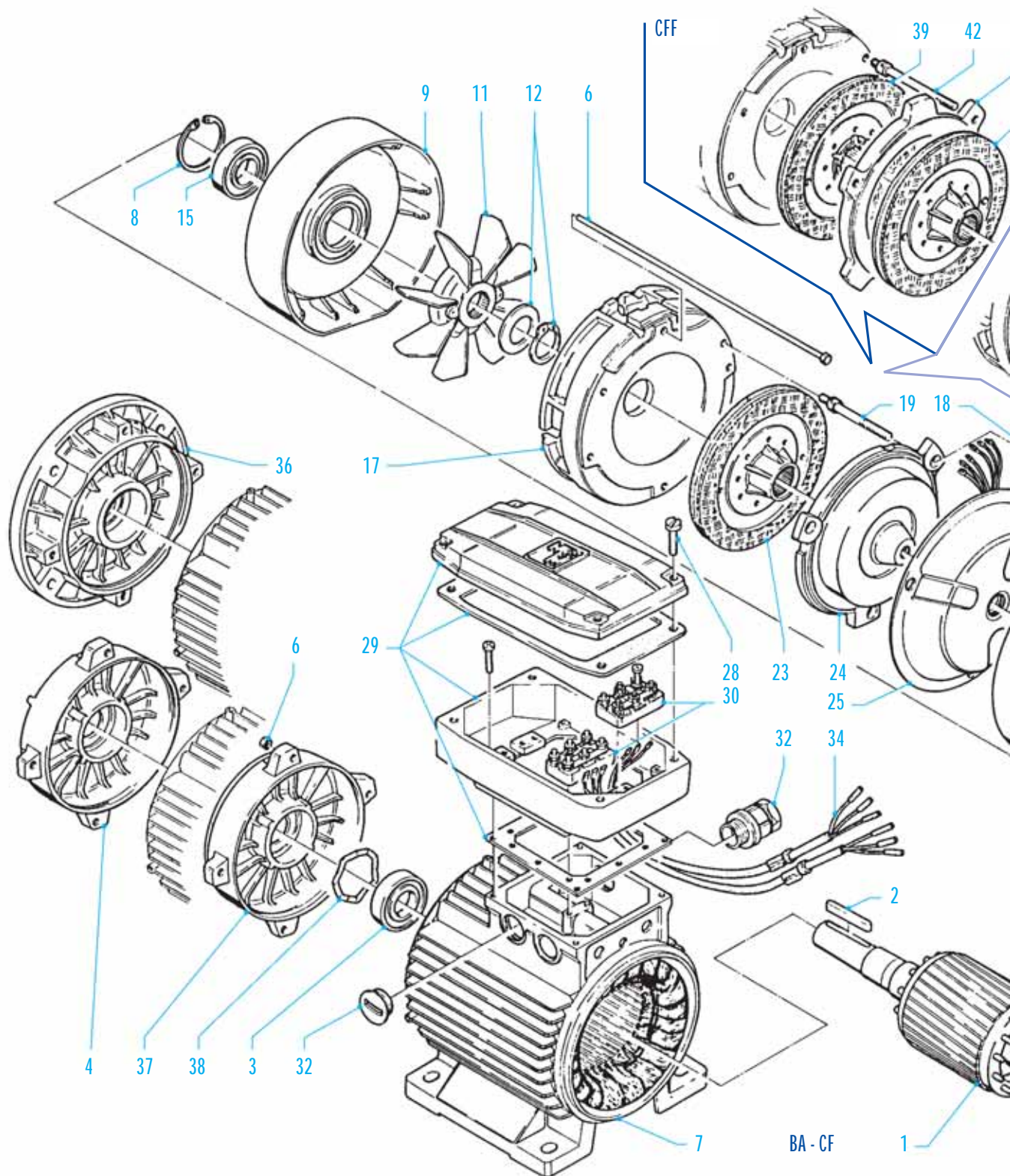
The total moment of inertia of a chosen motor is the moment of inertia of a standard brake motor (see motors technical data) plus the flywheel moment of inertia (shown in table above).

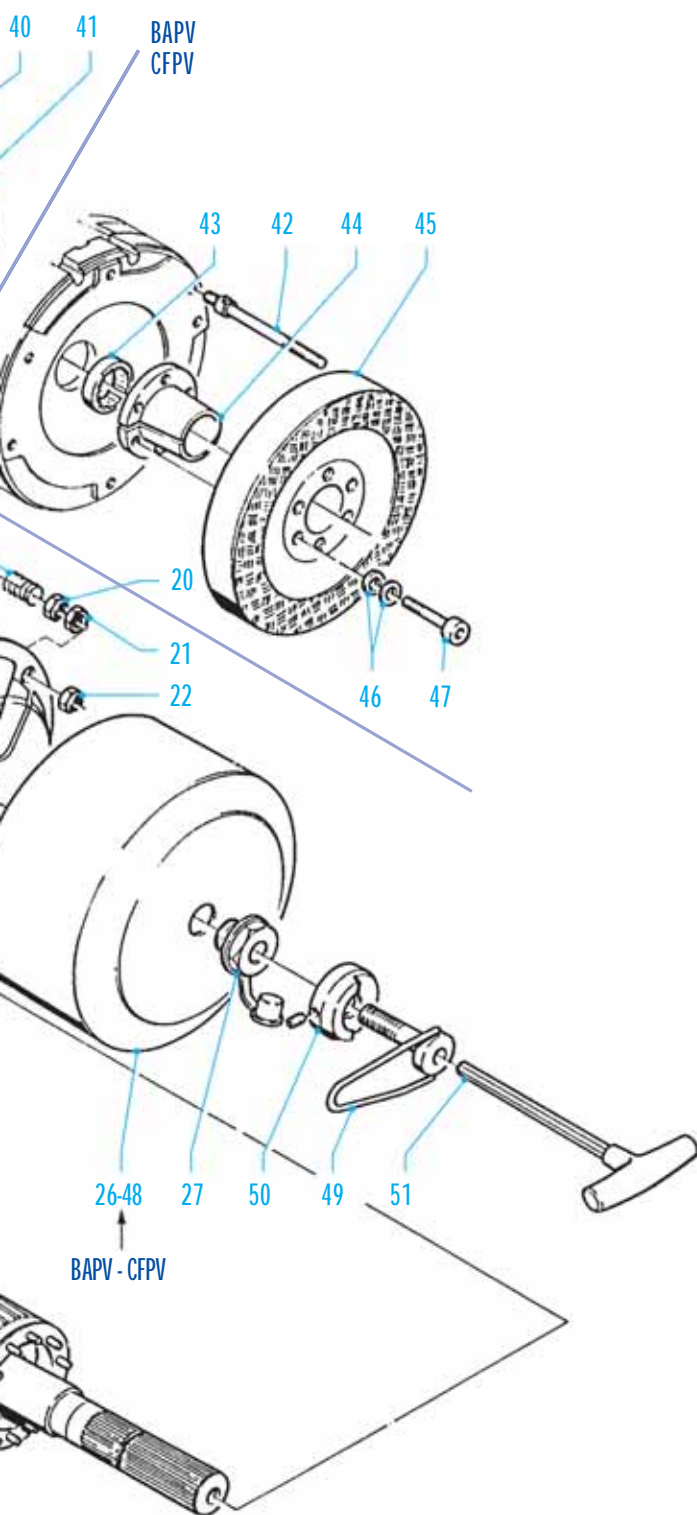
Example: moment of inertia of BAPV 71 B4 = moment of inertia of BA 71 B4 + flywheel type BAPV 71 B4 moment of inertia =  $8.1 \cdot 10^{-4} + 2.97 \cdot 10^{-3} = 3.78 \cdot 10^{-3}$  Kgm<sup>2</sup>.

The table below shows the maximum brake torque (Nm) for BMPV with DC brake and BAPV motors with AC brake or DC brake:

Motor Type	63	71	80	90	100	112	132	160
BMPV	5	5	10	20	40	60	-	-
BAPV - A.C.	-	7	9	19	25	40	75	95
BAPV - D.C.	-	4.5	7.5	15	21	30	60	77

M.G.M. motori elettrici S.p.A. is present in more than 40 countries around the world with sales/parts outlets and customer service. Please contact MGM customer assistance to find further information about MGM in the world. To clearly identify a spare part it's necessary to provide the item number (shown on the drawing below), the motor type, the rated voltage and frequency supply for electric parts such as the stator, the brake coil and the rectifier. For all spare parts belonging to BA 250-280 series, we pls you to contact us.





Complete rotor	1
Key	2
Bearing Drive End side	3
Endshield Drive End (front cover)	4
Tie rod assembly	6
Stator frame	7
Circlip	8
Endshield brake side (rear cover)	9
Fan	11
Fan fixing accessories	12
Bearing Non Drive Side	15
Brake Friction Surface	17
Spring	18
Brake adjuster	19
Brake torque adjuster locknut	20
Air gap adjusting nut	21
Brake coil locknut	22
Brake Disc	23
Brake Moving Element	24
Brake Coil	25
Brake Cover (BA-CF)	26
Hexagonal Rear Nut (socket head nut)	27
Terminal Box Screws	28
Terminal Box (single or double)	29
Terminal Board	30
Cable Gland	32
Brake Coil Connection Cables	34
Flange B5 (Flange Mounting)	36
Flange B14 (Face Mounting)	37
Elastic Washer	38
Brake Disc (BAF-CFF)	39
Additional Brake surface (BAF-CFF)	40
Additional Brake Disc (BAF-CFF)	41
Long Brake Adjuster (BAPV-BAF-CFF-CFPV)	42
Spacer (BAPV-CFPV)	43
Taper Bush (BAPV-CFPV)	44
Flywheel (BAPV-CFPV)	45
Elastic Washer (BAPV-CFPV)	46
Taper bush fixing screws (BAPV-CFPV)	47
Brake Cover (BAPV-BAF-CFPV-CFF)	48
Brake Release Screw	49
Fulcrum Hub for brake release (on request only)	50

Size	BA 71	BA 80	BA 90 S	BA 90 L	BA 100 L	BA 112 M	BA 132 S	BA 132 M	BA 160 M	BA 160 L	BA 180 L	BA 200 L	BA 225 S	BA 225 M	BA 250M	BA 280 S	BA 280 M
A	112	125	140	140	160	190	216	216	254	254	279	318	356	356	406	457	457
B	90	100	100	125	140	140	140	178	210	254	279	305	286	311	349	368	419
C	45	50	56	56	63	70	89	89	108	108	121	133	149	149	168	190	190
D*	14	19	24	24	28	28	38	38	42	42	48	55	60	60	65	65	75
d	M5	M6	M8	M8	M10	M10	M12	M12	M16	M16	M16	M16	M16	M16	M20	M20	M20
E*	30	40	50	50	60	60	80	80	110	110	110	110	140	140	140	140	140
Fa	9.5	11.5	11.5	11.5	14.5	14.5	14.5	14.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5
Fb	M6	M6	M8	M8	M8	M8	M10	M10									
f	5	6	8	8	8	8	10	10	12	12	14	16	18	18	18	18	20
g	11	15.5	20	20	24	24	33	33	37	37	42.5	49	53	53	53	58	67.5
H	71	80	90	90	100	112	132	132	160	160	180	200	225	225	250	280	280
h	5	6	7	7	7	7	8	8	8	8	9	10	11	11	11	11	12
I	7	10	10	10	12	12	12	12	14.5	14.5	15	18.5	18	18	22	24	24
K	10.5	14	14	14	16	16	22	22	24	24	24	30	33	33	33	24	24
L	148	162	171	196	217	229											
L1	184	194	207	232	254	262	294	339	373	395	420	446	440	440	436	436	436
Ma	130	165	165	165	215	215	265	265	300	300	300	350	400	400	500	500	500
Mb	85	100	115	115	130	130	165	165									
Na	110	130	130	130	180	180	230	230	250	250	250	300	350	350	450	450	450
Nb	70	80	95	95	110	110	130	130									
Oa	3.5	3.5	3.5	3.5	4	4	4	4	5	5	5	5	5	5	5	5	5
Ob	2.5	3	3	3	3.5	3.5	3.5	3.5									
Pa	160	200	200	200	250	250	300	300	350	350	350	400	450	450	550	550	550
Pb	105	120	140	140	160	160	200	200									
Q	344	380	412	436	487	505	600	640	745	789	865	890	995	1000	1155	1155	1210
QBAF-BAPV	368	403	436	460	511	531	634	672	765	809	907	932	1014	1035			
R	80	80	98.5	98.5	98.5	98.5											
R1	135	135	170	170	170	170	199	199	268	268	268	268	327	327	327	327	327
S	10	12	12	12	14	14	15	15	15	15	15	15	20	20	18	18	18
V	8	9.5	10.5	10.5	12.5	13.5	16	16	21	21	24	24	32	32	32	40	40
W	105	113	127	127	138	158			165	165	188	188	224	224	252	252	252
W1	121	130	148	148	162	176	215	215	246	246	266	266	341	341	361	361	361
Y	145	160	180	180	196	218	265	265	324	324	357	357	430	430	493	493	493
Z	75	75	98.5	98.5	98.5	98.5											
Z1	86	86	112	112	112	112	151	151	167	167	167	167	202	202	202	202	202

\* 225S-225M 2 pole D=55 E=110, 250M 2 pole D=160 E=140, 280S-280M 2 pole D=65 E=140

- Notes:
- QBAF is the Q dimension for BAF series
  - QBAPV is the Q dimension for BAPV series
  - Cable glands are M 20 on size 71 up to 80
  - M 25 on size 90 up to 112
  - M 32 on size 132