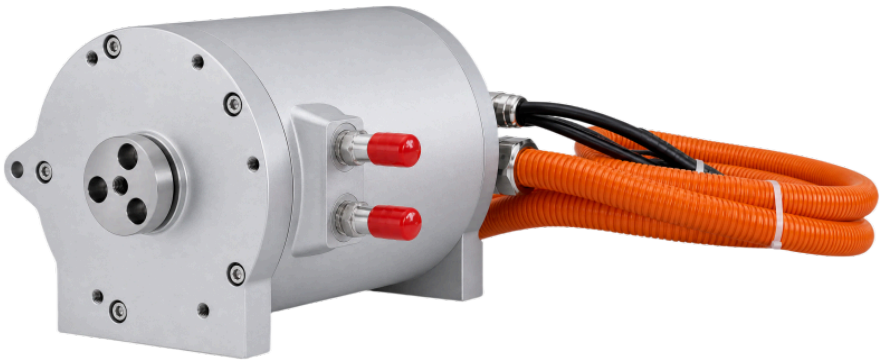
PERMANENT MAGNET SERIES

GTYPS

GTYPS SERIES WATER-COOLED HIGH EFFICIENCY HIGH SPEED PERMANENT MAGNET VARIABLE FREQUENCY SYNCHRONOUS MOTOR

Water-cooled high-speed permanent magnet motor for direct drive, to be used only with a permanent magnet motor inverter.



1.1–200 kW	H71–H160	333–833 Hz	IP54/55/67
RATED OUTPUT	FRAME CENTRE HEIGHT	BASE FREQUENCY	DEGREE OF PROTECTION

SERIES
GTYPS

REVISION
A01

ISSUE
September 2026

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DESCRIPTION

The rotor uses an interior permanent magnet structure; the differing d-axis and q-axis magnetic circuits give the machine a degree of saliency torque. Speed is synchronous with the stator field, so there is no slip and no slip loss, and efficiency stays high across the whole speed range.

Cooling is by water, which dissipates heat well. The motor is small and light, efficient, and allows the driven machine to be direct-driven.

TECHNICAL SPECIFICATION

Frame centre height	H71–H160 mm, H71–H132 mm
Rated output power	1.1 kW–200 kW
Rated voltage and frequency	380 V, 333 Hz · 500 Hz · 667 Hz · 833 Hz
Degree of protection	IP54 · IP55 · IP67
Thermal class	180 (H), evaluated to Class B temperature rise
Method of cooling	Water-cooled
Altitude	Not exceeding 1,000 m (3,280 ft)
Ambient temperature	−15 °C to +40 °C (5 °F to 104 °F)
Duty type	S1, continuous duty
Mounting arrangements	IM B3 (foot), IM B5 (flange), IM B35 (foot and flange)

MODEL DESIGNATION

The type designation is formed as follows, shown for **GTYPS 71M – 4**.

GTYPS	71	M	4
SERIES	FRAME	LENGTH	POLES
Series code	Frame centre height, mm	Frame length and core length	Number of poles

READING A DESIGNATION

All ratings listed in the brochure are 4-pole.

TYPICAL APPLICATIONS

- Centrifugal fans
- Air knife machines
- Vacuum pumps
- Hydrogen energy vehicles

NOTES

MOUNTING DIMENSIONS

Mounting dimensions can be built to a customer's requirement.

RATED DATA

The series is inverter-fed. Ratings below are grouped by synchronous speed with the corresponding base frequency; the constant-torque frequency band is stated with each group.

SYNCHRONOUS SPEED 10000 R/MIN · CONSTANT TORQUE 5–333 HZ

TYPE	RATED OUTPUT kW	RATED TORQUE N·m	RATED EFFICIENCY %
GTYPS71M-4	1.1	1.1	85.2
GTYPS71M1-4	1.5	1.4	86.5
GTYPS71M2-4	2.2	2.1	88.0
GTYPS71M2-4	3	2.9	89.1
GTYPS71M3-4	4	3.8	90.0
GTYPS71M3-4	5.5	5.3	90.9
GTYPS71M4-4	7.5	7.2	91.7
GTYPS71M5-4	11	10.5	92.6
GTYPS80M-4	15	14.3	93.3
GTYPS80M1-4	18.5	17.7	93.7
GTYPS80M2-4	22	21	94.0
GTYPS80M3-4	30	28.7	94.5
GTYPS132M-4	37	35.3	94.8
GTYPS132M1-4	45	—	95.0
GTYPS132M2-4	55	52.5	95.3
GTYPS132M3-4	60	57.3	95.4
GTYPS132M4-4	75	71.6	95.6
GTYPS160M-4	90	86	95.8
GTYPS160M1-4	110	105	96.0
GTYPS160M2-4	132	126	96.2
GTYPS160M3-4	160	153	96.3
GTYPS160M4-4	185	177	96.5

SYNCHRONOUS SPEED 15000 R/MIN · CONSTANT TORQUE 5–500 HZ

TYPE	RATED OUTPUT kW	RATED TORQUE N·m	RATED EFFICIENCY %
GTYPS71M2-4	11	7	92.6
GTYPS80M-4	15	9.6	93.3
GTYPS80M1-4	18.5	11.8	93.7
GTYPS80M2-4	22	14	94.0
GTYPS80M3-4	30	19.1	94.5
GTYPS80M4-4	37	23.6	94.8
GTYPS132M-4	45	28.7	95.0
GTYPS132M1-4	55	35	95.3
GTYPS132M2-4	60	38.2	95.4
GTYPS132M3-4	75	47.8	95.6
GTYPS160M-4	90	57.3	95.8
GTYPS160M1-4	110	70	96.0
GTYPS160M2-4	132	84	96.2
GTYPS160M3-4	160	102	96.3
GTYPS160M4-4	185	118	96.5

SYNCHRONOUS SPEED 20000 R/MIN · CONSTANT TORQUE 5–667 HZ

TYPE	RATED OUTPUT kW	RATED TORQUE N·m	RATED EFFICIENCY %
GTYPS71M-4	1.1	0.5	85.2
GTYPS71M-4	1.5	0.7	86.5
GTYPS71M-4	2.2	1.1	88.0
GTYPS71M-4	3	1.4	89.1
GTYPS71M-4	4	1.9	90.0
GTYPS71M-4	5.5	2.6	90.9
GTYPS71M1-4	7.5	3.6	91.7
GTYPS71M2-4	11	5.3	92.6
GTYPS71M3-4	15	7.2	93.3
GTYPS80M-4	18.5	8.8	93.7
GTYPS80M1-4	22	10.5	94.0
GTYPS80M1-4	30	14.3	94.5
GTYPS80M2-4	37	17.7	94.8
GTYPS80M2-4	45	21.5	95.0
GTYPS80M3-4	55	26.3	95.3
GTYPS132M-4	60	28.7	95.4
GTYPS132M1-4	75	35.8	95.6
GTYPS132M2-4	90	43	95.8

SYNCHRONOUS SPEED 20000 R/MIN · CONSTANT TORQUE 5–667 HZ (CONTINUED)

TYPE	RATED OUTPUT kW	RATED TORQUE N·m	RATED EFFICIENCY %
GTYPS160M-4	110	52.5	96.0
GTYPS160M1-4	132	63	96.2
GTYPS160M2-4	160	76.4	96.3
GTYPS160M3-4	185	88.3	96.5

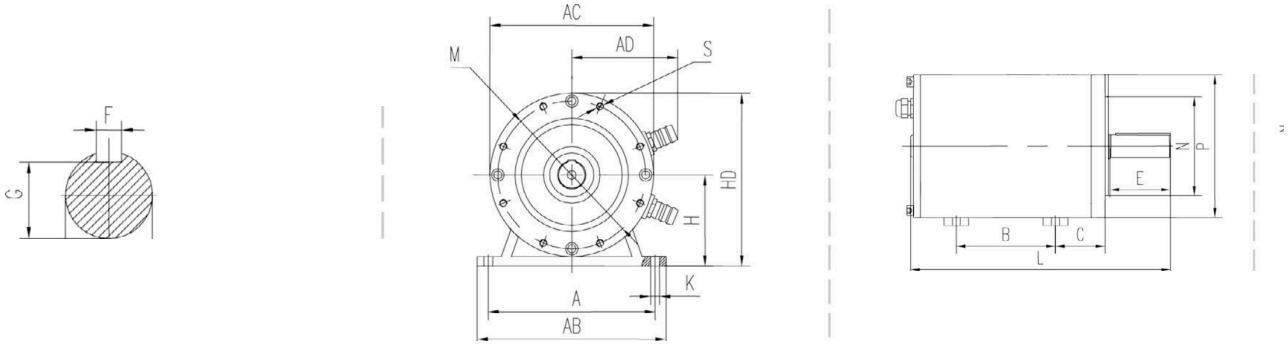
SYNCHRONOUS SPEED 25000 R/MIN · CONSTANT TORQUE 5–833 HZ

TYPE	RATED OUTPUT kW	RATED TORQUE N·m	RATED EFFICIENCY %
GTYPS71M-4	1.1	0.4	85.2
GTYPS71M-4	1.5	0.6	86.5
GTYPS71M-4	2.2	0.8	88.0
GTYPS71M1-4	3	1.1	89.1
GTYPS71M1-4	4	1.5	90.0
GTYPS71M1-4	5.5	2.1	90.9
GTYPS71M2-4	7.5	2.9	91.7
GTYPS71M2-4	11	4.2	92.6
GTYPS71M3-4	15	5.7	93.3
GTYPS80M-4	18.5	7.1	93.7
GTYPS80M1-4	22	8.4	94.0
GTYPS80M2-4	30	11.5	94.5
GTYPS80M3-4	37	14.1	94.8
GTYPS80M4-4	45	17.2	95.0
GTYPS132S-4	55	21.0	95.3
GTYPS132S1-4	60	22.9	95.4
GTYPS132M-4	75	28.7	95.6
GTYPS132M1-4	90	34.4	95.8
GTYPS160M-4	110	42	96.0
GTYPS160M1-4	132	50.4	96.2
GTYPS160M2-4	160	61.1	96.3
GTYPS160M3-4	185	70.7	96.5
GTYPS160M4-4	200	76.4	96.5

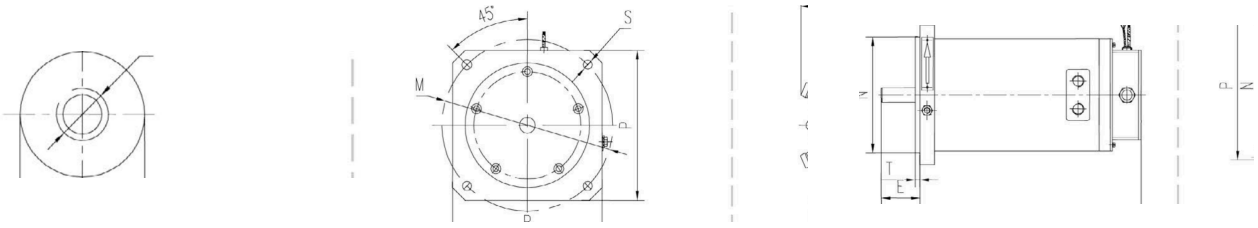
MOUNTING ARRANGEMENTS

The series is supplied in the following arrangements to IEC 60034-7. Letters on the drawings are the dimension symbols used in the outline and mounting dimension schedule.

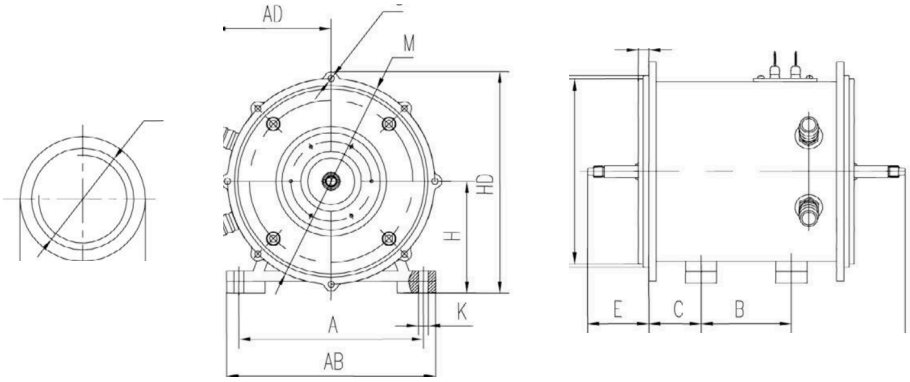
IM B3 FOOT MOUNTING



IM B5 FLANGE MOUNTING



IM B35 FOOT AND FLANGE MOUNTING



ABOUT THESE DRAWINGS

The drawings show a representative frame for each arrangement and are not to scale. Dimensions for a specific frame size are given in the outline and mounting dimension schedule.

OUTLINE AND MOUNTING DIMENSIONS

Principal dimensions are given below. The complete dimension schedule, including tolerances and flange details, is issued on request.

PRINCIPAL OUTLINE AND MOUNTING DIMENSIONS (MM)

FRAME	D	E	F	K / M / N	R	S	T	L
71M	25(-0.007~-0.02)	50(0~-0.5)	M8	N=206,150,0(-0.03)	0	12	6(0.05/0)	290
71M1	as above	as above	as above	as above	as above	as above	as above	300
71M2	as above	as above	as above	as above	as above	as above	as above	310
71M3	as above	as above	as above	as above	as above	as above	as above	320
71M4	as above	as above	as above	as above	as above	as above	as above	330
71M5	as above	as above	as above	as above	as above	as above	as above	340
80M	as above	as above	as above	as above	as above	as above	as above	290
80M1	as above	as above	as above	as above	as above	as above	as above	300
80M2	as above	as above	as above	as above	as above	as above	as above	310
80M3	as above	as above	as above	as above	as above	as above	as above	320
80M4	as above	as above	as above	as above	as above	as above	as above	330
132S	25(0.015~0.01)	88(0~-0.2)	M16	K=162, M=298, N=278(-0.025~-0.065)	0	9	15(0.05/-0.05)	442
132S1	as above	as above	as above	as above	as above	as above	as above	457
132M	as above	as above	as above	as above	as above	as above	as above	472
132M1	as above	as above	as above	as above	as above	as above	as above	487
132M2	as above	as above	as above	as above	as above	as above	as above	502
132M3	as above	as above	as above	as above	as above	as above	as above	517
132M4	as above	as above	as above	as above	as above	as above	as above	532

PRINCIPAL OUTLINE AND MOUNTING DIMENSIONS (MM) (CONTINUED)

FRAME	D	E	F	K / M / N	R	S	T	L
160M	as above	as above	as above	as above	as above	as above	as above	472
160M1	as above	as above	as above	as above	as above	as above	as above	487
160M2	as above	as above	as above	as above	as above	as above	as above	502
160M3	as above	as above	as above	as above	as above	as above	as above	517
160M4	as above	as above	as above	as above	as above	as above	as above	532

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