

DC-SERVO MOTORS

with brushed drive

DC 110 SD 48V



- brushed
- small & compact
- Protection IP43

ORDERING DATA

DC 110 SD 48V
Part no. 471023 0020
DC 110 SD 48V with brake
Part no. 471023 0021

CHARACTERISTICS

- permanently energized DC shunt motor
- incremental position encoder / encoder integrated in the motor - supply 5VDC, RS422, tracks A, / A, B, / B, Z, / Z,
- applications: positioning controls, CNC controls
- optionally with holding brake
- recommended control electronics see catalog

TECHNICAL SPECIFICATIONS	without brake	with brake
Type	Close (IP43)	
Exciting method	permanent magnet	
Rating	cont.	
Rated output [W]	110	
Rated armature voltage [V]	48	
Rated torque [N·m]	0.29	
Rated armature current [A]	3	
Rated speed [min ⁻¹]	3500	
Continuous torque at stall [N·m]	0.35	
Peak torque [N·m]	2.16	
Armature current at stall [A]	3.2	
Peak armature current [A]	20	
Maximum speed [min ⁻¹]	5000	
Rated power rate [kW/S]	2.3	
Torque constant [N·m/A]	0.12 ± 10%	
Voltage constant [V/min ⁻¹]	12.1 x 10 ⁻³ ± 10%	
Rotor moment of inertia [kg·m ²]	0.037 x 10 ⁻³	
Ambient temperature	0 ~ +40°C	
Ambient humidity	20 ~ 90% without condensation	
Armature resistance [Ω]	1.57	

TECHNICAL SPECIFICATIONS	without brake	with brake
Armature inductance [mH]	1.04	
Mechanical time constant [msec]	4.4	
Electrical time constant [msec]	0.66	
Insulation class	F	
Maximum temperature rise [K]	—	105
Insulation resistance [M Ω]	10 min. (DC500V megger)	
Dielectric strength [V]	1500 (AC50/60Hz1 min)	
Voltage (DC) [V]	—	24 ± 10%
Current [A]	—	0.21
Holding torque [N·m]	—	0.29
Moment of inertia [kg·m ²]	—	0.001 x 10 ⁻³
Winding resistance [Ω]	—	115
Insulation resistance [M Ω]	—	10 min. (DC500V megger)
Dielectric strength [V]	—	600 (AC50/60Hz1 min)
Weight [kg]	1.1	1.36

Measuring system	sensor	Incremental, RS422, ABZ, 1000 PPR
	supply voltage	5V DC +/- 5%
	current consumption	I max = 140 mA

PIN ASSIGNMENT

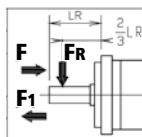
Power Line				with brake	
Color	rot	blau	green/yellow	orange	orange
Function	+ U Motor	- U Motor	PE	brake	brake

Encoderkabel								
PIN No.	1	2	3	4	5	6	7	8
Color	black	red	blue	brown	green	violet	white	yellow
Function	Gnd	Vcc + 5V	Sig. A	Sig. A\	Sig. B	Sig. B\	Sig. Z	Sig. Z\

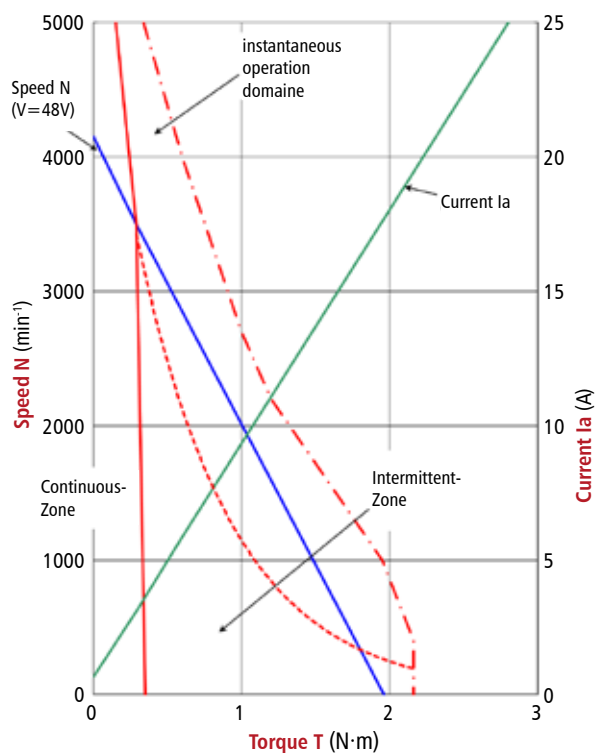
Connector: JST Serie PH, Contact: BPH-002T-P0.5S, Casing: PHR-8

PERMISSIBLE SHAFT LOAD

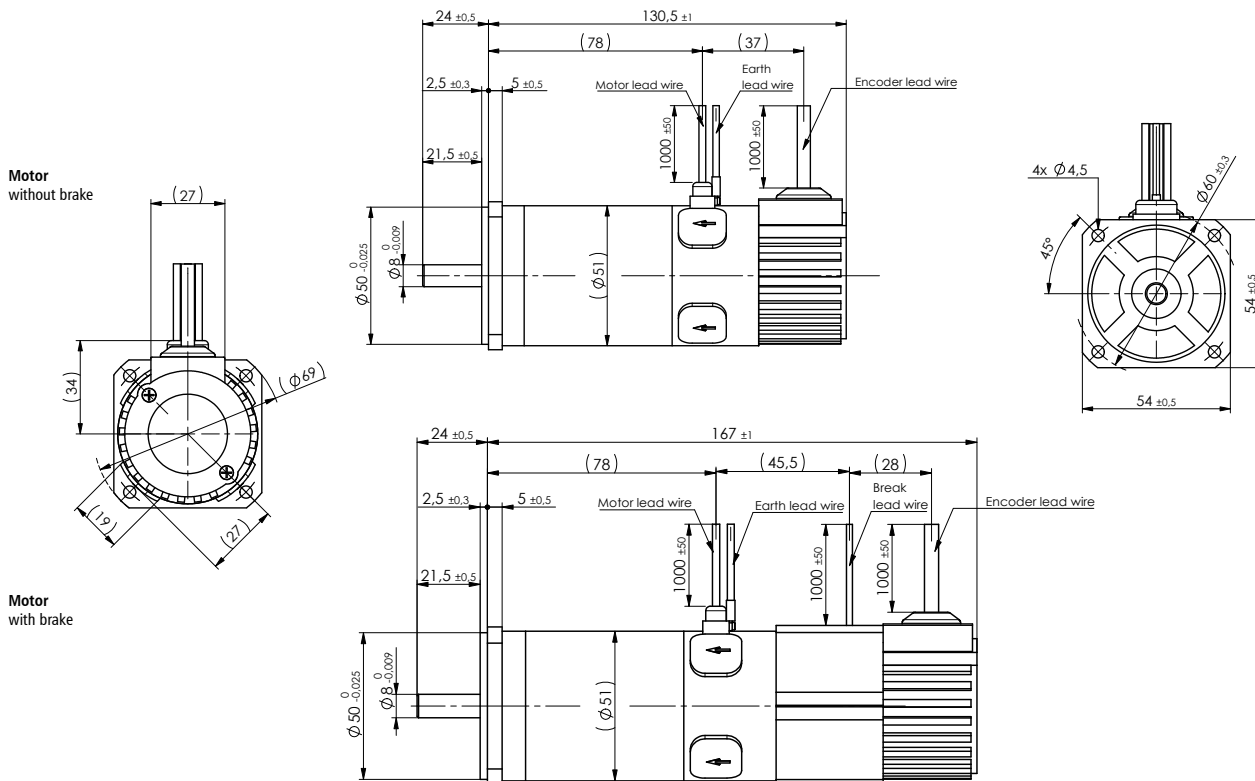
	Symbol	Assembly	Operating
Radial Load	F_R	150 N	100 N
Axial Load	F	200 N	30 N
	F₁	150 N	30 N



CHARACTERISTIC CURVE



DIMENSIONED DRAWINGS



DC-SERVO MOTORS

with brushed drive

DC 110 SD 75V



- brushed
- small & compact
- Protection IP43

ORDERING DATA

DC 110 SD 75V
Part no. 471040

DC 110 SD 75V with brake
Part no. 471040 0001

CHARACTERISTICS

- permanently energized DC shunt motor
- incremental position encoder / encoder integrated in the motor - supply 5VDC, RS422, tracks A, / A, B, / B, Z, / Z,
- applications: positioning controls, CNC controls
- optionally with holding brake
- recommended control electronics see catalog

TECHNICAL SPECIFICATIONS	without brake	with brake
Type	Close (IP43)	
Exciting method	permanent magnet	
Rating	cont.	
Rated output [W]	110	
Rated armature voltage [V]	75	
Rated torque [N·m]	0.34	
Rated armature current [A]	2.0	
Rated speed [min ⁻¹]	3000	
Continuous torque at stall [N·m]	0.42	
Peak torque [N·m]	3.4	
Armature current at stall [A]	2.1	2.2
Peak armature current [A]	18	
Maximum speed [min ⁻¹]	5000	
Rated power rate [kW/S]	3.2	
Torque constant [N·m/A]	0.21 ± 10%	
Voltage constant [V/min ⁻¹]	21.8 x 10 ⁻³ ± 10%	
Rotor moment of inertia [kg·m ²]	0.037 x 10 ⁻³	
Ambient temperature	0 ~ +40°C	
Ambient humidity	20 ~ 90% without condensation	
Armature resistance [Ω]	4.8	5.1

TECHNICAL SPECIFICATIONS	without brake	with brake
Armature inductance [mH]	2.4	3.2
Mechanical time constant [msec]	4.1	4.3
Electrical time constant [msec]	0.5	0.63
Insulation class	F	
Maximum temperature rise [K]		105
Insulation resistance [M Ω]	10 min. (DC500V megger)	
Dielectric strength [V]	1500 (AC50/60Hz1min)	
Voltage (DC) [V]	–	24 ± 10%
Current [A]	–	0.21
Holding torque [N·m]	–	0.29
Moment of inertia [kg·m ²]	–	0.001 x 10 ⁻³
Winding resistance [Ω]	–	115
Insulation resistance [M Ω]	–	10 min. (DC500V megger)
Dielectric strength [V]	–	600 (AC50/60Hz1min)
Weight [kg]	1.1	1.46

Measuring system	sensor	Incremental, RS422, ABZ, 1000 PPR
	supply voltage	5V DC +/- 5%
	current consumption	I max = 140 mA

PIN ASSIGNMENT

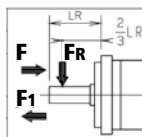
Power Line				with brake	
Color	rot	blau	green/yellow	orange	orange
Function	+ U Motor	- U Motor	PE	brake	brake

Encoderkabel								
PIN No.	1	2	3	4	5	6	7	8
Color	black	red	blue	brown	green	violet	white	yellow
Function	Gnd	Vcc + 5V	Sig. A	Sig. A\	Sig. B	Sig. B\	Sig. Z	Sig. Z\

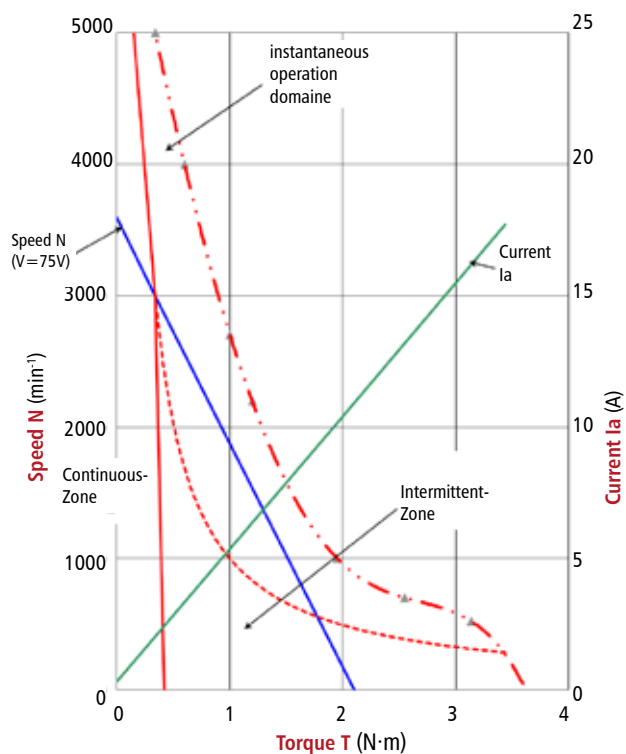
Connector: JST Serie PH, Contact: BPH-002T-P0.5S, Casing: PHR-8

PERMISSIBLE SHAFT LOAD

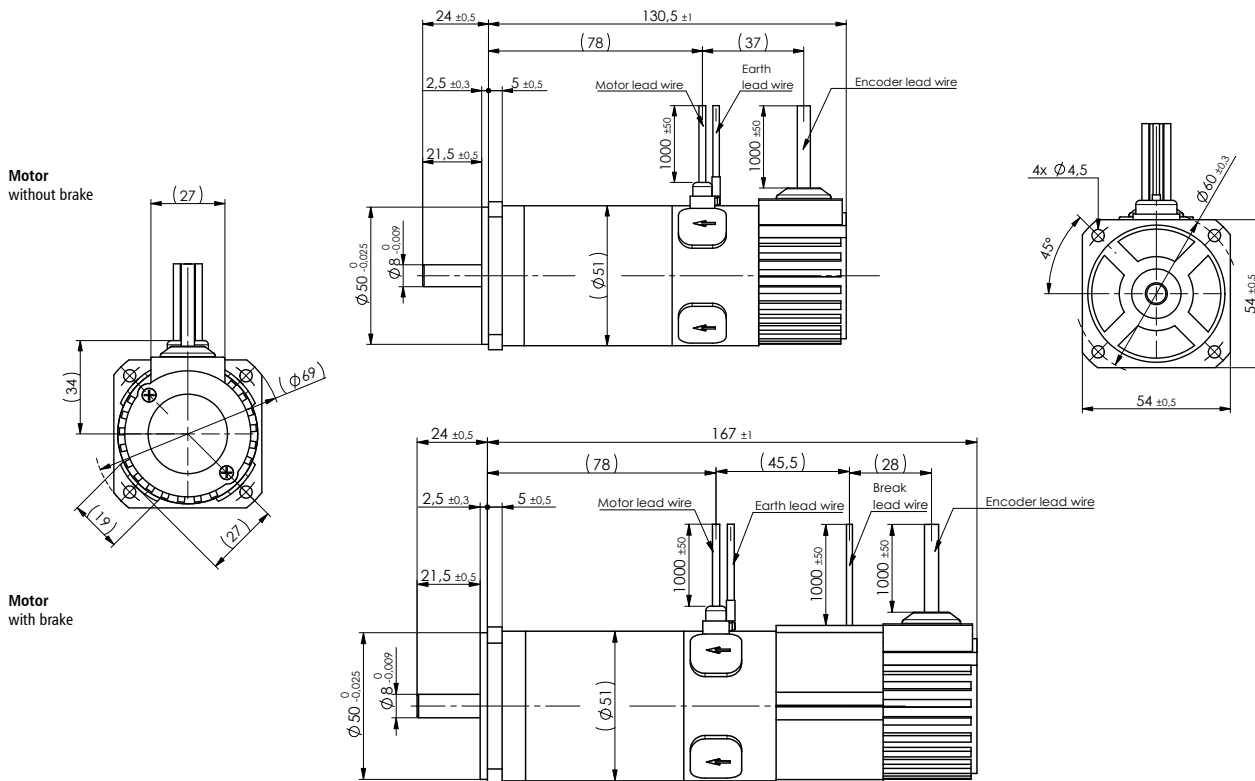
	Symbol	Assembly	Operating
Radial Load	F_R	150 N	100 N
Axial Load	F	200 N	30 N
	F₁	150 N	30 N



CHARACTERISTIC CURVE



DIMENSIONED DRAWINGS



DC-SERVO MOTOR

with brushed drive

DC 300 SD 75V



- brushed
- small & compact
- Protection IP43

ORDERING DATA

DC 300 SD 75V
Part no. 471016

CHARACTERISTICS

- permanently energized DC shunt motor
- incremental position encoder / encoder integrated in the motor - supply 5VDC, RS422, tracks A, / A, B, / B, Z, / Z,
- applications: positioning controls, CNC controls
- recommended control electronics see catalog

TECHNICAL SPECIFICATIONS

Type	Close (IP43)
Exciting method	permanent magnet
Rating	cont.
Rated output [W]	300
Rated armature voltage [V]	75
Rated torque [N·m]	1.18
Rated armature current [A]	5.2
Rated speed [min ⁻¹]	2500
Continuous torque at stall [N·m]	1.43
Peak torque [N·m]	9.8
Armature current at stall [A]	5.5
Peak armature current [A]	40
Maximum speed [min ⁻¹]	4000
Rated power rate [kW/S]	5.1
Torque constant [N·m/A]	0.273 ± 10%
Voltage constant [V/min ⁻¹]	28.6 x 10 ⁻³ ± 10%

TECHNICAL SPECIFICATIONS

Rotor moment of inertia [kg·m ²]	0.270 x 10 ⁻³
Ambient temperature	0 ~ +40°C
Ambient humidity	20 ~ 90% without condensation
Armature resistance [Ω]	1.1
Armature inductance [mH]	1.6
Mechanical time constant [msec]	4.0
Electrical time constant [msec]	1.5
Insulation class	F
Insulation resistance [M Ω]	10 min. (DC500V megger)
Dielectric strength [V]	1500 (AC50/60Hz1min)
Weight [kg]	3.1

Measuring system	sensor	Incremental, RS422, ABZ, 1000 PPR
	supply voltage	5V DC +/- 5%
	current consumption	I max = 140 mA

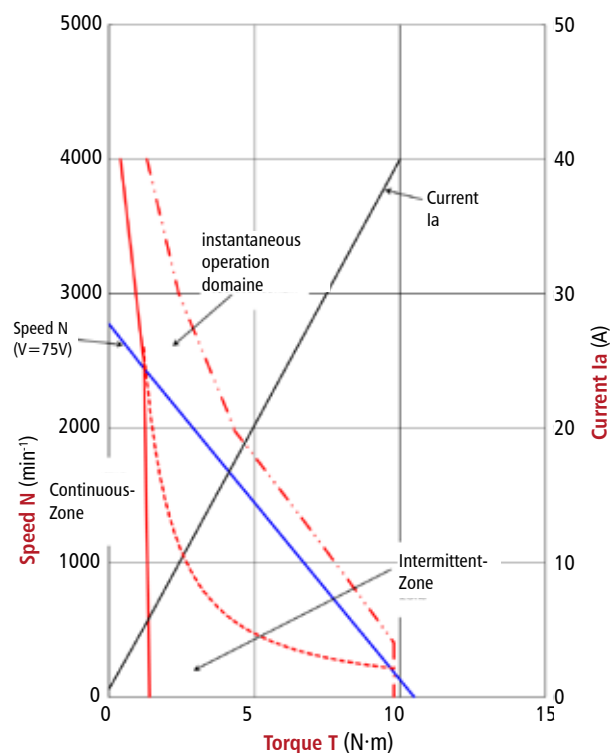
PIN ASSIGNMENT

Power Line				with brake	
Color	rot	blau	green/yellow	orange	orange
Function	+ U Motor	- U Motor	PE	brake	brake

Encoderkabel								
PIN No.	1	2	3	4	5	6	7	8
Color	black	red	blue	brown	green	violet	white	yellow
Function	Gnd	Vcc + 5V	Sig. A	Sig. A\	Sig. B	Sig. B\	Sig. Z	Sig. Z\

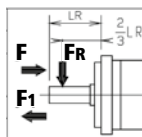
Connector: JST Serie PH, Contact: BPH-002T-P0.5S, Casing: PHR-8

CHARACTERISTIC CURVE

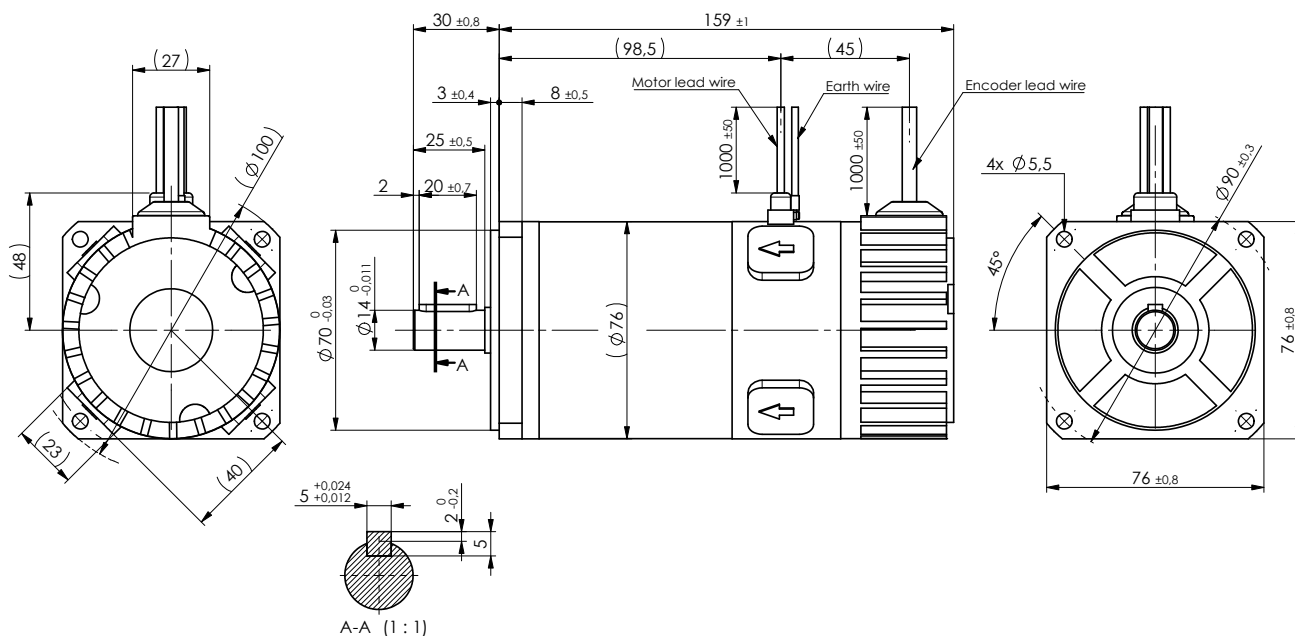


PERMISSIBLE SHAFT LOAD

	Symbol	Assembly	Operating
Radial Load	F_R	250 N	200 N
Axial Load	F	500 N	50 N
	F_1	200 N	50 N



DIMENSIONED DRAWINGS





DC-SERVO MOTOR

with brushed drive

DC 500 SD 80V



- brushed
- small & compact
- Protection IP43

ORDERING DATA

DC 300 SD 75V
Part no. 471017

CHARACTERISTICS

- permanently energized DC shunt motor
- incremental position encoder / encoder integrated in the motor - supply 5VDC, RS422, tracks A, / A, B, / B, Z, / Z,
- applications: positioning controls, CNC controls
- recommended control electronics see catalog

TECHNICAL SPECIFICATIONS

Type	Close (IP43)
Exciting method	permanent magnet
Rating	cont.
Rated output [W]	500
Rated armature voltage [V]	80
Rated torque [N·m]	1.96
Rated armature current [A]	7.6
Rated speed [min ⁻¹]	2500
Continuous torque at stall [N·m]	2.16
Peak torque [N·m]	16.7
Armature current at stall [A]	7.6
Peak armature current [A]	62
Maximum speed [min ⁻¹]	3000
Rated power rate [kW/S]	6.4
Torque constant [N·m/A]	0.287 ± 10%
Voltage constant [V/min ⁻¹]	30 x 10 ⁻³ ± 10%

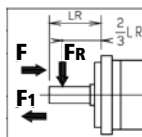
TECHNICAL SPECIFICATIONS

Rotor moment of inertia [kg·m²]	0.6 x 10 ⁻³	
Ambient temperature	0 ~ +40°C	
Ambient humidity	20 ~ 90% without condensation	
Armature resistance [Ω]	0.56	
Armature inductance [mH]	1.1	
Mechanical time constant [msec]	4.9	
Electrical time constant [msec]	2.0	
Insulation class	F	
Insulation resistance [M Ω]	10 min. (DC500V megger)	
Dielectric strength [V]	1500 (AC50/60Hz1min)	
Weight [kg]	4.25	
Measuring system	sensor	Inremental, RS422, ABZ, 1000 PPR
	supply voltage	5V DC +/- 5%
	current consumption	I max = 140 mA

Power Line				with brake	
Color	rot	blau	green/yellow	orange	orange
Function	+ U Motor	- U Motor	PE	brake	brake

Connector: JST Serie PH, Contact: BPH-002T-P0.5S, Casing: PHR-8

	Symbol	Assembly	Operating
Radial Load	F_R	250 N	200 N
Axial Load	F	500 N	50 N
	F₁	200 N	50 N



Technical drawing of the H100 encoder showing three views: front, side, and rear. The front view shows a circular body with a central shaft (Ø12) and mounting holes. The side view shows the encoder's profile with dimensions for mounting (35 ± 0.8, 181 ± 1), cable lengths (119, 46.5), and cable types (Motor lead wire, Earth lead wire, Encoder lead wire). The rear view shows the mounting flange with 4x Ø6.6 holes and a 45° chamfer. A detail view A-A shows the shaft and mounting flange dimensions.