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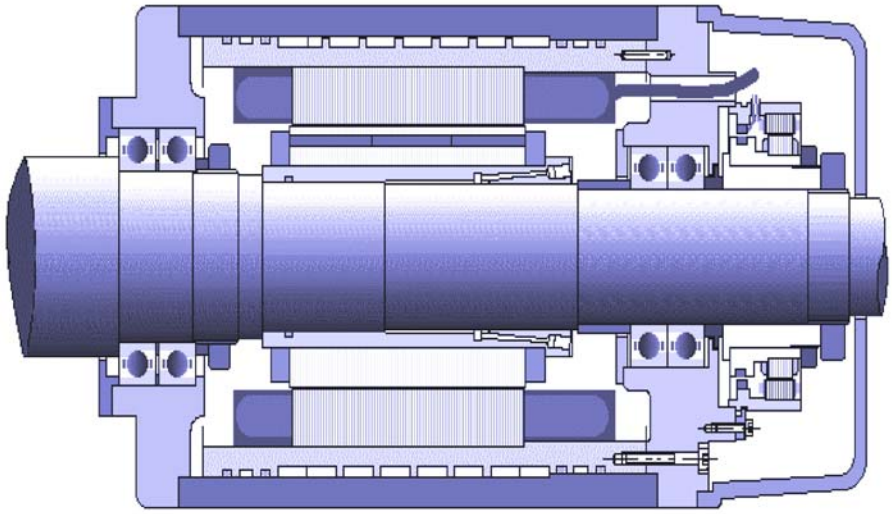
SPINDLE SERVOMOTORS

HW

User and commissioning manual

PVD 3496 GB – 10/2008



PRODUCT RANGE

1 - « BRUSHLESS » SERVODRIVES

TORQUE OR POWER RANGES

- **BRUSHLESS SERVOMOTORS**, LOW INERTIA, WITH RESOLVER

  Very high torque/inertia ratio (high dynamic performance machinery):

  ⇒ NX -HX - HXA — 0,9 to 320 N.m

  ⇒ NX - LX — 0,3 to 54 N.m

  High rotor inertia for better inertia load matching:

  ⇒ HS - LS — 3,3 to 31 N.m

  Varied geometrical choice :

  ⇒ short motors range HS - LS — 3,3 to 31 N.m

  ⇒ or small diameter motors : HD, LD — 9 to 100 N.m

  Voltages to suit different mains supplies :

  ⇒ 230V three-phase for «série L - NX»

  ⇒ 400V, 460V three-phase for «série H - NX»

- **"DIGIVEX Drive" DIGITAL SERVOAMPLIFIERS**

  ⇒ SINGLE-AXIS DSD

  ⇒ COMPACT SINGLE-AXIS DLD

  ⇒ POWER SINGLE-AXIS DPD

  ⇒ MULTIPLE-AXIS DMD

- "PARVEX Motion Explorer" ADJUSTING SOFTWARE

2 - SPINDLE DRIVES

- **SPINDLE SYNCHRONOUS MOTORS**

  ⇒ "HV" COMPACT SERIES

  ⇒ "HW" ELECTROSPINDLE,frameless, water-cooled motor — From 5 to 110 kW up to 50,000 rpm

- **"DIGIVEX" DIGITAL SERVOAMPLIFIERS**

3 - DC SERVODRIVES

- **"AXEM", "RS" SERIES SERVOMOTORS** — 0.08 to 13 N.m
- **"RTS" SERVOAMPLIFIERS**
- **"RTE" SERVOAMPLIFIERS** for DC motors + resolver giving position measurement

4 - SPECIAL ADAPTATION SERVODRIVES

- **"XD" SERVOMOTORS** for explosive atmosphere — 0.7 to 20 N.m
- "**AXL" COMPACT SERIES SERVOREDUCERS** — 5 to 700 N.m

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- **Numerical Controls** « **CYBER 4000** » 1 to 4 axes
- **"CYBER 2000"** NC 1 to 2 axes
-

  ⇒ SINGLE-AXIS DSM

  ⇒ POWER SINGLE-AXIS DPM

  ⇒ MULTIPLE-AXIS DMM

- ADJUSTMENT AND PROGRAMMING SOFTWARE PARVEX Motion Explorer

SUMMARY

Characteristics and dimensions subject to change without notice.

YOUR LOCAL CORRESPONDENT

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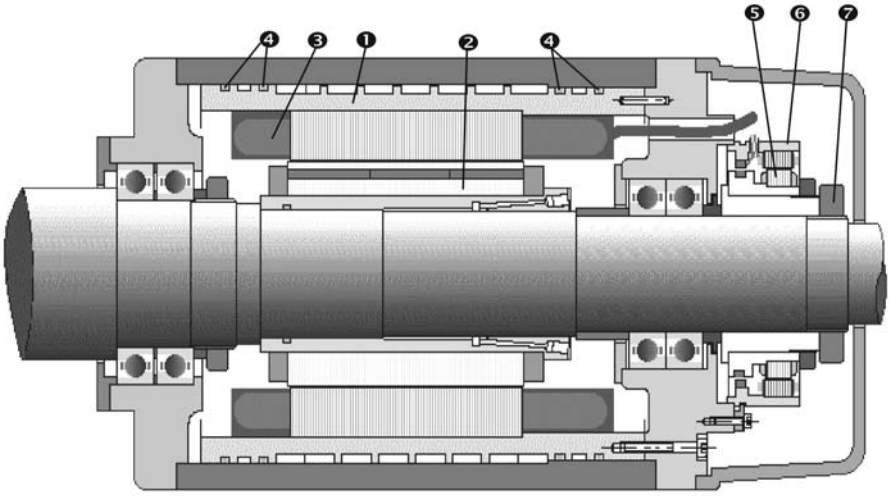
1. HW BUILT IN SPINDLE MOTOR : A NEW CONCEPT FOR BETTER PERFORMANCE!

The HW motors are synchronous DC brushless motors based on an original, patented technique whereby the machine is « defluxed » by means of correctly phased stator currents. This new motor principle allows very high torques at low speed and a constant power from a given basic speed up to the maximum speed. With this advanced technology, there are no currents in the rotor and no iron losses in the laminations of the rotor. The result is a rotor temperature rise that is very low and as a matter of fact, is mainly due to the bearings losses. Other advantages are: very compact construction and high acceleration capability.

The HW motors are delivered as individual components: a rotor, a stator and a position sensor (resolver). These components are typically assembled according to Figure 1 to make a complete motor spindle unit. The stator is water cooled to allow a higher torque density and a lower stator temperature rise. The motor is designed to have a large shaft diameter to increase the mechanical rigidity.



1 Stator housing
2 Rotor
3 O-Ring
4 O-Ring
5 Resolver's rotor
6 Resolver's stator
7 Nut

Figure 1: Typical HW motor assembly.

The HW motors have been successfully used in machine tool applications in place of the traditional induction motors. For the end user the main improvements provided by the HW motors are :

⇒ better accuracy due to the low shaft thermal expansion (no heat generation in the rotor),
⇒ reduced tool changing time due to higher acceleration capability,
⇒ better surface finishing due to the low motor vibrations,
⇒ lower maintenance (bearing lifetime increase due to the lower temperature rise).

2. GENERAL FEATURES

2.1 Motor

Electrical features:

- No losses in the rotor.
- The full torque is available at standstill.
- The electrospindle can deliver a constant torque up to the basic speed.
- The power is constant from the basic speed up to the maximum speed.
- The constant power range can be very wide: up to 1:20.

Construction (standard) :

- Wound stator with a cooling envelope.
- Plastic-coated winding for better heat discharge and mechanical protection of windings.
- Corrosion-proofed aluminium frame (except HWB)
- Permanent magnets embedded inside the rotor.
- Oil proof rotor to avoid unbalancing
- Thermal protection switch (switch off temperature = 125°C +/- 5°C)
- Insulation: Class F
- Rotor with oil pressure system to release the core (HW800 HW900, HWA.. and HWB..)
- Rotor prepared to be mounted through tolerance ring. (HW400 and HW600)
- Rotor with two flanges with threaded holes to balance it on the shaft (except HW400).

Figure 2: HW840

The standard spindle servo motor characteristics are given in table 1. More detailed characteristics are given in annex I and II.

Motor	DIGIVEX Drive	Torque S1/S3	Power S1/S3	Speed basic/Max	Motor inertia	Motor weight	Maximum supply power during motor and brake duty
		N.m	kW	rpm	kg.m²	kg	kW
HW420BU	8/16	4,2	2,3	5230/50000	0,00049	3,9	2,9
HW420BP	16/32	4,2	5	11300/50000	0,00049	3,9	5,7
HW420BK	32/64	4,2	10	23200/50000	0,00049	3,9	11,4
HW430BQ	16/32	6,7	4,7	6700/50000	0,00068	5,2	5,5
HW430BL	32/64	6,7	10	14300/50000	0,00068	5,2	11
HW430BI	50/80	6,7	15,6	22300/50000	0,00068	5,2	17
HW620CN	16/32	8.3/10	4/4.9	4680/30000	0,0017	6,5	5,7
HW620CI	32/64	8.3/10	8.6/10.4	9930/30000	0,0017	6,5	11,3
HW635CI	32/64	15/18	8.5/10	5410/30000	0,003	11	11,4
HW635CF	50/80	15/18	13/15.6	8270/30000	0,003	11	16,7
HW820RR	32/64	21.5/26	7.3/8.8	3230/24000	0,007	8	9,5
HW820RP	50/80	21.5/26	11.6/14	5140/24000	0,007	8	14,5
HW820CR	32/64	25.8/31	8.6/10.3	3170/18000	0,007	8	11,5
HW820CP	50/80	25.8/31	13.4/16	4960/18000	0,007	8	17,5
HW840CR	32/64	57.3/66	8.5/10	1420/18000	0,0137	16	11,8
HW840CP	50/80	57.3/66	13.6/16	2270/24000	0,0137	16	18
HW840CH	100/120	57.3/66	28/32	4700/24000	0,0137	16	35,8
HW840CF	150	57.3/70	36/44	6020/24000	0,0137	16	47,4
HW930CI	100/120	102	34	3180/20000	0,034	35	37
HW930CF	150	102	52	4870/20000	0,034	35	56
HW930CC	300	102	100	9500/20000	0,034	35	103
HW930CJ	100/120	112	30	2600/20000	0,034	35	33
HW930CE	200	112	63	5330/20000	0,034	35	70
HW950CI	100/120	170	33	1880/20000	0,055	58	38
HW950CF	150	170	52	2920/20000	0,055	58	57
HW950CC	300	170	105	5900/20000	0,055	58	110
HW950CJ	100/120	186	30	1540/20000	0,055	58	34
HW950CE	200	186	63	3240/20000	0,055	58	74
HWA30DN	50/80	260	15	550/12000	0,142	70	17,9
HWA30DF	100/120	260	32	1190/12000	0,142	70	35,7
HWA30DD	150	260	50	1820/12000	0,142	70	53,4
HWA30DC	200	260	67	2460/12000	0,142	70	71
HWA30DB	300	260	100	3710/12000	0,142	70	105
HWA50DG	100/120	430/510	22/26	490/12000	0,235	120	30,8
HWA50DF	100/120	430	31	690/12000	0,235	120	35,8
HWA50DD	150	430	49	1080/12000	0,235	120	53,5
HWA50DC	200	430	67	1480/12000	0,235	120	73
HWA50DB	300	430	100	2250/12000	0,235	120	107
HWB20HH	150	575	46	770/8000	0,35	120	54
HWB20HD	300	575	95	1580/8000	0,35	120	109
HWB20HJ	150	600/710	37	590/8000	0,35	120	44
HWB20HE	300	600/710	77	1220/8000	0,35	120	87
HWB30HH	150	860	45	500/8000	0,49	170	54
HWB30HD	300	860	95	1050/8000	0,49	170	109
HWB30HJ	150	940/1070	35	360/8000	0,49	170	44
HWB30HE	300	940/1070	76	775/8000	0,49	170	87
HWB40HH	150	1150	44	365/8000	0,64	220	54
HWB40HD	300	1150	94	780/8000	0,64	220	109
HWB40HJ	150	1250/1400	34	260/5800	0,64	220	44
HWB40HE	300	1250/1400	75	573/8000	0,64	220	87
HWB40HF	300	1250/1500	62	475/8000	0,64	220	72

Table 1: HW general characteristics.

2.2 Resolver

A resolver (Figure 3) is an angular position sensor. It is used to determine rotor position. Resolver signals are processed by the servoamplifier to control stator currents and so control motor speed and position.

The resolver is a high precision device and must be wired and mounted with care (see resolver mounting section 3.2.1).

Four resolver types are available (CB52, CB102, CB152 and CB158) with or without connectors as shown in the dimensional drawing in Appendix III and the characteristics in Table A. Possible combinations drawing in Table B.

Resolver	**Max. speed (rpm)**	**Resolver only precision**	**Resolver + Digivex precision** (Parvex L resolver cable <100 m) **(min)**	**Pairs of poles**
CB 52	50 000	± 6	± 11	1
CB 102	32 000	± 10	± 15	1
CB 152	20 000	± 10	± 15	1
CB 158	20 000	± 1,5	±3	4

Table A : Resolver general characteristics

HW	**CB 52**	**CB 102**	**CB 152**	**CB 158**
HW 4	**x**			
HW 6	**x**	**x**		
HW 8	**x**	**x**		
HW 9	**x**	**x**	**x**	
HW A		**x**	**x**	**x**
HWB			**x**	**x**

Table B : Possible motor/resolver combinations

- CB 52, CB102, CB 152 resolvers are single pole pair resolvers: they give absolute position on 1 motor rotation.
- The CB 158 resolver is a 4 pole pair resolver: it provides information every 1/4 turn. It cannot be used therefore, alone, for absolute positioning over 1 revolution. It can be used to control the HWA and HWB motors only.

For easy spindle integration and electrical checking a connector is recommended for the signals. The standard resolver connector pinout is defined on the resolver drawings in annex III.

Figure 3: Resolver CB102

3. MECHANICAL INTEGRATION

3.1 Motor

The motor must be connected to the servo amplifier according to the DIGIVEX user manual. The colour code given in the table 2 must be followed :

Signal	Color
U	black
V	white
W	red
Thermal switch	yellow
Thermal switch	yellow

Table 2 : Cable color code

The motor is shipped without a ground cable. It is mandatory to connect a (green-yellow) ground cable to the spindle motor chassis. It is best to fasten this cable directly onto the motor frame (Diagram 4). The ground cable cross-section must be the same as the power cable cross-section (Table 3). The cross-section of the yellow thermal switch cables is 0.5 mm^2.

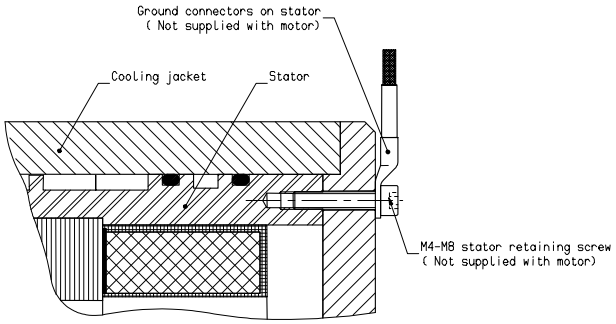


Figure 4

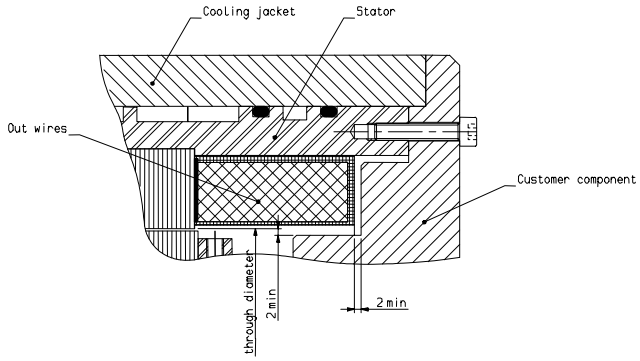


Figure 5

Motor	DIGIVEX Drive	Power cable cross section mm²
HW420BU	8/16	4
HW420BP	16/32	4
HW420BK	32/64	4
HW430BQ	16/32	4
HW430BL	32/64	4
HW430BI	50/80	6
HW620CN	16/32	4
HW620CI	32/64	4
HW635CI	32/64	4
HW635CF	50/80	6
HW820RR	32/64	6
HW820RP	50/80	6
HW820CR	32/64	6
HW820CP	50/80	6
HW840CR	32/64	6
HW840CP	50/80	6
HW840CH	100/120	16
HW840CF	150	25
HW930CJ	100/120	16
HW930CI	100/120	16
HW930CF	150	25
HW930CE	200	50
HW930CC	300	50
HW950CJ	100/120	16
HW950CI	100/120	16
HW950CF	150	25
HW950CE	200	50
HW950CC	300	50

Motor	DIGIVEX Drive	Power cable cross section mm²
HWA30DN	50/80	16
HWA30DF	100/120	16
HWA30DD	150	25
HWA30DC	200	50
HWA30DB	300	50
HWA50DG	100/120	16
HWA50DF	100/120	16
HWA50DD	150	25
HWA50DC	200	50
HWA50DB	300	50
HWB20HH	150	25
HWB20HJ	150	25
HWB20HD	300	50
HWB20HE	300	50
HWB30HH	150	25
HWB30HJ	150	25
HWB30HD	300	50
HWB30HE	300	50
HWB40HH	150	25
HWB40HJ	150	25
HWB40HD	300	50
HWB40HE	300	50
HWB40HF	300	50

Table 3 : Power cable section

3.1.1 Stator integration

The HW motors must be water cooled (section 3.1.3). A cooling jacket according to annex IV drawings is necessary for proper operation.

The O-rings fitted close to the cooling jacket act as seals. If leakage occurs at these seals, the "second" O-rings prevent the spindle from being "drowned". Coolant seeping from the leak detector holes indicates to the user that the O-rings must be changed at the next.

Two types of HW stators mounting are possible:

- At the motor connection side
- At the motor connection opposite side

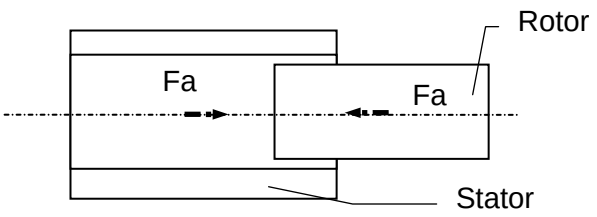
Each type of mounting corresponds to a specific reference (see Drawings Annex).

3.1.2 Rotor integration

CAUTION: Magnets are inserted inside the rotor. The magnetized rotor attracts any ferromagnetic components and is also attracted by them.

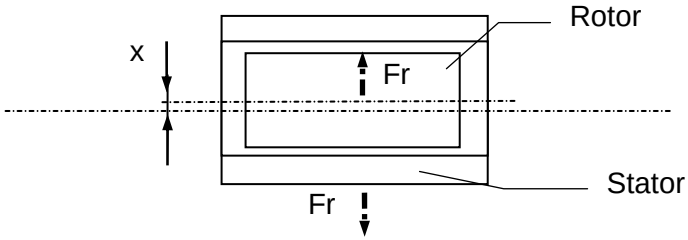
- Health hazard for people with pacemakers, metal implants or hearing aids.
  These people are not authorized to approach or handle the rotor.
- Hazards for fingers and hands.
  The magnetic fields of the rotor can produce an attractive force strong enough to crush fingers of hands. Hold the rotor firmly with suitable tools. Never handle it directly by hand. Move all ferromagnetic parts away from the rotor (minimum 1 m). Never attempt to insert the rotor into the stator by hand.
- Hazards for sensitive objects.
  Keep watches, credit cards, magnetic cards and any appliances containing metal or magnetic parts away from the rotor.

The axial attraction force (Fa) during the rotor insertion in the stator is:



Motor	Axial attraction force (N)
HW4..	40
HW6..	60
HW8..	150
HW9..	200
HWA...	280
HWB..	520

The radial attraction force is proportional to the rotor eccentricity x :



Motor	Radial attraction force Fr at the maximum rotor eccentricity (N)
HW420	240
HW430	360
HW620	580
HW635	1000
HW820	850
HW840	1700
HW930	2400
HW950	4100
HWA30	3500
HWA50	5800
HWB20	5800
HWB30	8700
HWB40	11600

HW400 and HW600

The HW400 and HW600 rotors (see annex II) are mounted by means of tolerance rings (Figure 6 and 7). The torque is transmitted by these tolerance rings (1) which are located in thin grooves (4) machined on the spindle shaft (shaft interface given in annex IV).

To mount the rotor:

- Fit the tolerance rings in the motor shaft grooves with their openings facing in opposite directions.
- fit the shaft into the rotor by means of a pressing machine. The rotor can be removed but can not be used anymore. The shaft remains safe for other uses. For mounting and removal operation, always use the rotor end (3 of Figure 7). Never push on laminations or rotor flanges (2). The maximum force required to insert the shaft is :

	HW4..	HW6..
Press fitting force	100kN	150kN

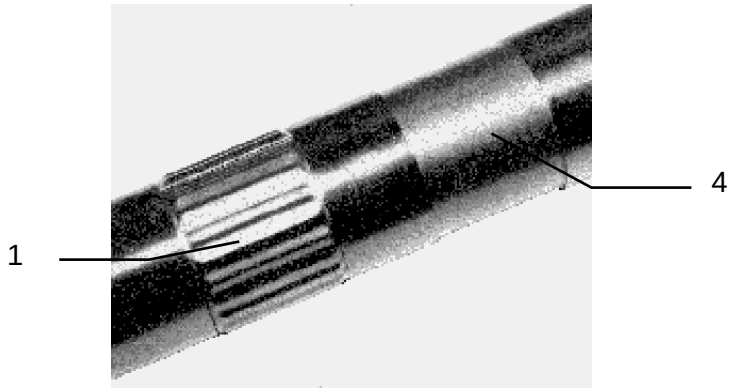
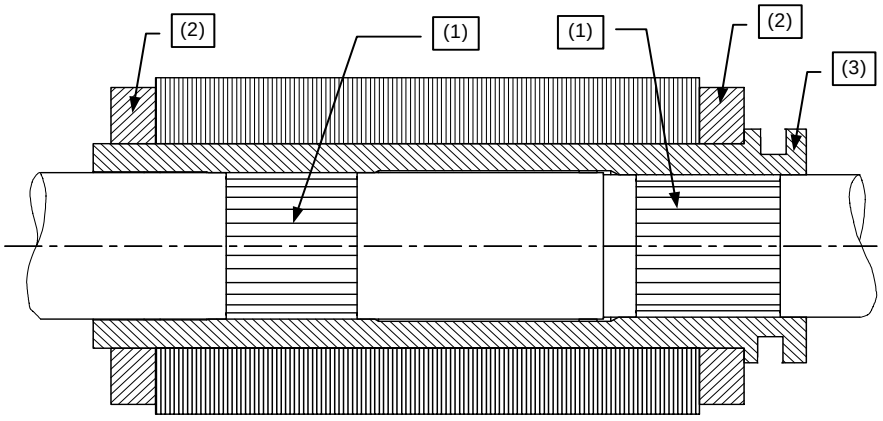


Figure 6: Tolerance ring (1) and groove (4)



1: tolerance rings
2: balancing flanges
3 : Hub

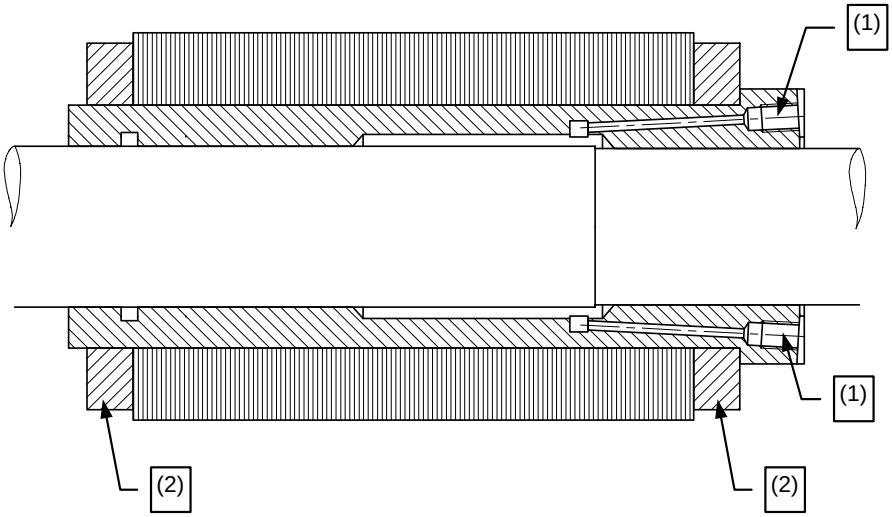
Figure 7: rotor mounting by means of tolerance rings

HW800, HW900 and HWA..

The HW800, HW900 and HWA. motors are mounted by means of a hydraulic hub (Figure 8). The rotor is shrink-fit on the spindle shaft. The mounting is performed by heating the rotor at 120°C and by cooling the shaft (shaft interface given in annex IV) at -40°C.

CAUTION! : Maximum rotor temperature : 120°C.
Removal: The rotor can be released by supplying oil pressure into the rotor (inlet (1) in figure 8). The maximum required pressure is 1000 bars. After releasing, the rotor and the shaft can be used again.

If additionnal mounting or removal tools are used, these tools should not apply forces on laminations or rotor flanges.



1: oil pressure inlet
2: balancing flanges

Figure 8: mounting by means of a hydraulic hub

Rotor balancing:
Rotors are not balanced before delivery. The electro-pin manufacturer must balance the spindle mounted pin rotor using an appropriate method: for example, by removing material from the discs, mounted directly on to the spindle, intended for this purpose.

Balance can be fine-tuned on both sides of the rotor (except HW4 and HWB) by inserting headless screws. These screws must not exceed the external diameter of the sides.

Caution !!!: Not all the spindle mounted rotor drift can be compensated for with these sides.

Balancing must never be attained by removing material from the sides, the sheet metal or any other part of the rotor.

Motor	Size of the balancing screws
HW4..	no screw
HW6..	M4
HW8..	M5
HW9..	M5
HWA..	M6
HWB..	no screw

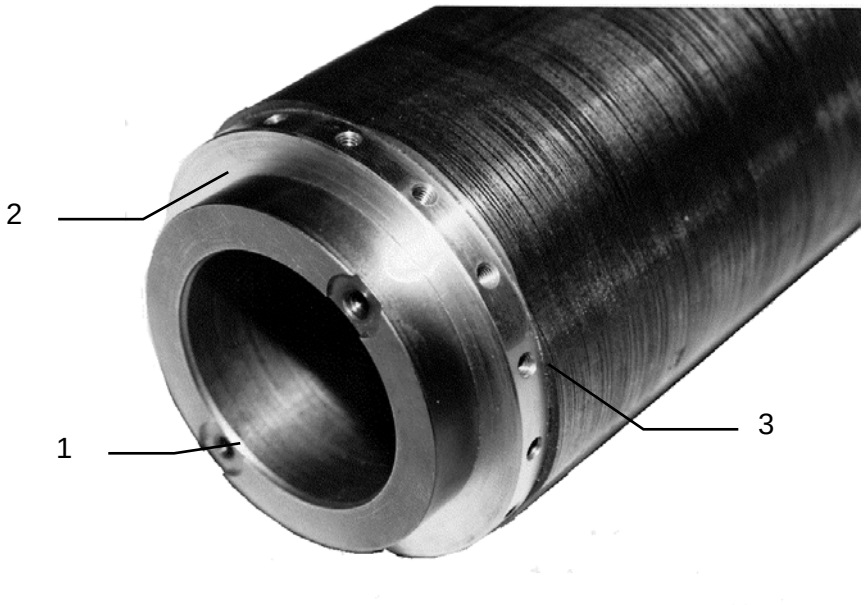


Figure 9: Inlet (1), balancing flange(2) and threaded holes (3)

3.1.3 Motor cooling

The HW built-in motors are water cooled. An anticorrosion agent should be mixed with the water. The main cooling characteristics are given in the following table.

Motor	Required cooling medium flow (water : minimum 75%)	Nmax	Losses power of motor at Nmax and permanent duty	Inlet maximum temperature of coolant	Outlet maximum temperature of coolant
	liter/min	rpm	kW	°C	°C
HW420B	2	50000	0,75	25	31
HW430B	3	50000	1,1	25	31
HW620C	3	30000	1,2	25	31
HW635C	5	30000	1,8	25	31
HW820R	5	24000	1,7	25	31
HW820C	5	18000	1,8	25	31
HW840C	10	24000	5	25	32
HW930C	10	20000	4	25	31
HW950C	16	20000	6,4	25	31
HWA30D	18	12000	6	25	30
HWA50D	25	12000	10	25	31
HWB20	15	8000	7	25	32
HWB30	20	8000	10	25	32
HWB40	25	8000	13	25	32

3.2 Resolver mounting and setting

3.2.1 Mounting

Figure 10: example of resolver mounting

Caution! :The resolver is a high precision, carefully manufactured device and the following precautions should be taken to maintain its characteristics.

⇒ avoid shocks
⇒ avoid impact between rotor and stator.
⇒ don't hold the stator by its cables
⇒ Do not mismatch the rotor, stator and resolver.
⇒ connect the resolver to the servoamplifier according to the DIGIVEX user manual.
⇒ the resolver should be mounted with its face A and B (figures 14 and 15) directed toward the motor.
⇒ The resolver is not watertight. Protect it against oil spray

The mechanical interface given in figures 11, 12 and 13 must be respected to get the right electrical characteristics of the resolver. Figures 14 and 15 present a way to fix the resolver to the spindle.

CAUTION! : Resolver setting is obtained by turning the resolver stator when the cooling system is in operation. An easy access to the resolver and the resolver fixing screws should be provided by the spindle design. The minimum required angle is given in the following table.

Motor	Minimum rotation angle
HW4..	190°
HW6..	130°
HW8..	130°
HW9..	130°
HWA..	100°
HWB..	55°

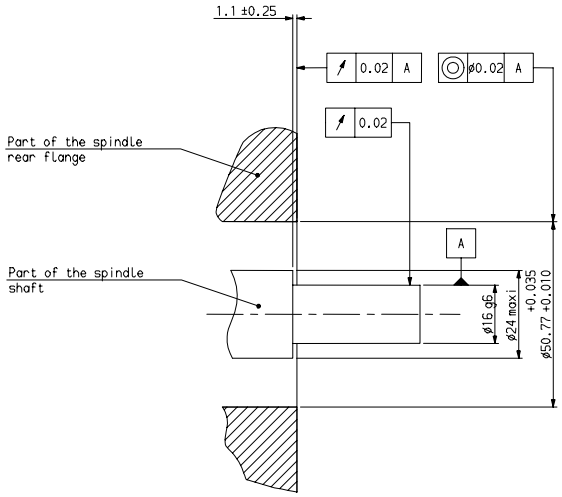


Figure 11: CB52 required mechanical interface.

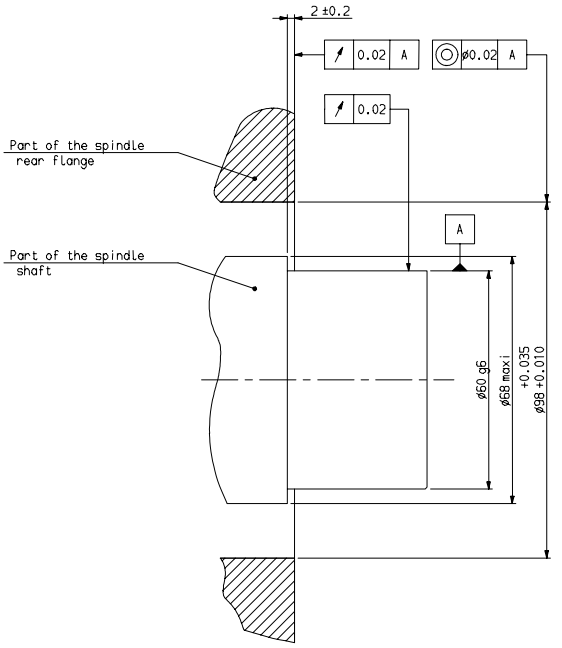


Figure 12: CB102 required mechanical interface.

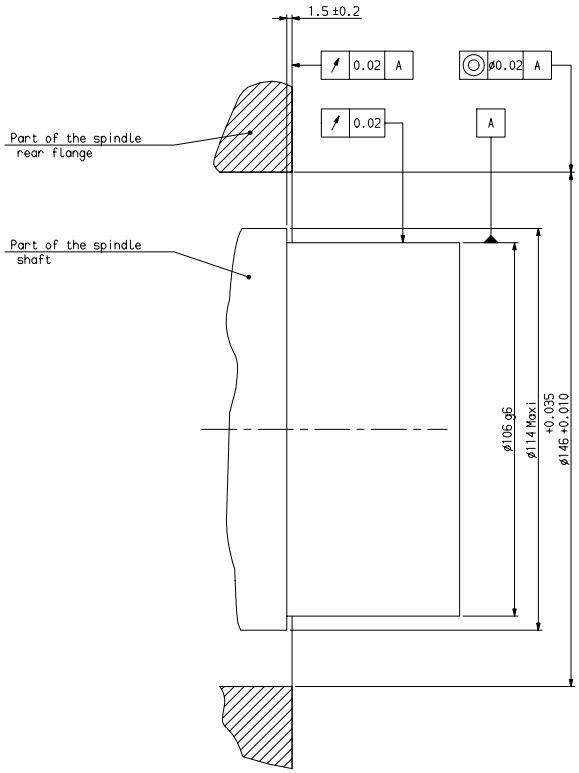


Figure 13: CB152 and CB158 required mechanical interface.

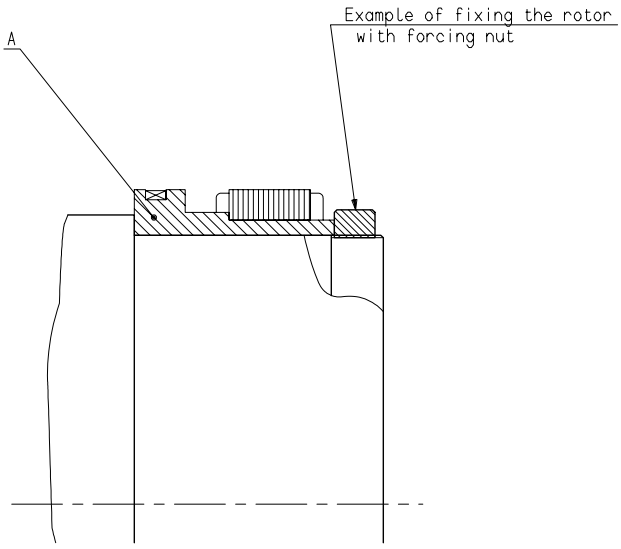


Figure 14: Example of fixing the rotor of the resolver

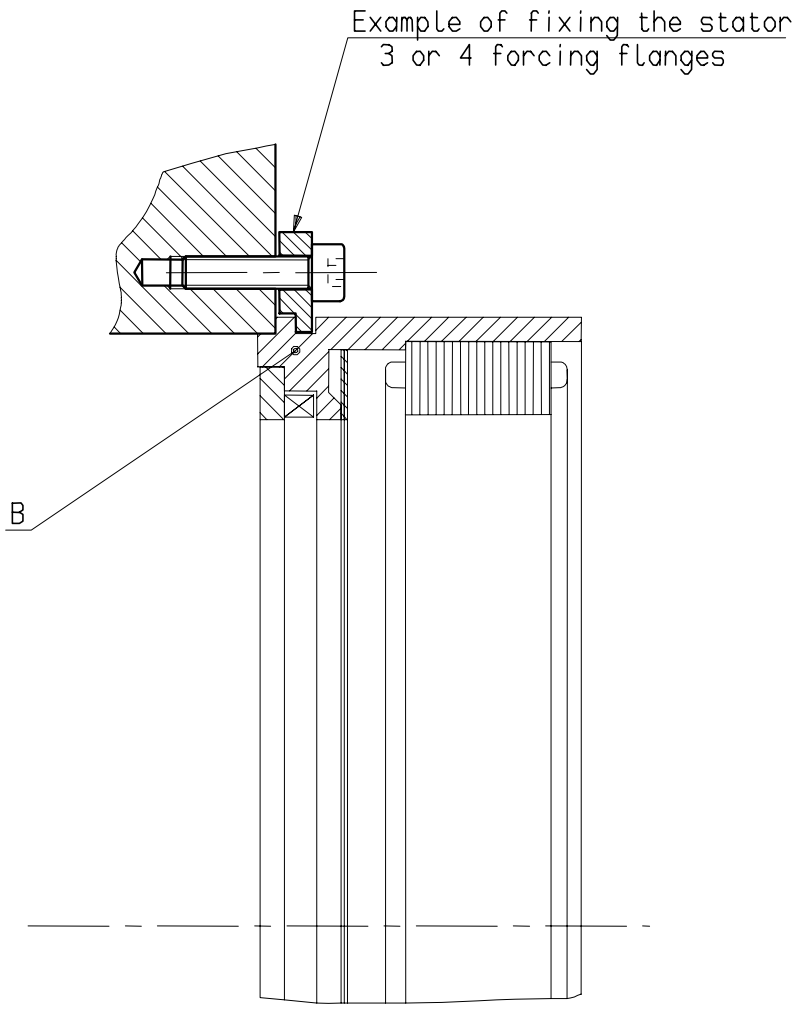


Figure 15: Example of fixing the stator of the resolver

3.2.2 Setting of the resolver

At the time of the procedure of setting, it is imperative to observe the 3 folowing conditions :

- **the rotor must be free in rotation.** The torque of maximum friction on the rotor should not exceed 1 % of torque permanent motor.
- **The coolant cooling system must be under operation**.
- **The operator must have access to the resolver stator** and be able to turn it manually and then lock it in place (with lock screw).
- To refer to the DIGIVEX manuals, for the details of the setting procedure.

Attention :

The resolver cable is shielded. The shielding is continued by the green & yellow lead (see Drawings 343932 E 1000 and E 2000). It must be connected to the resolver cable shielding from the Digivex. If the Parvex resolver cable is utilized, connect the resolver cable shielding (green & yellow) to connector pin #9.

ANNEX I : HW CHARACTERISTICS

Motor	DIGIVEX Drive	Torque S1/S3	Power S1/S3	Speed basic/Max	Motor inertia	Motor weight	Maximum supply power during motor and brake duty
		N.m	kW	rpm	kg.m²	kg	kW
HW420BU	8/16	4,2	2,3	5230/50000	0,00049	3,9	2,9
HW420BP	16/32	4,2	5	11300/50000	0,00049	3,9	5,7
HW420BK	32/64	4,2	10	23200/50000	0,00049	3,9	11,4
HW430BQ	16/32	6,7	4,7	6700/50000	0,00068	5,2	5,5
HW430BL	32/64	6,7	10	14300/50000	0,00068	5,2	11
HW430BI	50/80	6,7	15,6	22300/50000	0,00068	5,2	17
HW620CN	16/32	8.3/10	4/4.9	4680/30000	0,0017	6,5	5,7
HW620CI	32/64	8.3/10	8.6/10.4	9930/30000	0,0017	6,5	11,3
HW635CI	32/64	15/18	8.5/10	5410/30000	0,003	11	11,4
HW635CF	50/80	15/18	13/15.6	8270/30000	0,003	11	16,7
HW820RR	32/64	21.5/26	7.3/8.8	3230/24000	0,007	8	9,5
HW820RP	50/80	21.5/26	11.6/14	5140/24000	0,007	8	14,5
HW820CR	32/64	25.8/31	8.6/10.3	3170/18000	0,007	8	11,5
HW820CP	50/80	25.8/31	13.4/16	4960/18000	0,007	8	17,5
HW840CR	32/64	57.3/66	8.5/10	1420/18000	0,0137	16	11,8
HW840CP	50/80	57.3/66	13.6/16	2270/24000	0,0137	16	18
HW840CH	100/120	57.3/66	28/32	4700/24000	0,0137	16	35,8
HW840CF	150	57.3/70	36/44	6020/24000	0,0137	16	47,4
HW930CI	100/120	102	34	3180/20000	0,034	35	37
HW930CF	150	102	52	4870/20000	0,034	35	56
HW930CC	300	102	100	9500/20000	0,034	35	103
HW930CJ	100/120	112	30	2600/20000	0,034	35	33
HW930CE	200	112	63	5330/20000	0,034	35	70
HW950CI	100/120	170	33	1880/20000	0,055	58	38
HW950CF	150	170	52	2920/20000	0,055	58	57
HW950CC	300	170	105	5900/20000	0,055	58	110
HW950CJ	100/120	186	30	1540/20000	0,055	58	34
HW950CE	200	186	63	3240/20000	0,055	58	74
HWA30DN	50/80	260	15	550/12000	0,142	70	17,9
HWA30DF	100/120	260	32	1190/12000	0,142	70	35,7
HWA30DD	150	260	50	1820/12000	0,142	70	53,4
HWA30DC	200	260	67	2460/12000	0,142	70	71
HWA30DB	300	260	100	3710/12000	0,142	70	105
HWA50DG	100/120	430/510	22/26	490/12000	0,235	120	30,8
HWA50DF	100/120	430	31	690/12000	0,235	120	35,8
HWA50DD	150	430	49	1080/12000	0,235	120	53,5
HWA50DC	200	430	67	1480/12000	0,235	120	73
HWA50DB	300	430	100	2250/12000	0,235	120	107
HWB20HH	150	575	46	770/8000	0,35	120	54
HWB20HD	300	575	95	1580/8000	0,35	120	109
HWB20HJ	150	600/710	37	590/8000	0,35	120	44
HWB20HE	300	600/710	77	1220/8000	0,35	120	87
HWB30HH	150	860	45	500/8000	0,49	170	54
HWB30HD	300	860	95	1050/8000	0,49	170	109
HWB30HJ	150	940/1070	35	360/8000	0,49	170	44
HWB30HE	300	940/1070	76	775/8000	0,49	170	87
HWB40HH	150	1150	44	365/8000	0,64	220	54
HWB40HD	300	1150	94	780/8000	0,64	220	109
HWB40HJ	150	1250/1400	34	260/5800	0,64	220	44
HWB40HE	300	1250/1400	75	573/8000	0,64	220	87
HWB40HF	300	1250/1500	62	475/8000	0,64	220	72

DC-BRUSHLESS MOTOR
HW420BU
ELECTRONIC DRIVE
DIGIVEX 8/16 - 400

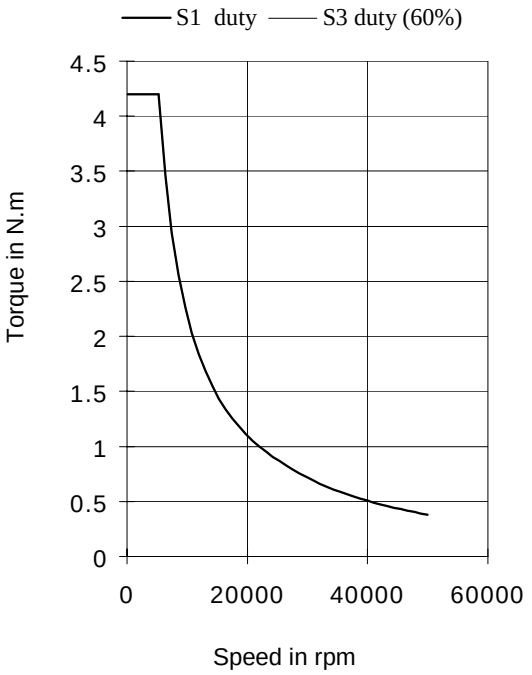
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

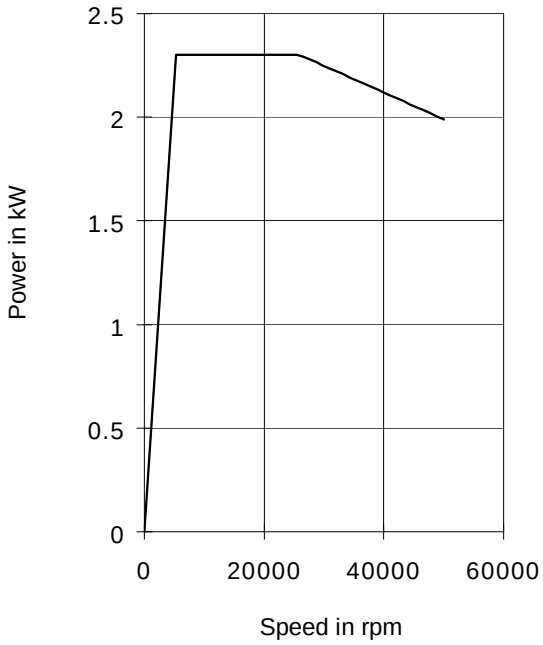
S1 power	***2.3***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***4.2***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***5230***	*rpm*	*Nb*
Max speed	***50000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***7.92***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***5.37***	*Ω*	*Rb*
Rotor inertia	***0.00049***	*kg.m²*	*J*
Thermal time constant	***1***	*min*	*Tth*
Motor mass	***3.9***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***2***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 07 oct 1998	**Edition: 17/juin/1999**	**HW420BU**	**c**

DC-BRUSHLESS MOTOR
HW420BP
ELECTRONIC DRIVE
DIGIVEX 16/32 - 400

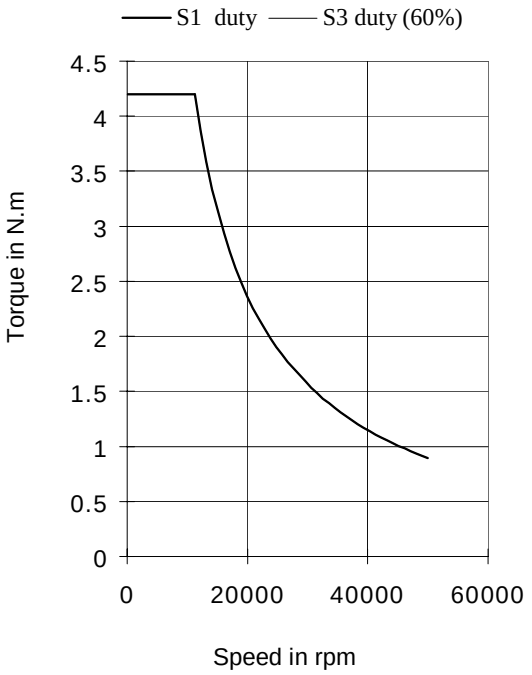
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

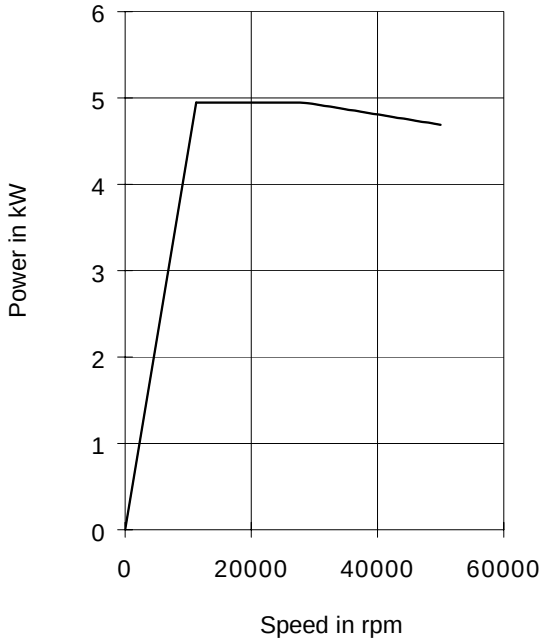
S1 power	***5***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***4.2***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***11300***	*rpm*	*Nb*
Max speed	***50000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***15.8***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***1.35***	*Ω*	*Rb*
Rotor inertia	***0.00049***	*kg.m²*	*J*
Thermal time constant	***1***	*min*	*Tth*
Motor mass	***3.9***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***2***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 07 oct 1998	**Edition: 17/juin/1999**	**HW420BP**	**c**

DC-BRUSHLESS MOTOR
HW420BK
ELECTRONIC DRIVE
DIGIVEX 32/64 - 400

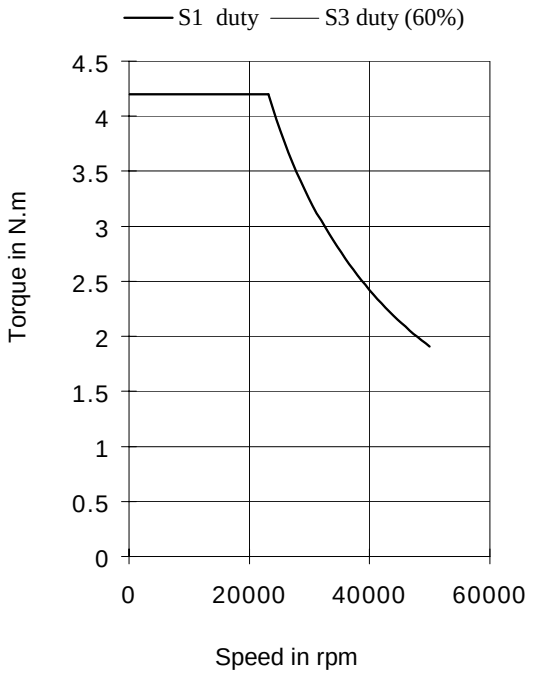
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

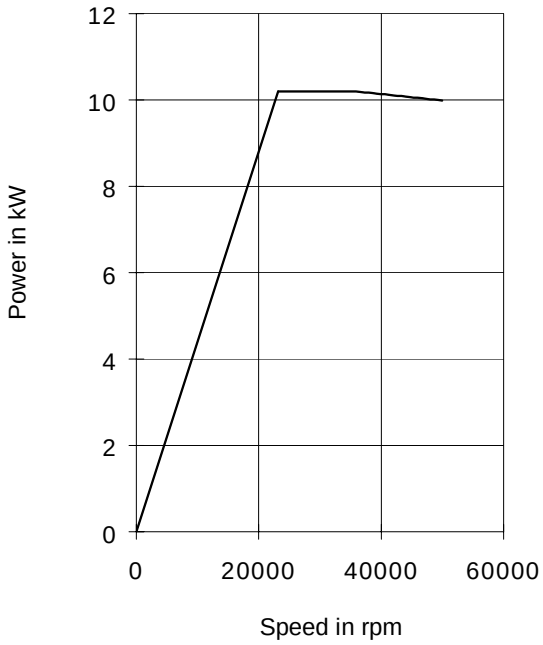
S1 power	***10***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***4.2***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***23200***	*rpm*	*Nb*
Max speed	***50000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***31.7***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.337***	*Ω*	*Rb*
Rotor inertia	***0.00049***	*kg.m²*	*J*
Thermal time constant	***1***	*min*	*Tth*
Motor mass	***3.9***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***2***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 07 oct 1998	**Edition: 17/juin/1999**	**HW420BK**	**c**

DC-BRUSHLESS MOTOR

HW430BQ

ELECTRONIC DRIVE

DIGIVEX 16/32 - 400

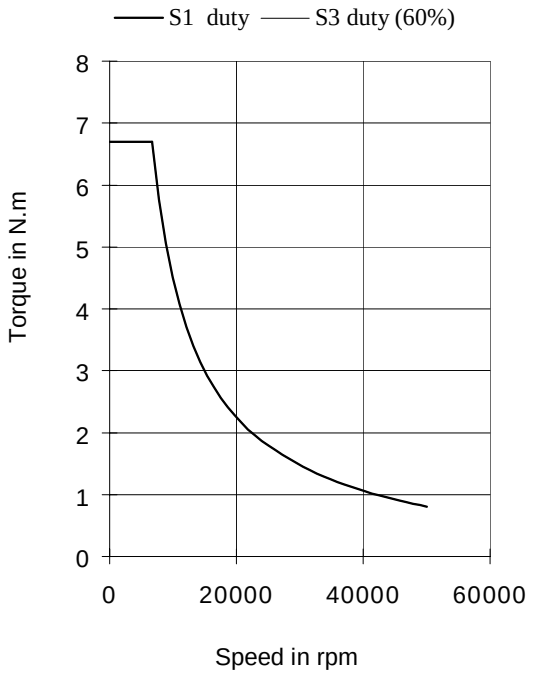
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

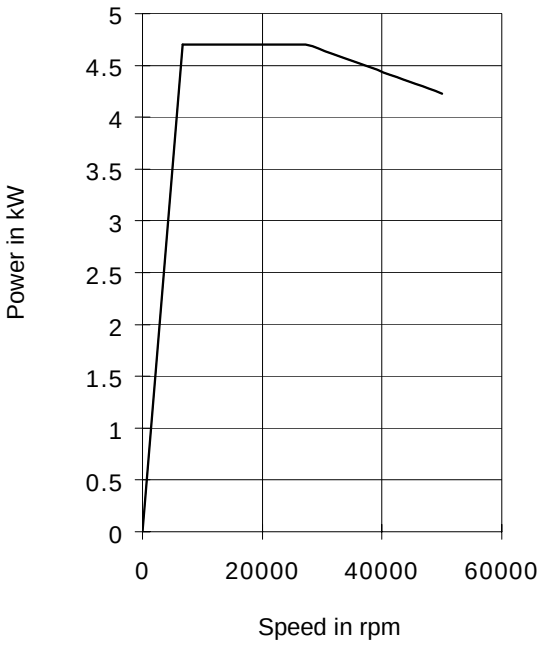
S1 power	***4.7***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***6.7***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***6700***	*rpm*	*Nb*
Max speed	***50000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***15.6***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***2.16***	*Ω*	*Rb*
Rotor inertia	***0.00068***	*kg.m²*	*J*
Thermal time constant	***1***	*min*	*Tth*
Motor mass	***5.2***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***3***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 06 févr 1998	**Edition: 17/juin/1999**	**HW430BQ**	**d**

DC-BRUSHLESS MOTOR

HW430BL

ELECTRONIC DRIVE

DIGIVEX 32/64 - 400

PARVEX

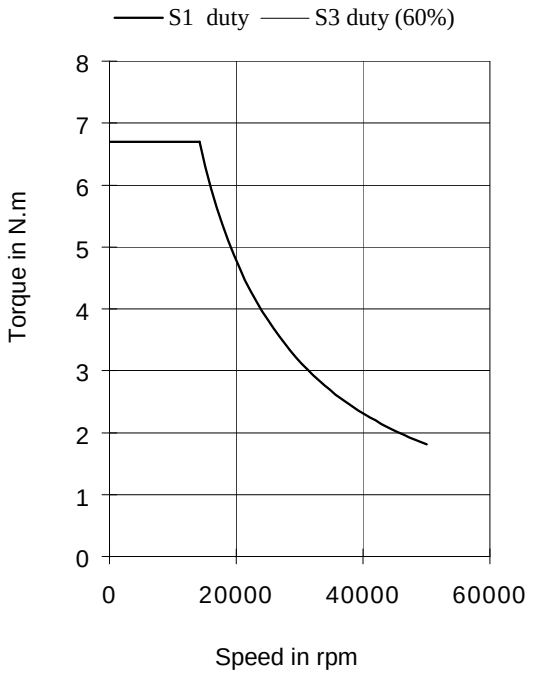
8 avenue du Lac / BP249
F-21007 DIJON Cedex

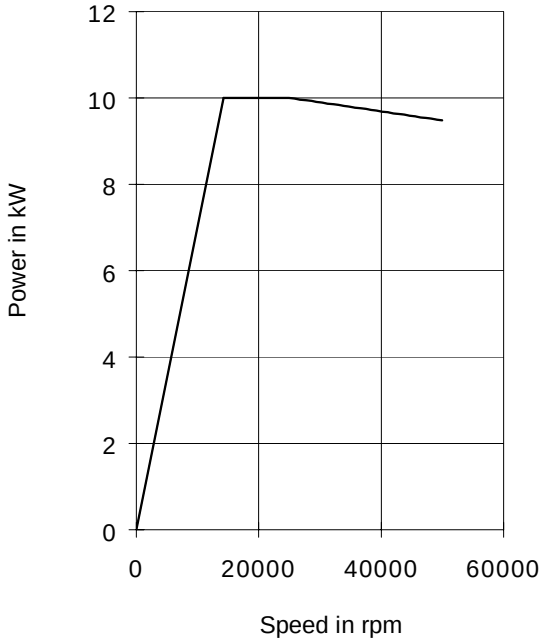
S1 power	***10***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***6.7***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***14300***	*rpm*	*Nb*
Max speed	***50000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***31.3***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.541***	*Ω*	*Rb*
Rotor inertia	***0.00068***	*kg.m²*	*J*
Thermal time constant	***1***	*min*	*Tth*
Motor mass	***5.2***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***3***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 06 févr 1998	**Edition: 17/juin/1999**	**HW430BL**	**d**

DC-BRUSHLESS MOTOR

HW430BI

ELECTRONIC DRIVE

DIGIVEX 50/80 - 400

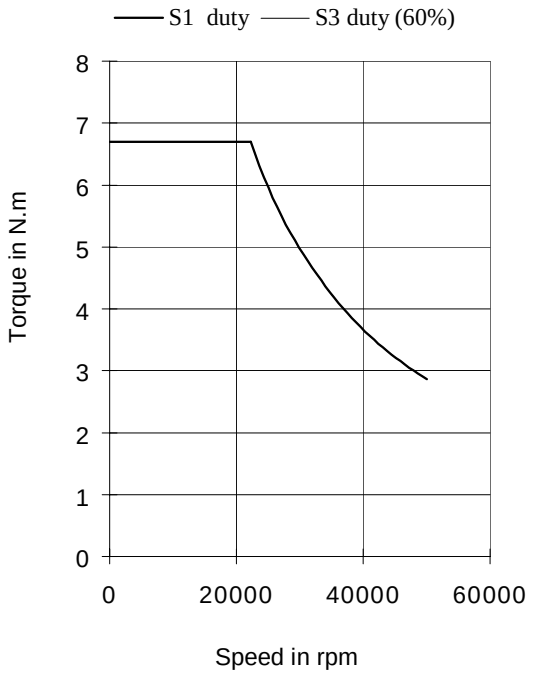
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

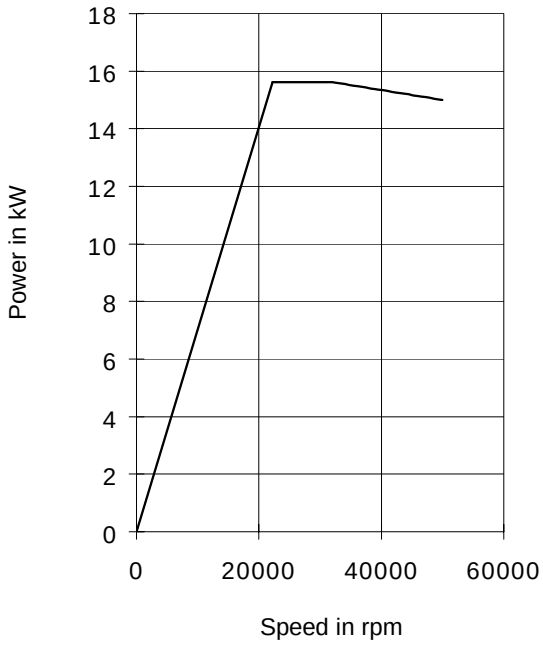
S1 power	***15.6***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***6.7***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***22300***	*rpm*	*Nb*
Max speed	***50000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***48.6***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.205***	*Ω*	*Rb*
Rotor inertia	***0.00068***	*kg.m²*	*J*
Thermal time constant	***1***	*min*	*Tth*
Motor mass	***5.2***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***3***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 06 févr 1998	**Edition: 17/juin/1999**	**HW430BI**	**d**

DC-BRUSHLESS MOTOR
HW620CN
ELECTRONIC DRIVE
DIGIVEX 16/32 - 400

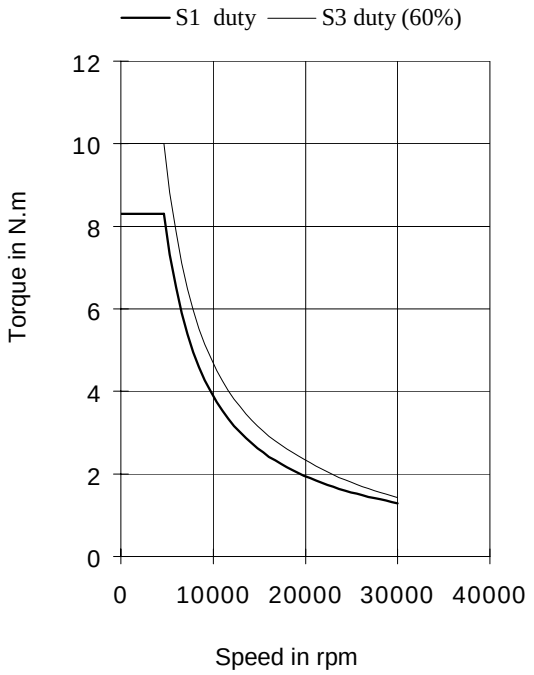
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

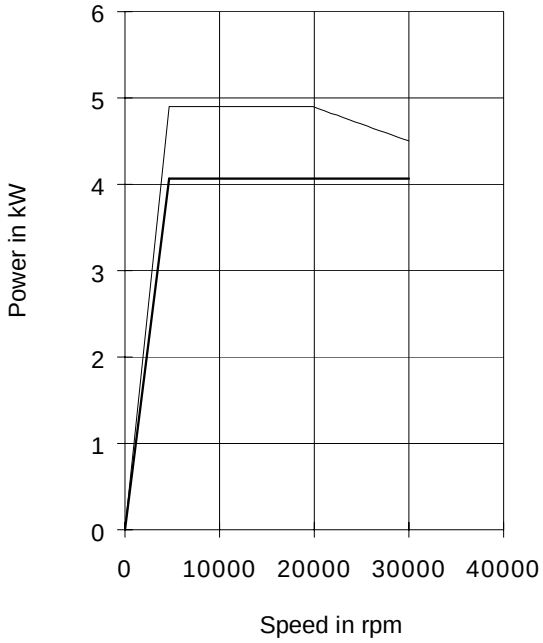
S1 power	***4***	*kW*	*Ps1*
S3 power	***4.9***	*kW*	*Ps3*
Low speed torque	***8.3***	*N.m*	M_o
Low speed S3 torque	***10***	*N.m*	M_o *S3*
Base speed	***4680***	*rpm*	*Nb*
Max speed	***30000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***12.5***	*Â*	$\hat{I}_o$
S3 current at low speed	***15***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***2.78***	*Ω*	*Rb*
Rotor inertia	***0.0017***	*kg.m²*	*J*
Thermal time constant	***1.5***	*min*	*Tth*
Motor mass	***6.5***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***3***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 02 mai 1997	**Edition: 17/juin/1999**	**HW620CN**	**b**

DC-BRUSHLESS MOTOR
HW620CI
ELECTRONIC DRIVE
DIGIVEX 32/64 - 400

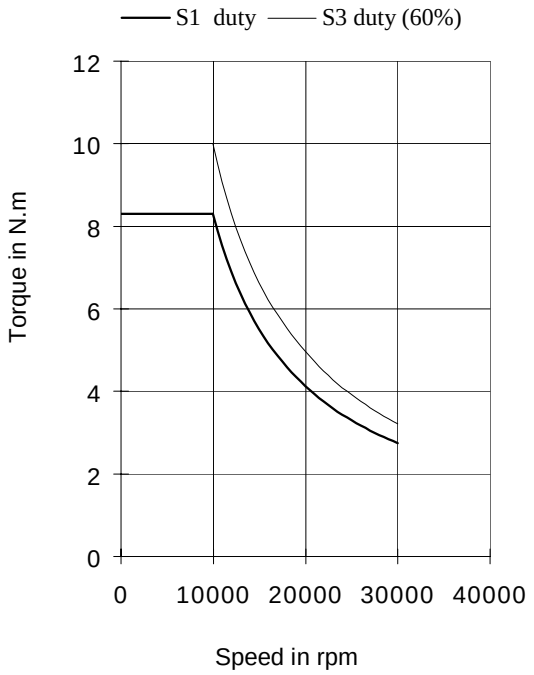
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

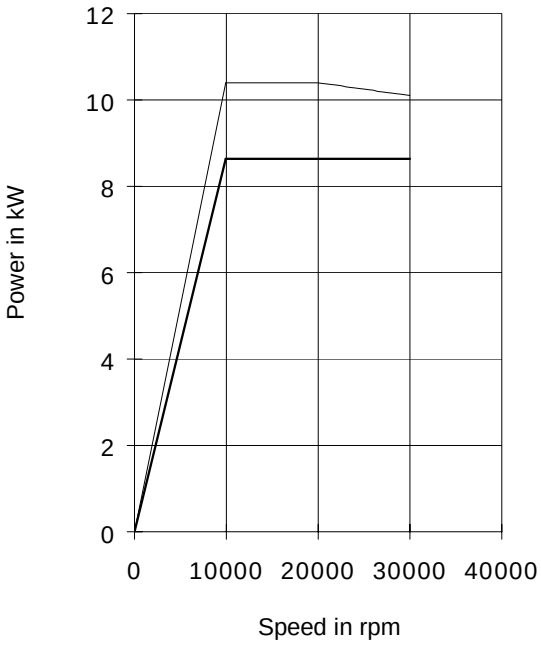
S1 power	***8.6***	*kW*	*Ps1*
S3 power	***10.4***	*kW*	*Ps3*
Low speed torque	***8.3***	*N.m*	M_o
Low speed S3 torque	***10***	*N.m*	M_o *S3*
Base speed	***9930***	*rpm*	*Nb*
Max speed	***30000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***24.9***	*Â*	$\hat{I}_o$
S3 current at low speed	***30.1***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.694***	*Ω*	*Rb*
Rotor inertia	***0.0017***	*kg.m²*	*J*
Thermal time constant	***1.5***	*min*	*Tth*
Motor mass	***6.5***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***3***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 02 mai 1997	**Edition: 17/juin/1999**	**HW620CI**	**b**

DC-BRUSHLESS MOTOR
HW635CI
ELECTRONIC DRIVE
DIGIVEX 32/64 - 400

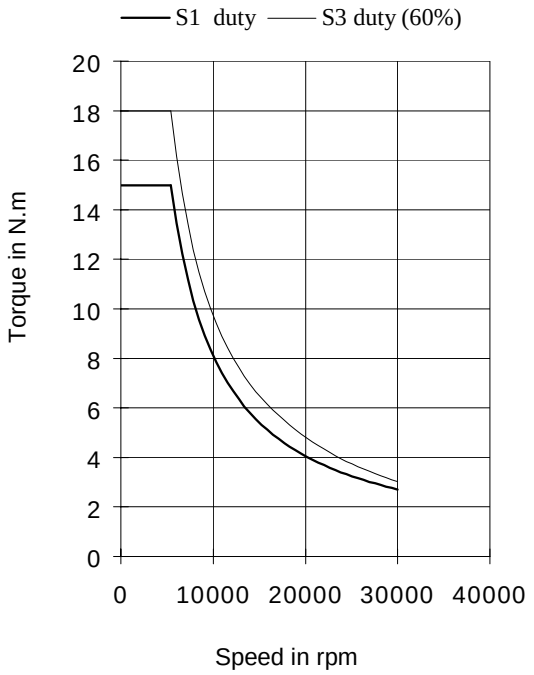
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

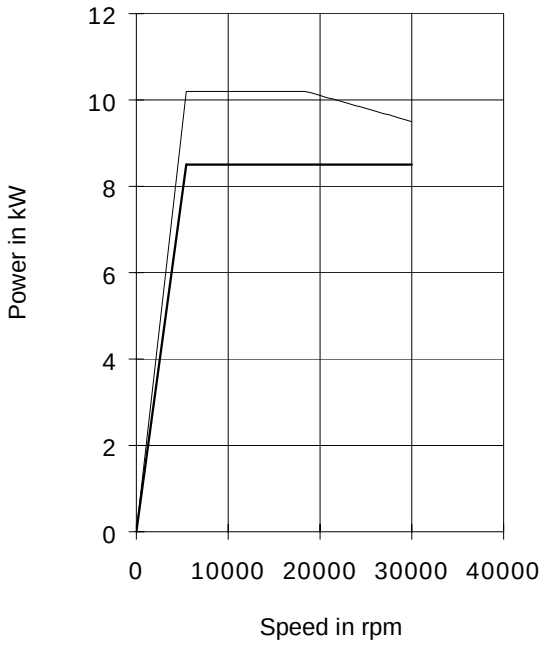
S1 power	***8.5***	*kW*	*Ps1*
S3 power	***10***	*kW*	*Ps3*
Low speed torque	***15***	*N.m*	M_o
Low speed S3 torque	***18***	*N.m*	M_o *S3*
Base speed	***5410***	*rpm*	*Nb*
Max speed	***30000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***25.7***	*Â*	$\hat{I}_o$
S3 current at low speed	***30.9***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.96***	*Ω*	*Rb*
Rotor inertia	***0.003***	*kg.m²*	*J*
Thermal time constant	***1.5***	*min*	*Tth*
Motor mass	***11***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***5***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 19 avr 1995	**Edition: 17/juin/1999**	**HW635CI**	**f**

DC-BRUSHLESS MOTOR

HW635CF

ELECTRONIC DRIVE

DIGIVEX 50/80 - 400

PARVEX

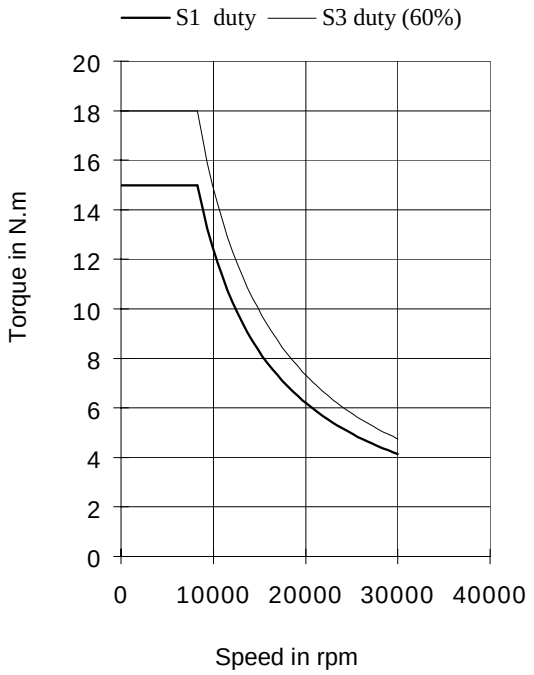
8 avenue du Lac / BP249
F-21007 DIJON Cedex

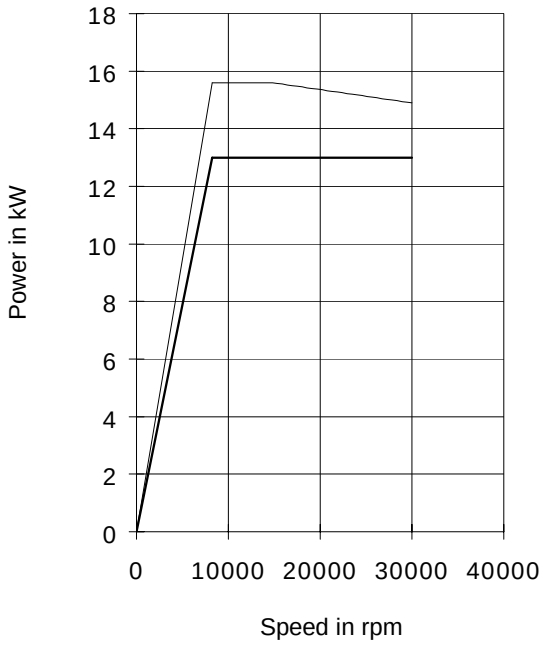
S1 power	***13***	*kW*	*Ps1*
S3 power	***15.6***	*kW*	*Ps3*
Low speed torque	***15***	*N.m*	M_o
Low speed S3 torque	***18***	*N.m*	M_o *S3*
Base speed	***8270***	*rpm*	*Nb*
Max speed	***30000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***38.6***	*Â*	$\hat{I}_o$
S3 current at low speed	***46.4***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.427***	*Ω*	*Rb*
Rotor inertia	***0.003***	*kg.m²*	*J*
Thermal time constant	***1.5***	*min*	*Tth*
Motor mass	***11***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***5***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 06 nov 1996	**Edition: 17/juin/1999**	**HW635CF**	**c**

DC-BRUSHLESS MOTOR
HW820RR
ELECTRONIC DRIVE
DIGIVEX 32/64 - 400

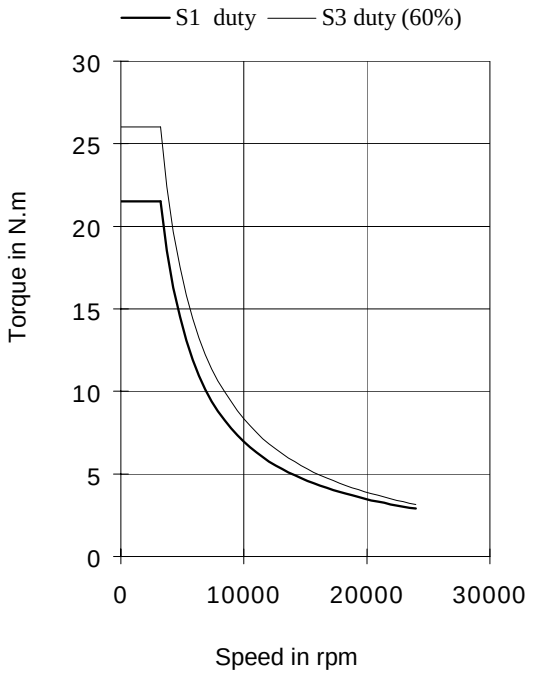
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

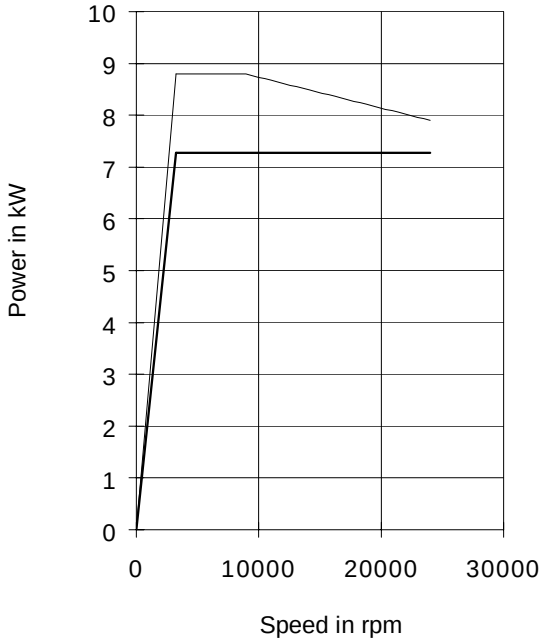
S1 power	***7.3***	*kW*	*Ps1*
S3 power	***8.8***	*kW*	*Ps3*
Low speed torque	***21.5***	*N.m*	M_o
Low speed S3 torque	***26***	*N.m*	M_o *S3*
Base speed	***3230***	*rpm*	*Nb*
Max speed	***24000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***25.2***	*Â*	$\hat{I}_o$
S3 current at low speed	***30.5***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***1.52***	*Ω*	$\bar{R}b$
Rotor inertia	***0.007***	*kg.m²*	*J*
Thermal time constant	***2.4***	*min*	*Tth*
Motor mass	***8***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***5***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 05 mai 1997	**Edition: 17/juin/1999**	**HW820RR**	**b**

DC-BRUSHLESS MOTOR
HW820RP
ELECTRONIC DRIVE
DIGIVEX 50/80 - 400

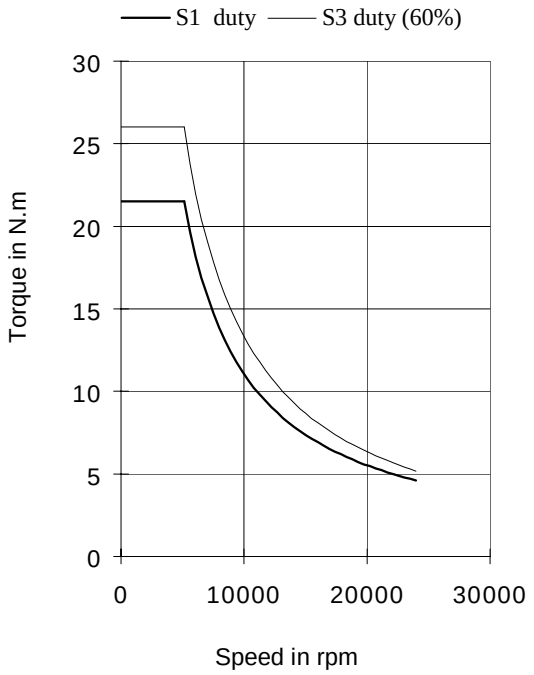
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

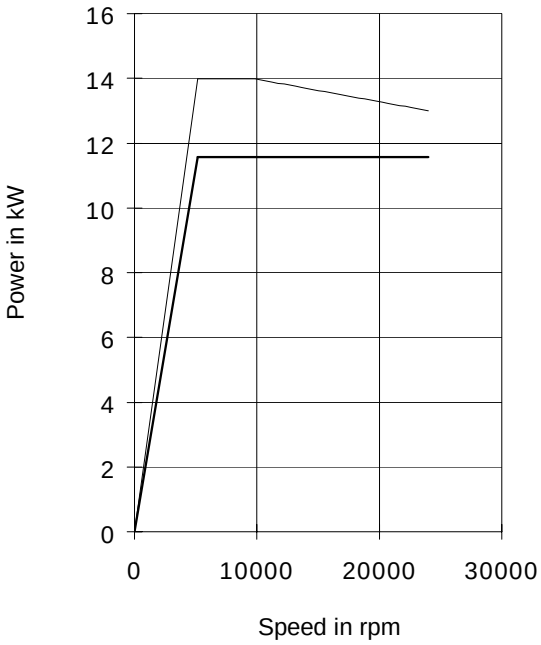
S1 power	***11.6***	*kW*	*Ps1*
S3 power	***14***	*kW*	*Ps3*
Low speed torque	***21.5***	*N.m*	M_o
Low speed S3 torque	***26***	*N.m*	M_o *S3*
Base speed	***5140***	*rpm*	*Nb*
Max speed	***24000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***39.4***	*Â*	$\hat{I}_o$
S3 current at low speed	***47.6***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.602***	*Ω*	*Rb*
Rotor inertia	***0.007***	*kg.m²*	*J*
Thermal time constant	***2.4***	*min*	*Tth*
Motor mass	***8***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***5***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 06 mai 1997	**Edition: 17/juin/1999**	**HW820RP**	**b**

DC-BRUSHLESS MOTOR
HW820CR
ELECTRONIC DRIVE
DIGIVEX 32/64 - 400

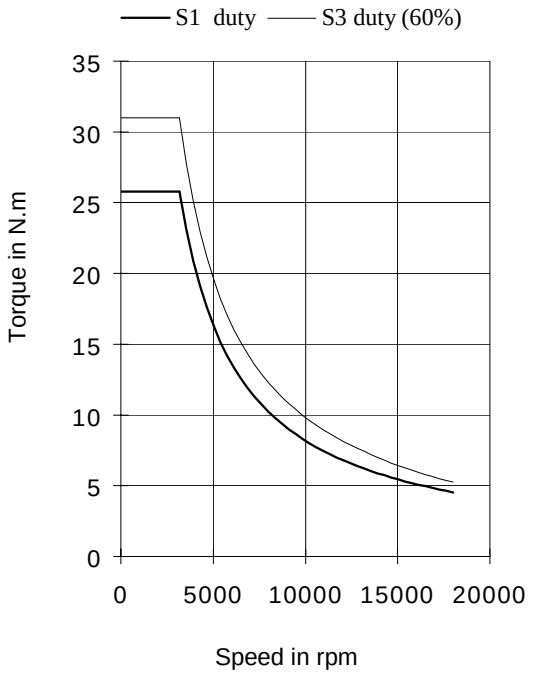
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

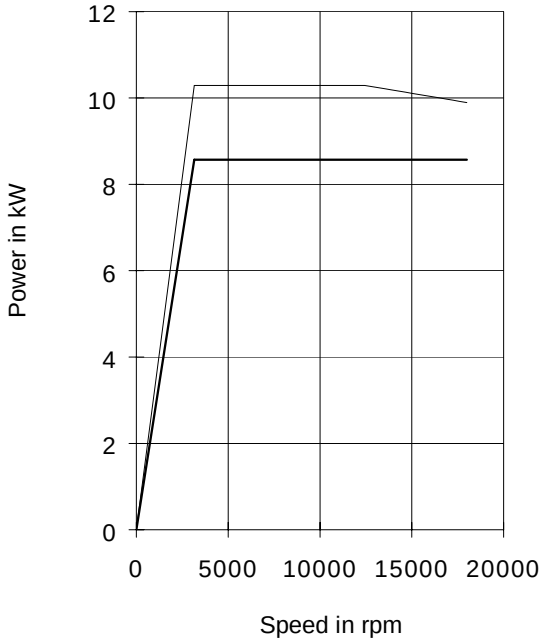
S1 power	***8.6***	*kW*	*Ps1*
S3 power	***10.3***	*kW*	*Ps3*
Low speed torque	***25.8***	*N.m*	M_o
Low speed S3 torque	***31***	*N.m*	M_o *S3*
Base speed	***3170***	*rpm*	*Nb*
Max speed	***18000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***24.7***	*Â*	$\hat{I}_o$
S3 current at low speed	***29.8***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***1.52***	*Ω*	*Rb*
Rotor inertia	***0.007***	*kg.m²*	*J*
Thermal time constant	***2.4***	*min*	*Tth*
Motor mass	***8***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***5***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 10 avr 1997	**Edition: 17/juin/1999**	**HW820CR**	**b**

DC-BRUSHLESS MOTOR
HW820CP
ELECTRONIC DRIVE
DIGIVEX 50/80 - 400

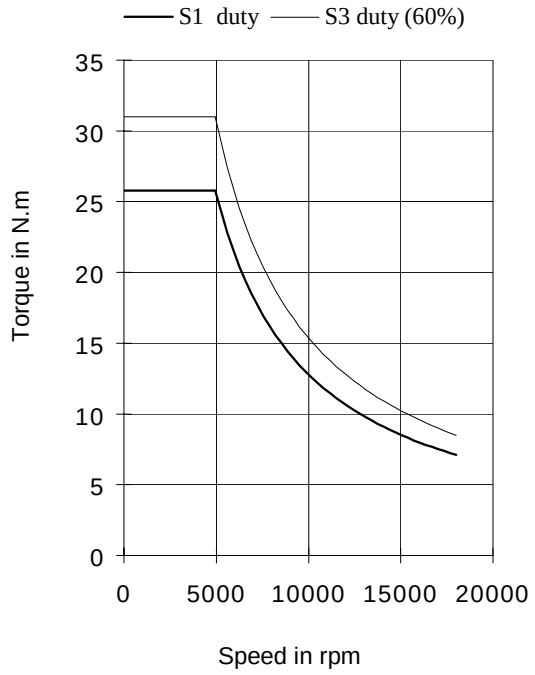
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

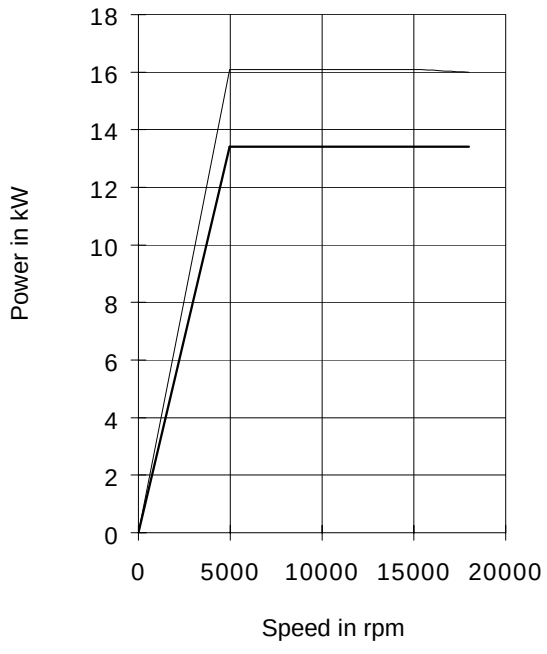
S1 power	***13.4***	*kW*	*Ps1*
S3 power	***16***	*kW*	*Ps3*
Low speed torque	***25.8***	*N.m*	M_o
Low speed S3 torque	***31***	*N.m*	M_o *S3*
Base speed	***4960***	*rpm*	*Nb*
Max speed	***18000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***38.6***	*Â*	$\hat{I}_o$
S3 current at low speed	***46.6***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.602***	*Ω*	$\bar{R}b$
Rotor inertia	***0.007***	*kg.m²*	*J*
Thermal time constant	***2.4***	*min*	*Tth*
Motor mass	***8***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***5***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 30 avr 1997	**Edition: 17/juin/1999**	**HW820CP**	**b**

DC-BRUSHLESS MOTOR
HW840CR
ELECTRONIC DRIVE
DIGIVEX 32/64 - 400

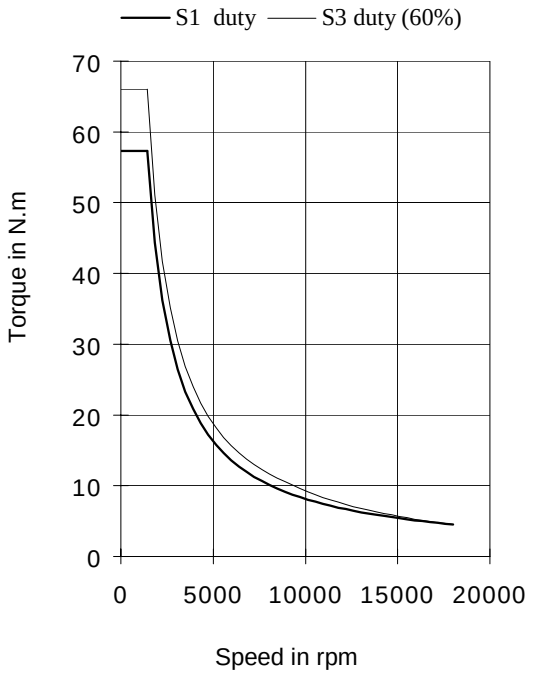
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

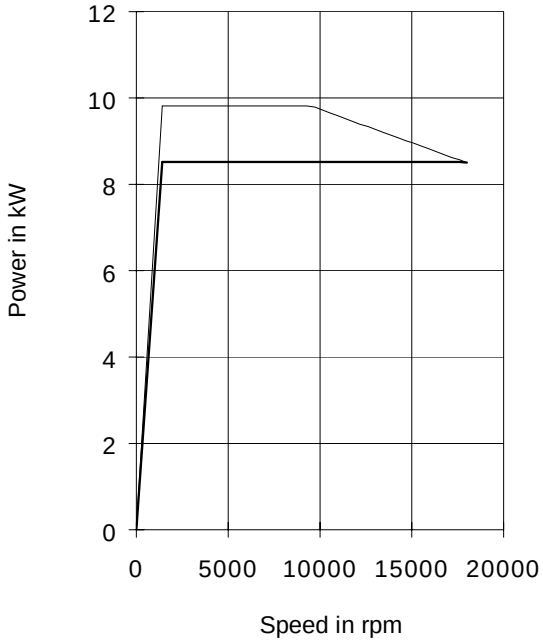
S1 power	***8.5***	*kW*	*Ps1*
S3 power	***10***	*kW*	*Ps3*
Low speed torque	***57.3***	*N.m*	M_o
Low speed S3 torque	***66***	*N.m*	M_o *S3*
Base speed	***1420***	*rpm*	*Nb*
Max speed	***18000***	*rpm*	*N*
DC voltage supply when motor is loaded	***540***	*V*	$\hat{U}$
Permanent current at low speed	***27.5***	*Â*	$\hat{I}_o$
S3 current at low speed	***31.8***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***2.18***	*Ω*	*Rb*
Rotor inertia	***0.0137***	*kg.m²*	*J*
Thermal time constant	***2.4***	*min*	*Tth*
Motor mass	***16***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***8***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 02 mai 1997	**Edition: 17/juin/1999**	**HW840CR**	**b**

DC-BRUSHLESS MOTOR

HW840CP

ELECTRONIC DRIVE

DIGIVEX 50/80 - 400

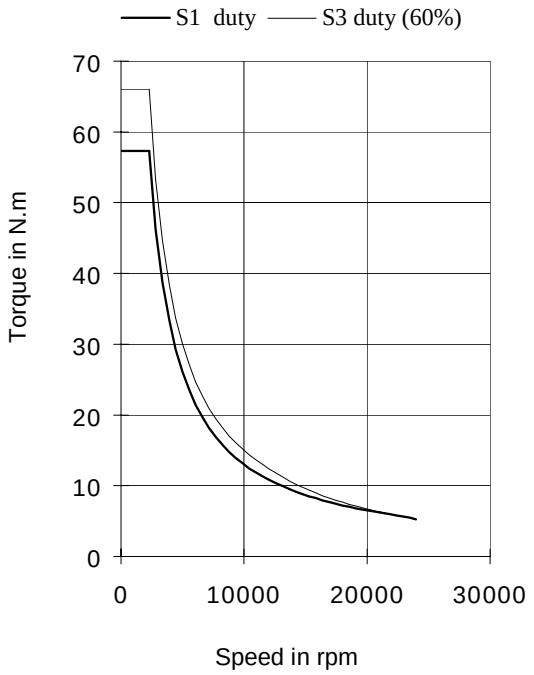
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

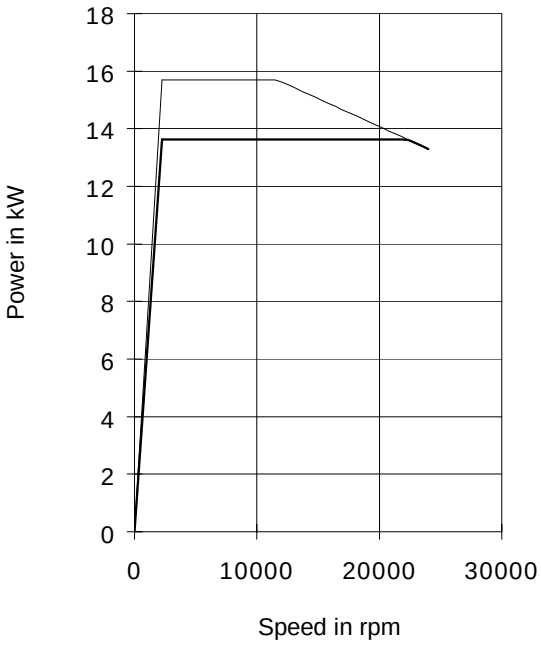
S1 power	***13.6***	*kW*	*Ps1*
S3 power	***16***	*kW*	*Ps3*
Low speed torque	***57.3***	*N.m*	M_o
Low speed S3 torque	***66***	*N.m*	M_o *S3*
Base speed	***2270***	*rpm*	*Nb*
Max speed	***24000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***42.9***	*Â*	$\hat{I}_o$
S3 current at low speed	***49.8***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.866***	*Ω*	*Rb*
Rotor inertia	***0.0137***	*kg.m²*	*J*
Thermal time constant	***2.4***	*min*	*Tth*
Motor mass	***16***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***10***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 02 mai 1997	**Edition: 17/juin/1999**	**HW840CP**	**c**

DC-BRUSHLESS MOTOR
HW840CH
ELECTRONIC DRIVE
DIGIVEX 100/120 - 400

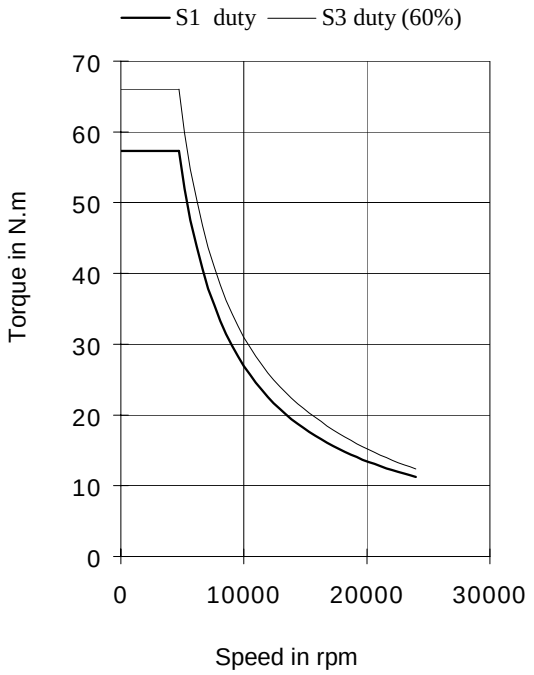
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

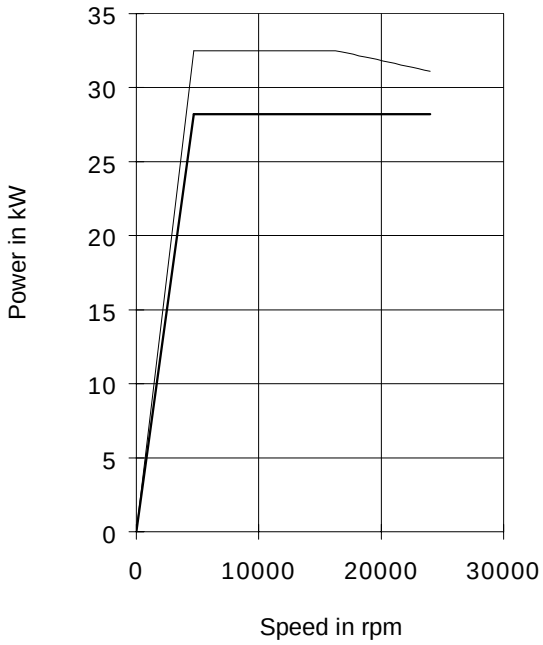
S1 power	***28***	*kW*	*Ps1*
S3 power	***32***	*kW*	*Ps3*
Low speed torque	***57.3***	*N.m*	M_o
Low speed S3 torque	***66***	*N.m*	M_o *S3*
Base speed	***4700***	*rpm*	*Nb*
Max speed	***24000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***85.8***	*Â*	$\hat{I}_o$
S3 current at low speed	***99.5***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.22***	*Ω*	*Rb*
Rotor inertia	***0.0137***	*kg.m²*	*J*
Thermal time constant	***2.4***	*min*	*Tth*
Motor mass	***16***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***10***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 02 mai 1997	**Edition: 17/juin/1999**	**HW840CH**	**c**

DC-BRUSHLESS MOTOR
HW840CF
ELECTRONIC DRIVE
DIGIVEX 150 - 400

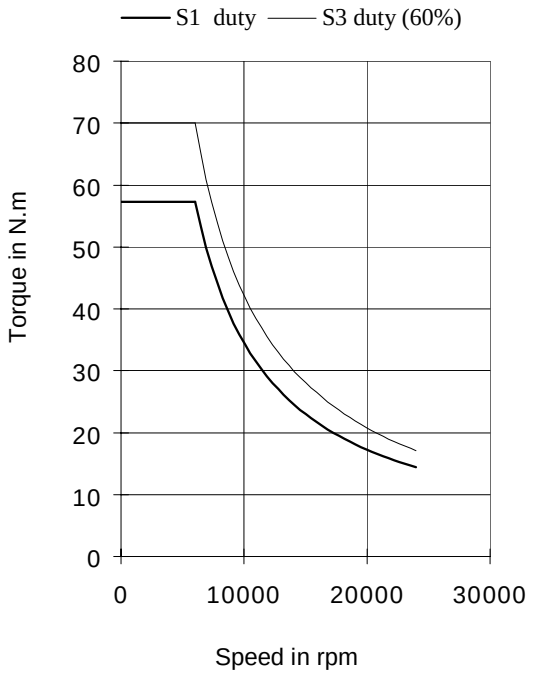
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

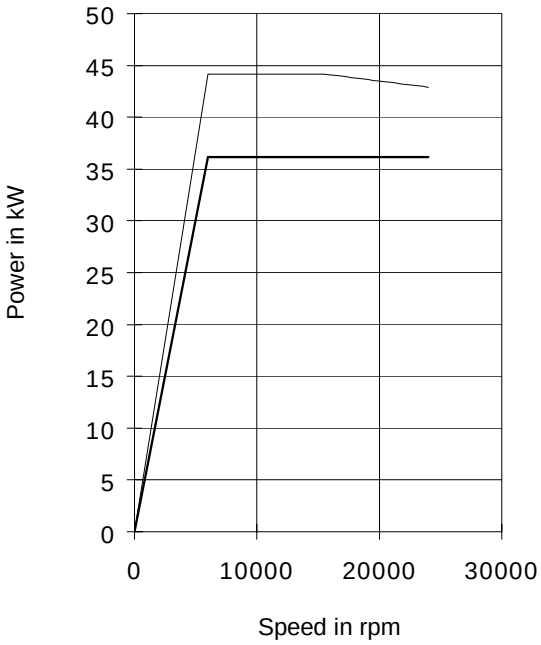
S1 power	***36***	*kW*	*Ps1*
S3 power	***44***	*kW*	*Ps3*
Low speed torque	***57.3***	*N.m*	M_o
Low speed S3 torque	***70***	*N.m*	M_o *S3*
Base speed	***6020***	*rpm*	*Nb*
Max speed	***24000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***114***	*Â*	$\hat{I}_o$
S3 current at low speed	***141***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.123***	*Ω*	*Rb*
Rotor inertia	***0.0137***	*kg.m²*	*J*
Thermal time constant	***2.4***	*min*	*Tth*
Motor mass	***16***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***8***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 27 août 1997	**Edition: 17/juin/1999**	**HW840CF**	**a**

DC-BRUSHLESS MOTOR
HW930CI
ELECTRONIC DRIVE
DIGIVEX 100/120 - 400

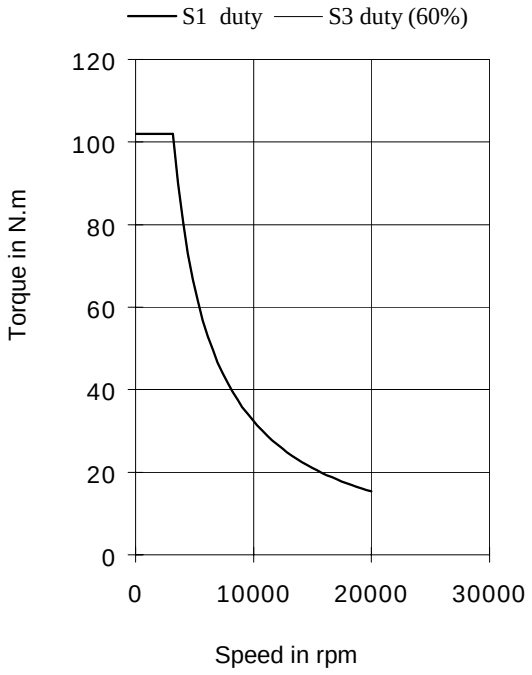
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

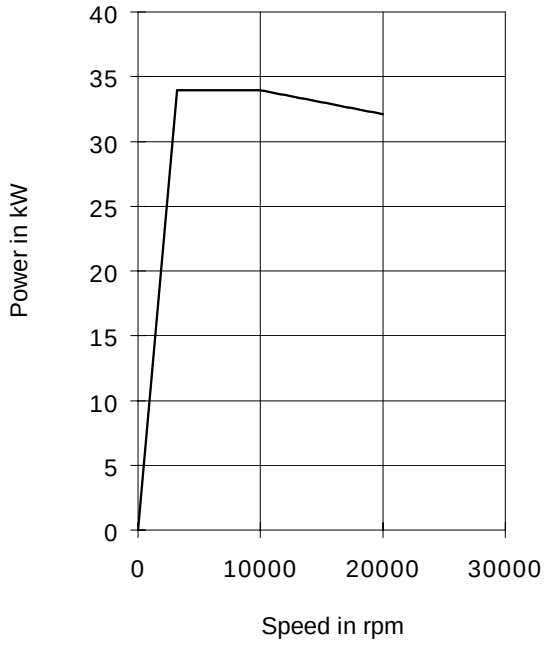
S1 power	***34***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***102***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***3180***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***98.1***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.153***	*Ω*	*Rb*
Rotor inertia	***0.034***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***35***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***10***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 27 juil 1998	**Edition: 17/juin/1999**	**HW930CI**	**a**

DC-BRUSHLESS MOTOR
HW930CF
ELECTRONIC DRIVE
DIGIVEX 150 - 400

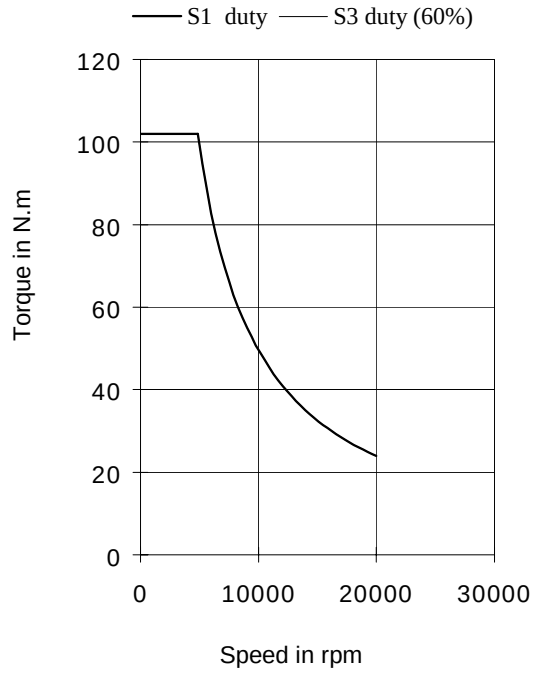
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

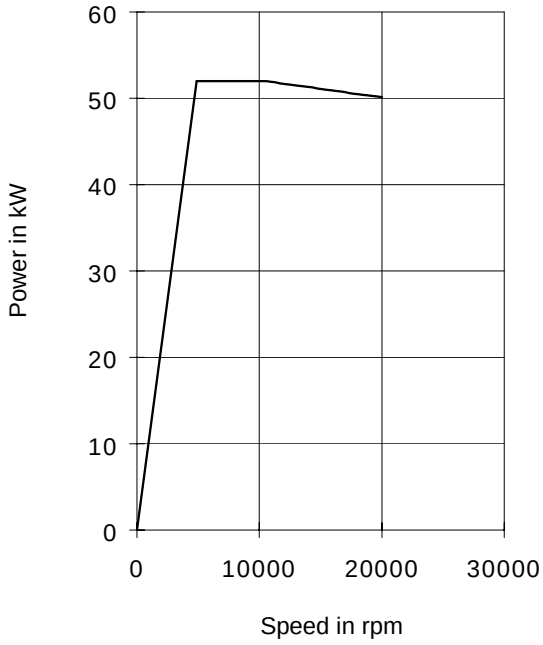
S1 power	***52***	*kW*	*Ps1*
S3 power	*-*	*kW*	*Ps3*
Low speed torque	***102***	*N.m*	M_o
Low speed S3 torque	*-*	*N.m*	M_o *S3*
Base speed	***4870***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***147***	*Â*	$\hat{I}_o$
S3 current at low speed	*-*	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.0706***	*Ω*	$\bar{R}b$
Rotor inertia	***0.034***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***35***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***10***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 27 juil 1998	**Edition: 17/juin/1999**	**HW930CF**	**a**

DC-BRUSHLESS MOTOR
HW930CC
ELECTRONIC DRIVE
DIGIVEX 300 - 400

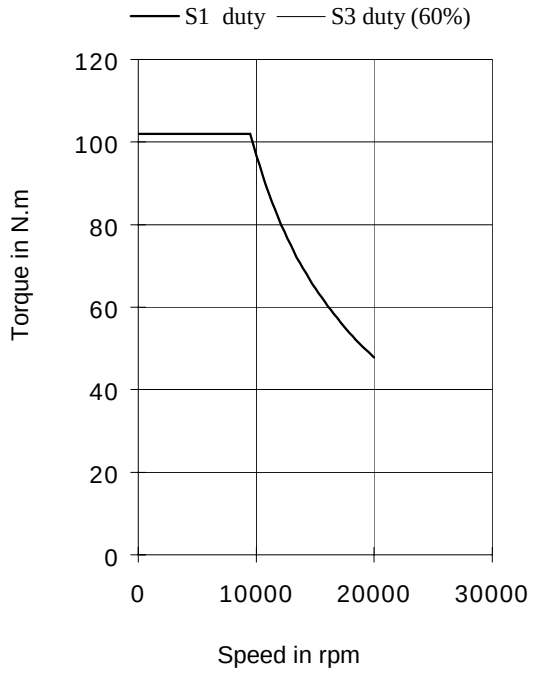
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

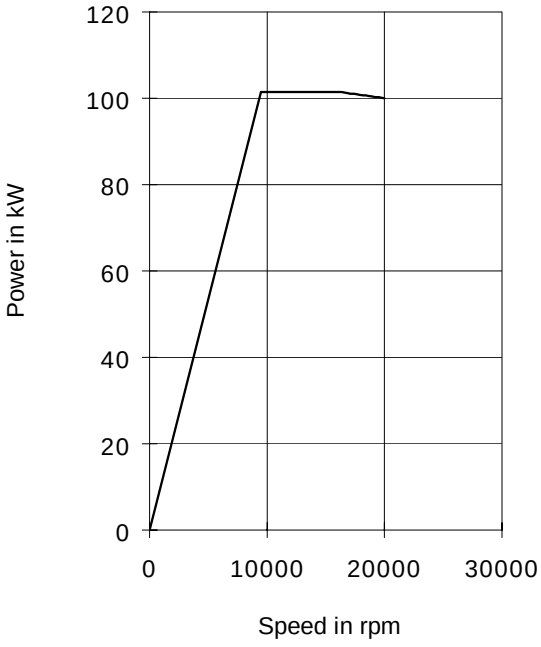
S1 power	***100***	*kW*	*Ps1*
S3 power	*-*	*kW*	*Ps3*
Low speed torque	***102***	*N.m*	M_o
Low speed S3 torque	*-*	*N.m*	M_o *S3*
Base speed	***9500***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***294***	*Â*	$\hat{I}_o$
S3 current at low speed	*-*	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.017***	*Ω*	*Rb*
Rotor inertia	***0.034***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***35***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***10***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 27 juil 1998	**Edition: 17/juin/1999**	**HW930CC**	**b**

DC-BRUSHLESS MOTOR
HW930CJ
ELECTRONIC DRIVE
DIGIVEX 100/120 - 400

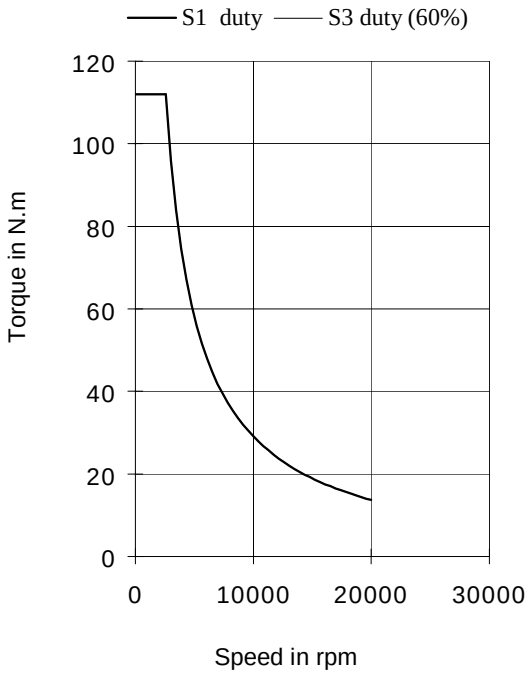
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

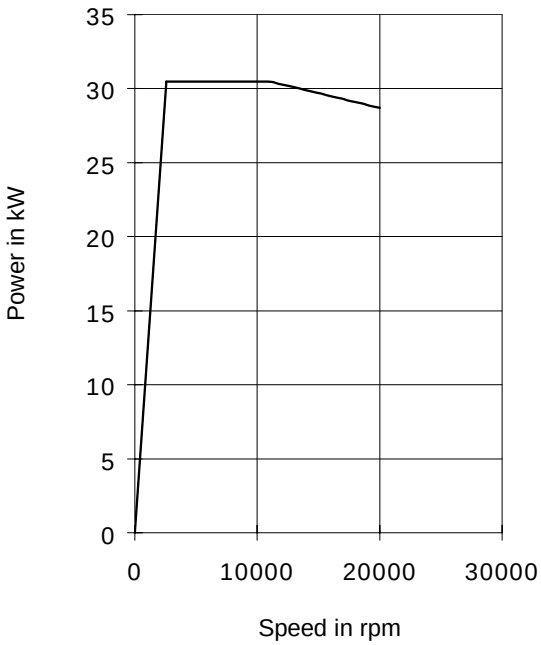
S1 power	***30***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***112***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***2600***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***98.4***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.191***	*Ω*	$\bar{R}b$
Rotor inertia	***0.034***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***35***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***10***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 27 juil 1998	**Edition: 17/juin/1999**	**HW930CJ**	**a**

DC-BRUSHLESS MOTOR
HW930CE
ELECTRONIC DRIVE
DIGIVEX 200 - 400

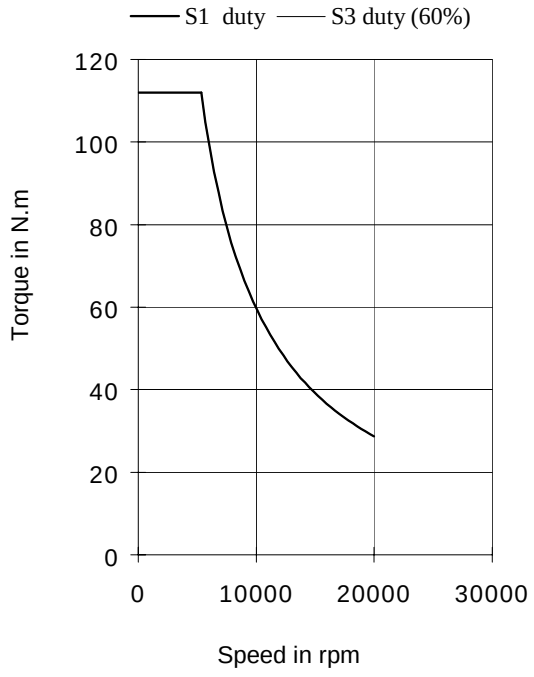
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

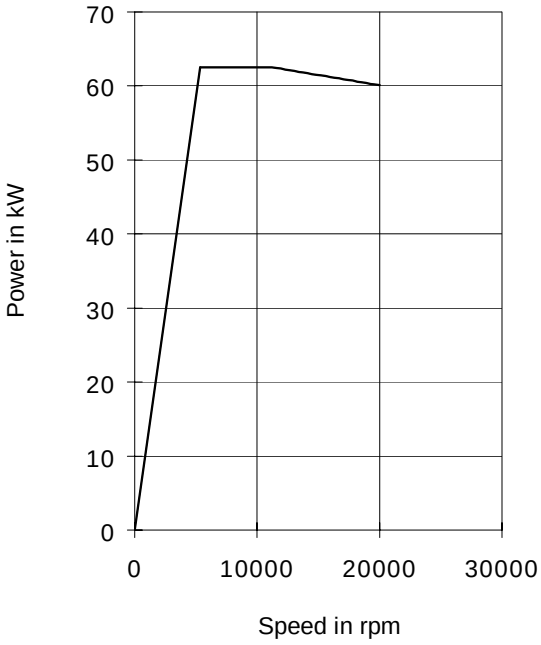
S1 power	***63***	*kW*	*Ps1*
S3 power	*-*	*kW*	*Ps3*
Low speed torque	***112***	*N.m*	M_o
Low speed S3 torque	*-*	*N.m*	M_o *S3*
Base speed	***5330***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***197***	*Â*	$\hat{I}_o$
S3 current at low speed	*-*	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.0478***	*Ω*	*Rb*
Rotor inertia	***0.034***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***35***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***10***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 27 juil 1998	**Edition: 17/juin/1999**	**HW930CE**	**b**

DC-BRUSHLESS MOTOR
HW950CI
ELECTRONIC DRIVE
DIGIVEX 100/120 - 400

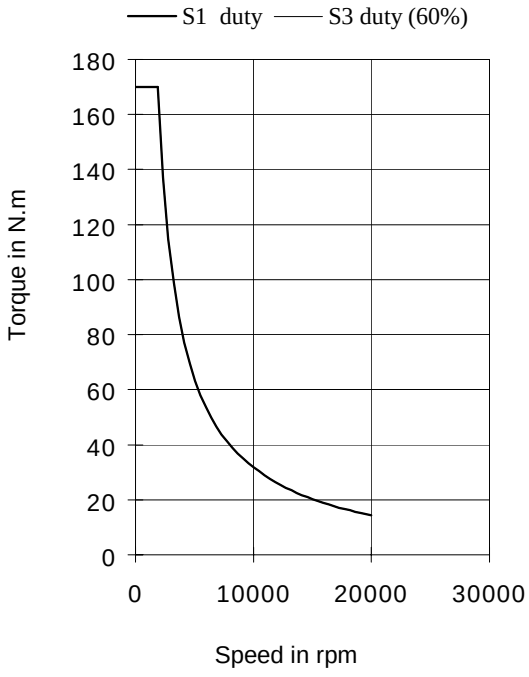
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

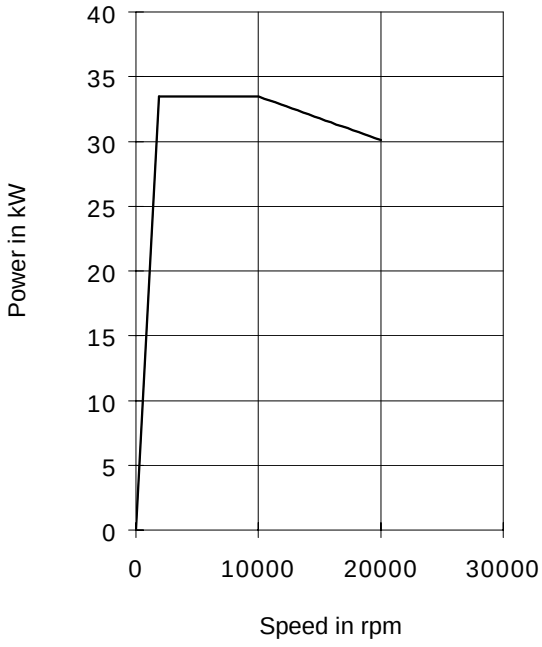
S1 power	***33***	*kW*	*Ps1*
S3 power	*-*	*kW*	*Ps3*
Low speed torque	***170***	*N.m*	M_o
Low speed S3 torque	*-*	*N.m*	M_o *S3*
Base speed	***1880***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***98.1***	*Â*	$\hat{I}_o$
S3 current at low speed	*-*	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.215***	*Ω*	$\bar{R}b$
Rotor inertia	***0.055***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***58***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***16***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 28 juil 1998	**Edition: 17/juin/1999**	**HW950CI**	**c**

DC-BRUSHLESS MOTOR
HW950CF
ELECTRONIC DRIVE
DIGIVEX 150 - 400

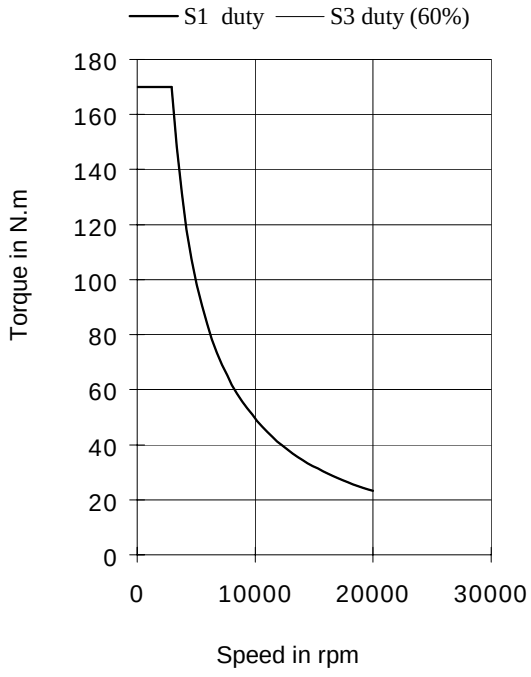
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

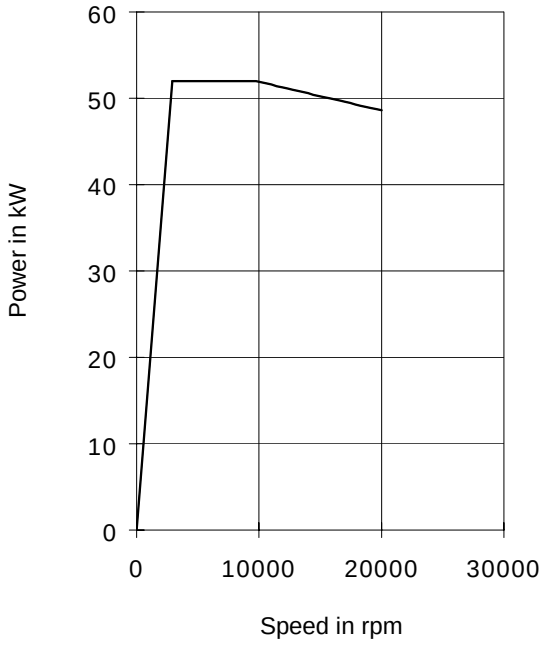
S1 power	***52***	*kW*	*Ps1*
S3 power	*-*	*kW*	*Ps3*
Low speed torque	***170***	*N.m*	M_o
Low speed S3 torque	*-*	*N.m*	M_o *S3*
Base speed	***2920***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***147***	*Â*	$\hat{I}_o$
S3 current at low speed	*-*	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.0993***	*Ω*	$\bar{R}b$
Rotor inertia	***0.055***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***58***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***16***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 28 juil 1998	**Edition: 17/juin/1999**	**HW950CF**	**c**

DC-BRUSHLESS MOTOR
HW950CC
ELECTRONIC DRIVE
DIGIVEX 300 - 400

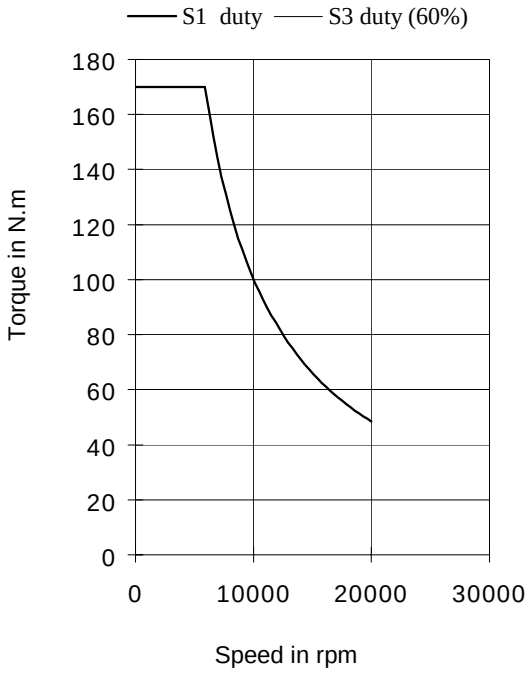
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

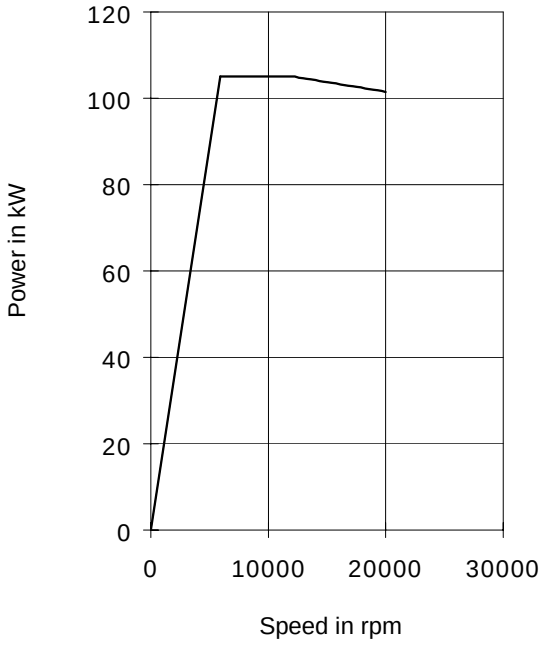
S1 power	***105***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***170***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***5900***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***294***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.0239***	*Ω*	$\bar{R}b$
Rotor inertia	***0.055***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***58***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***16***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 02 déc 1997	**Edition: 17/juin/1999**	**HW950CC**	**d**

DC-BRUSHLESS MOTOR
HW950CJ
ELECTRONIC DRIVE
DIGIVEX 100/120 - 400

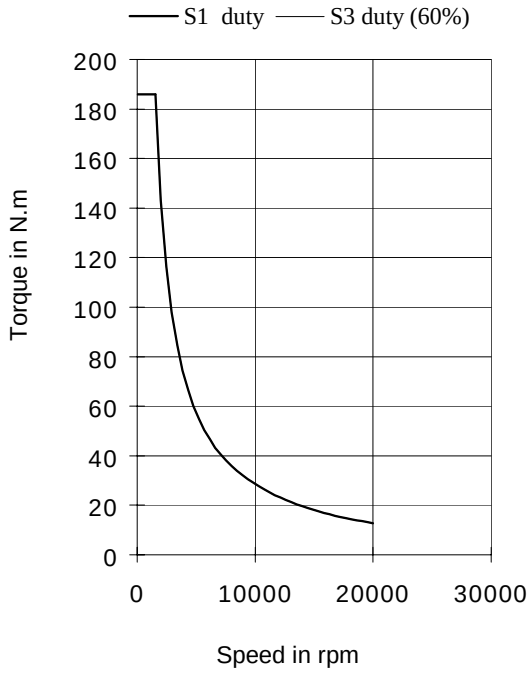
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

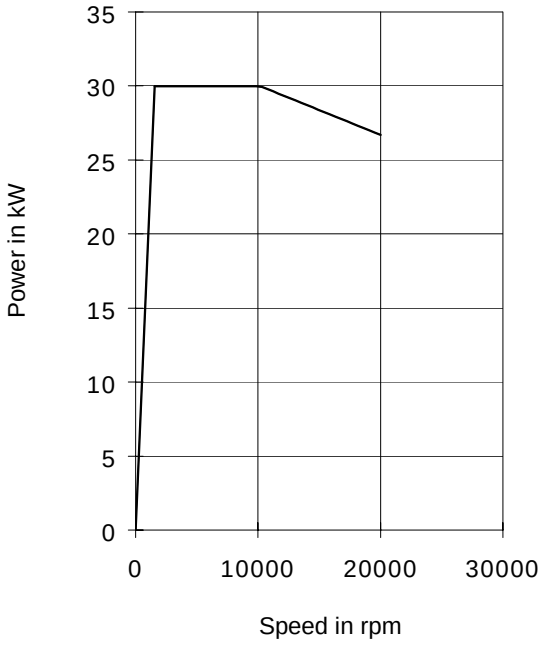
S1 power	***30***	*kW*	*Ps1*
S3 power	*-*	*kW*	*Ps3*
Low speed torque	***186***	*N.m*	M_o
Low speed S3 torque	*-*	*N.m*	M_o *S3*
Base speed	***1540***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***98***	*Â*	$\hat{I}_o$
S3 current at low speed	*-*	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.269***	*Ω*	$\bar{R}b$
Rotor inertia	***0.055***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***58***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***16***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 02 déc 1997	**Edition: 17/juin/1999**	**HW950CJ**	**c**

DC-BRUSHLESS MOTOR
HW950CE
ELECTRONIC DRIVE
DIGIVEX 200 - 400

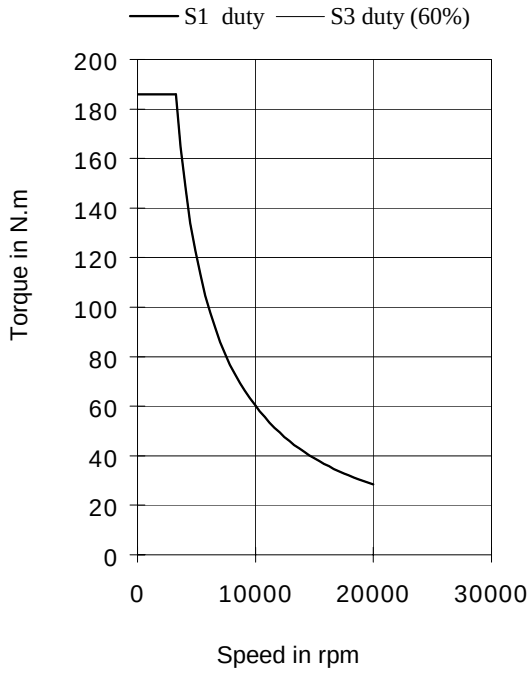
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

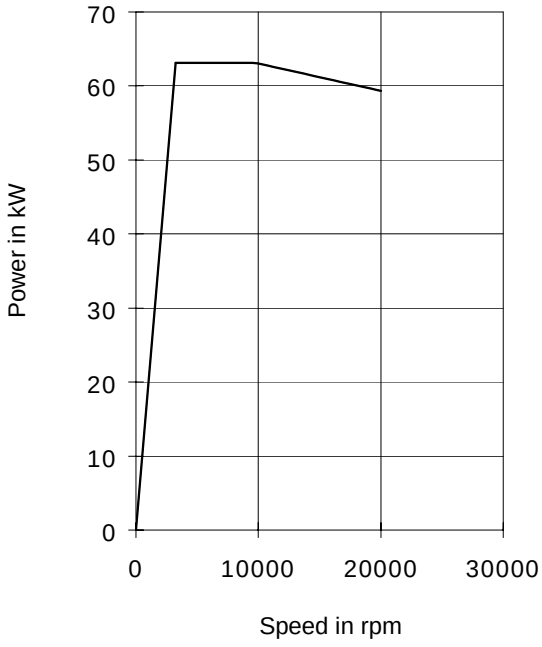
S1 power	***63***	*kW*	*Ps1*
S3 power	*-*	*kW*	*Ps3*
Low speed torque	***186***	*N.m*	M_o
Low speed S3 torque	*-*	*N.m*	M_o *S3*
Base speed	***3240***	*rpm*	*Nb*
Max speed	***20000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***196***	*Â*	$\hat{I}_o$
S3 current at low speed	*-*	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.0672***	*Ω*	$\bar{R}b$
Rotor inertia	***0.055***	*kg.m²*	*J*
Thermal time constant	***3.2***	*min*	*Tth*
Motor mass	***58***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***16***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 02 déc 1997	**Edition: 17/juin/1999**	**HW950CE**	**d**

DC-BRUSHLESS MOTOR
HWA30DN
ELECTRONIC DRIVE
DIGIVEX 50/80 - 400

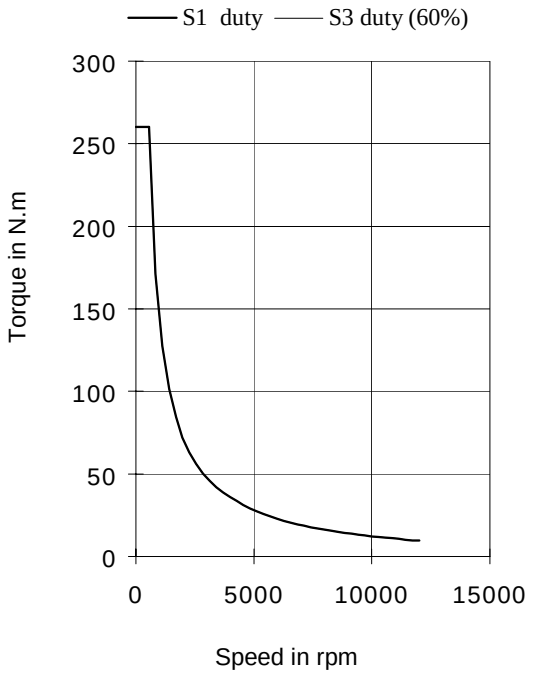
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

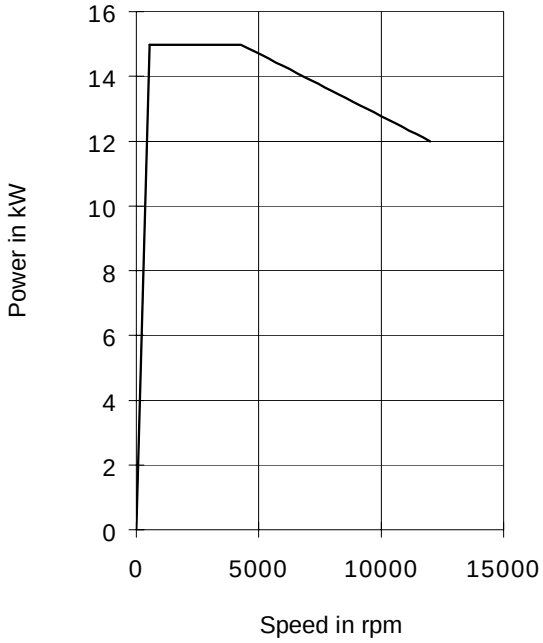
S1 power	***15***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***260***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***550***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***48.5***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***1.52***	*Ω*	*Rb*
Rotor inertia	***0.142***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***70***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***18***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 05 mai 1997	**Edition: 17/juin/1999**	**HWA30DN**	**b**

DC-BRUSHLESS MOTOR
HWA30DF
ELECTRONIC DRIVE
DIGIVEX 100/120 - 400

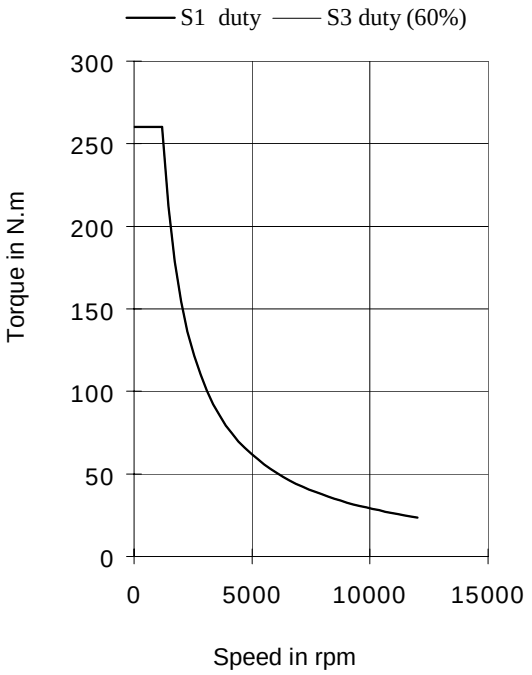
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

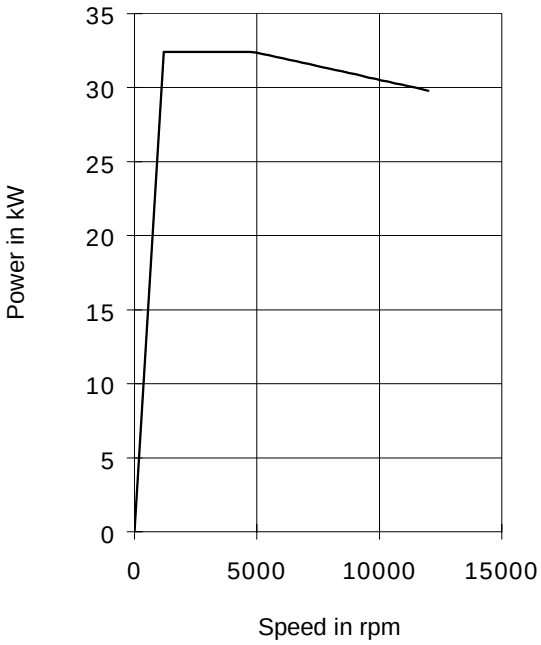
S1 power	***32***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***260***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***1190***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***96.9***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.381***	*Ω*	*Rb*
Rotor inertia	***0.142***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***70***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***18***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 05 mai 1997	**Edition: 17/juin/1999**	**HWA30DF**	**b**

DC-BRUSHLESS MOTOR
HWA30DD
ELECTRONIC DRIVE
DIGIVEX 150 - 400

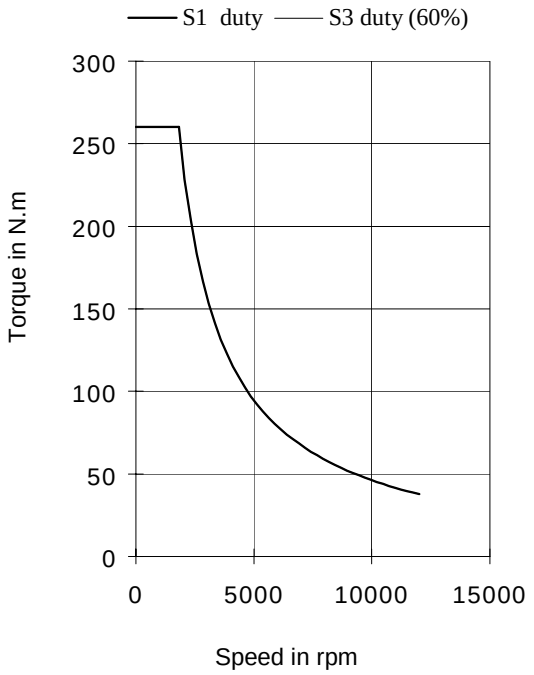
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

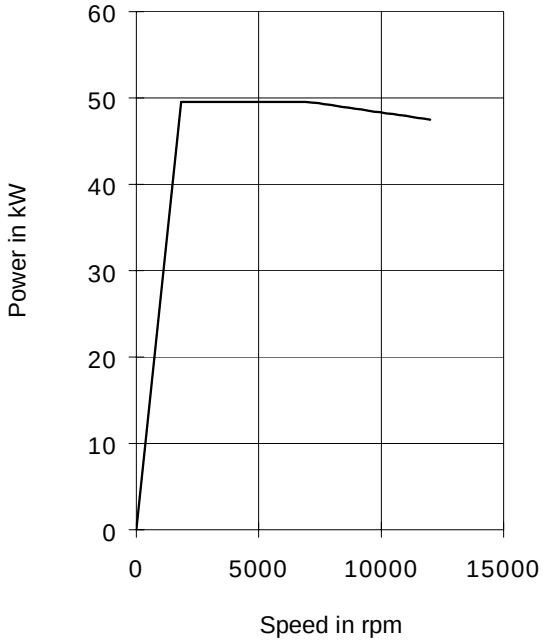
S1 power	***50***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***260***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***1820***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***145***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.169***	*Ω*	*Rb*
Rotor inertia	***0.142***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***70***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***18***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 11 sept 1997	**Edition: 17/juin/1999**	**HWA30DD**

DC-BRUSHLESS MOTOR
HWA30DC
ELECTRONIC DRIVE
DIGIVEX 200 - 400

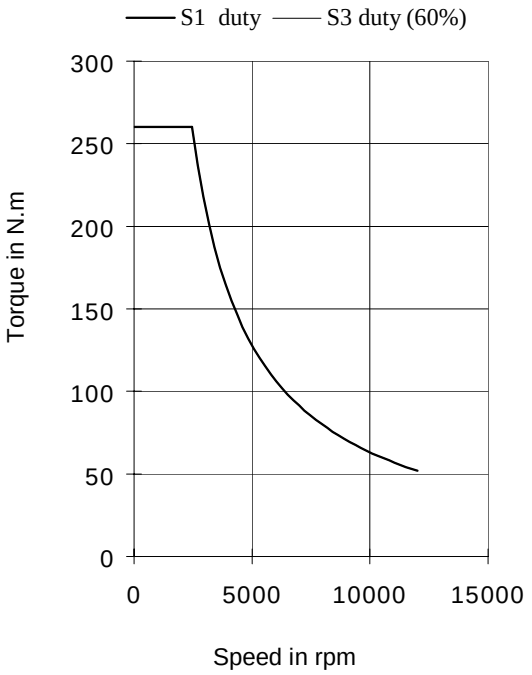
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

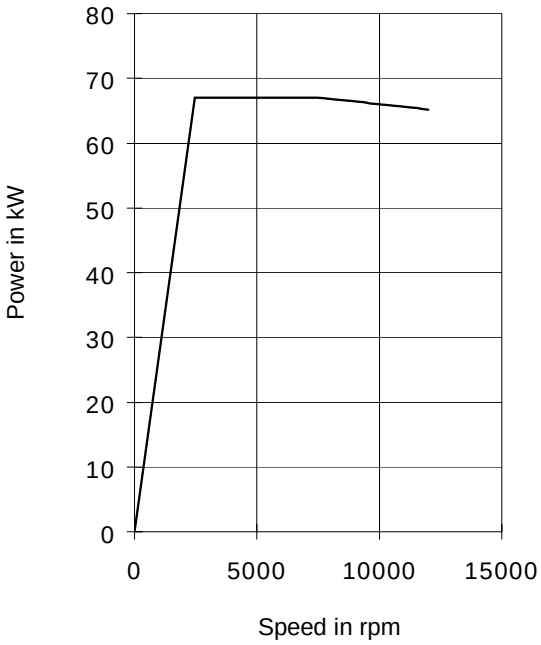
S1 power	***67***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***260***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***2460***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***194***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.0952***	*Ω*	*Rb*
Rotor inertia	***0.142***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***70***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***18***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 26 avr 1999	**Edition: 17/juin/1999**	**HWA30DC**	**a**

DC-BRUSHLESS MOTOR
HWA30DB
ELECTRONIC DRIVE
DIGIVEX 300 - 400

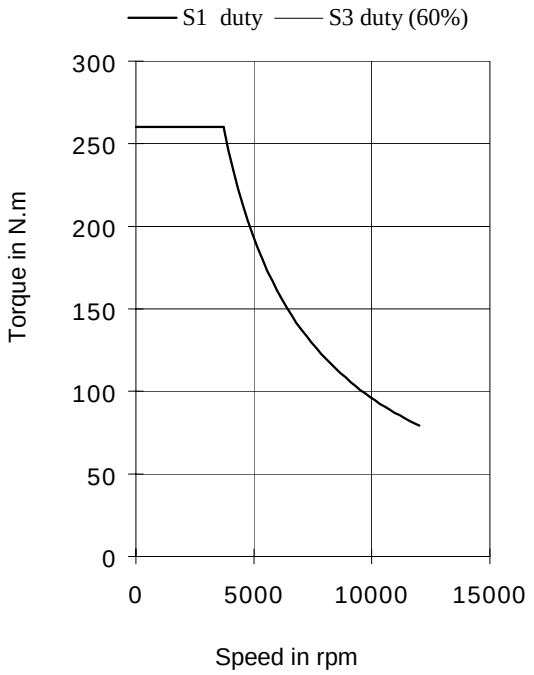
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

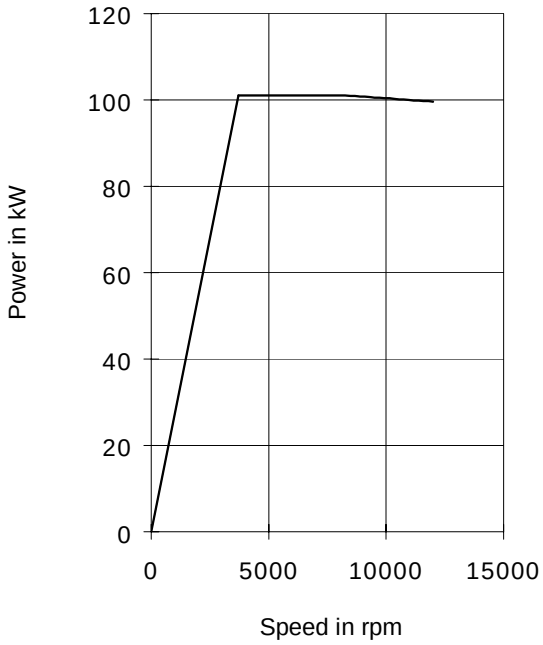
S1 power	***100***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***260***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***3710***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***291***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.0424***	*Ω*	*Rb*
Rotor inertia	***0.142***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***70***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***18***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 26 avr 1999	**Edition: 17/juin/1999**	**HWA30DB**	**a**

DC-BRUSHLESS MOTOR
HWA50DG
ELECTRONIC DRIVE
DIGIVEX 100/120 - 400

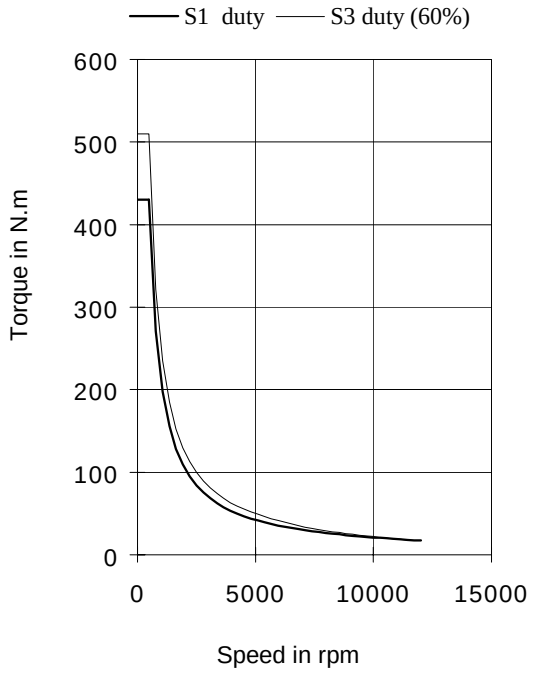
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

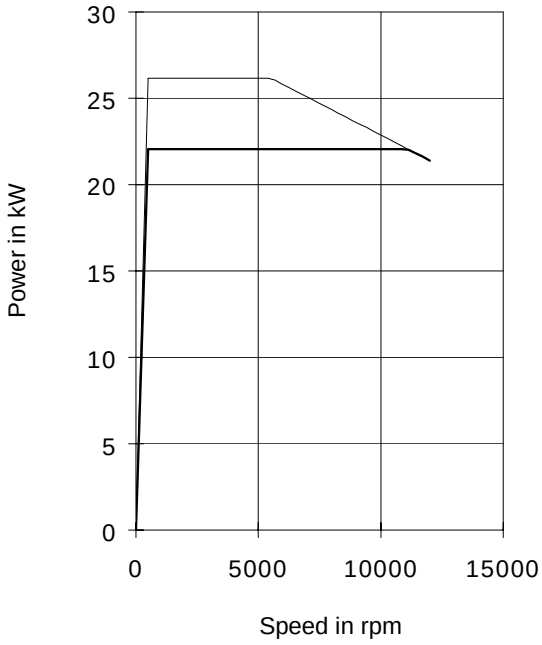
S1 power	***22***	*kW*	*Ps1*
S3 power	***26***	*kW*	*Ps3*
Low speed torque	***430***	*N.m*	M_o
Low speed S3 torque	***510***	*N.m*	M_o *S3*
Base speed	***490***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***82.4***	*Â*	$\hat{I}_o$
S3 current at low speed	***99.8***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.77***	*Ω*	$\bar{R}b$
Rotor inertia	***0.235***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 07 avr 1997	**Edition: 17/juin/1999**	**HWA50DG**	**b**

DC-BRUSHLESS MOTOR
HWA50DF
ELECTRONIC DRIVE
DIGIVEX 100/120 - 400

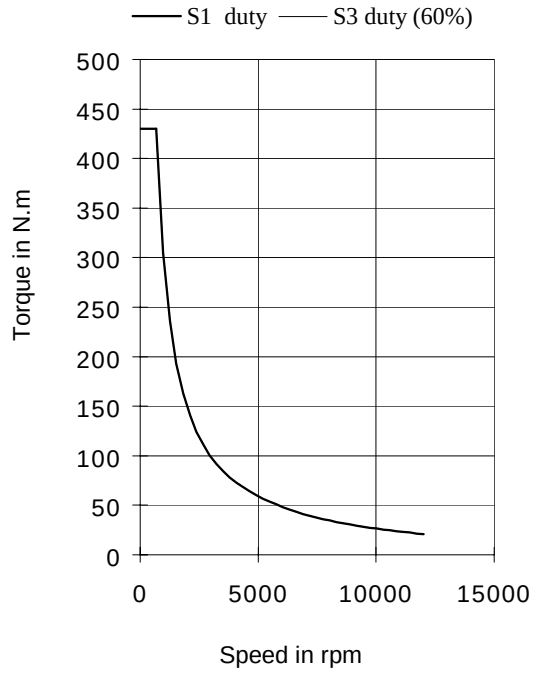
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

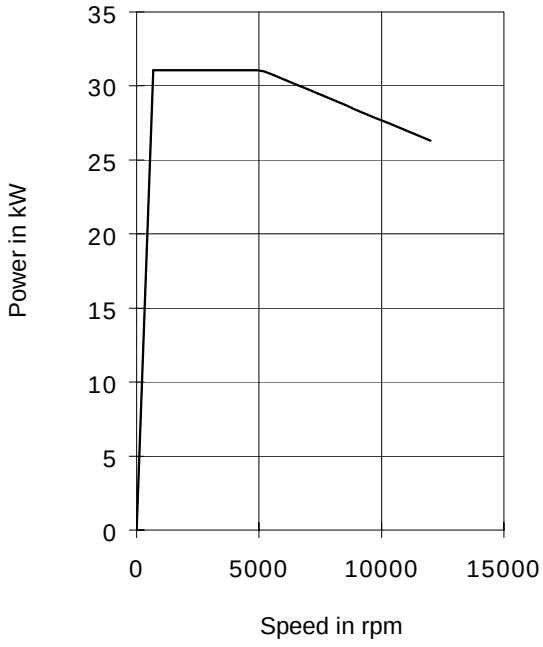
S1 power	***31***	*kW*	*Ps1*
S3 power	*-*	*kW*	*Ps3*
Low speed torque	***430***	*N.m*	M_o
Low speed S3 torque	*-*	*N.m*	M_o *S3*
Base speed	***690***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***96.1***	*Â*	$\hat{I}_o$
S3 current at low speed	*-*	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.566***	*Ω*	$\bar{R}b$
Rotor inertia	***0.235***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 05 mai 1997	**Edition: 17/juin/1999**	**HWA50DF**	**b**

DC-BRUSHLESS MOTOR
HWA50DD
ELECTRONIC DRIVE
DIGIVEX 150 - 400

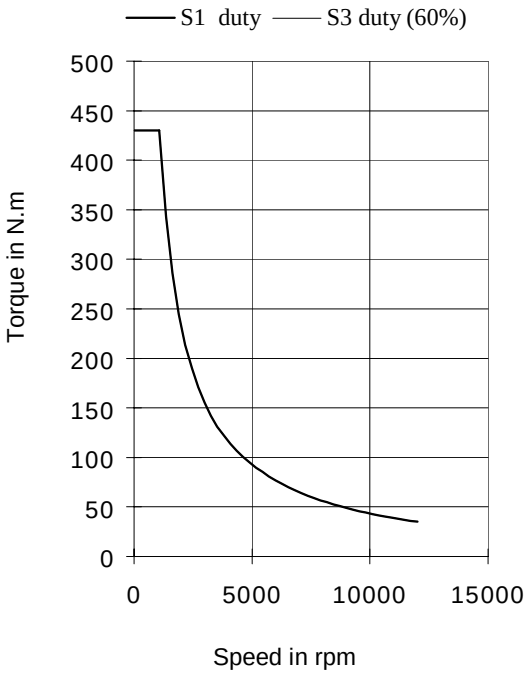
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

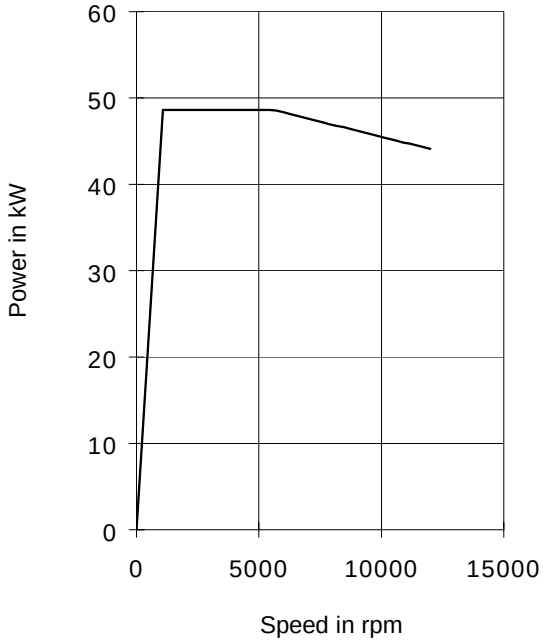
S1 power	***49***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***430***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***1080***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***144***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.251***	*Ω*	*Rb*
Rotor inertia	***0.235***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 11 sept 1997	**Edition: 17/juin/1999**	**HWA50DD**

DC-BRUSHLESS MOTOR
HWA50DC
ELECTRONIC DRIVE
DIGIVEX 200 - 400

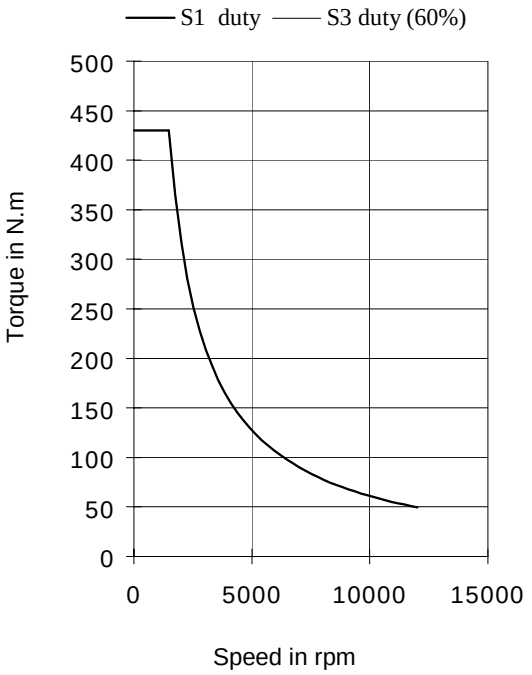
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

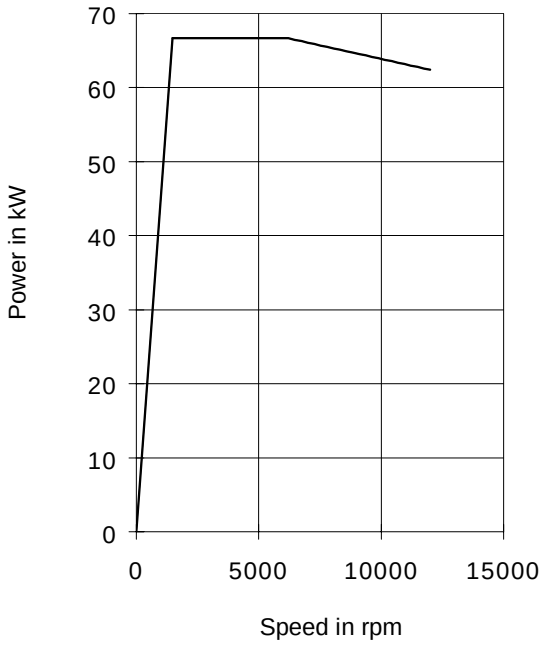
S1 power	***67***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***430***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***1480***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***192***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.141***	*Ω*	*Rb*
Rotor inertia	***0.235***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 29 juil 1998	**Edition: 17/juin/1999**	**HWA50DC**	**a**

DC-BRUSHLESS MOTOR
HWA50DB
ELECTRONIC DRIVE
DIGIVEX 300 - 400

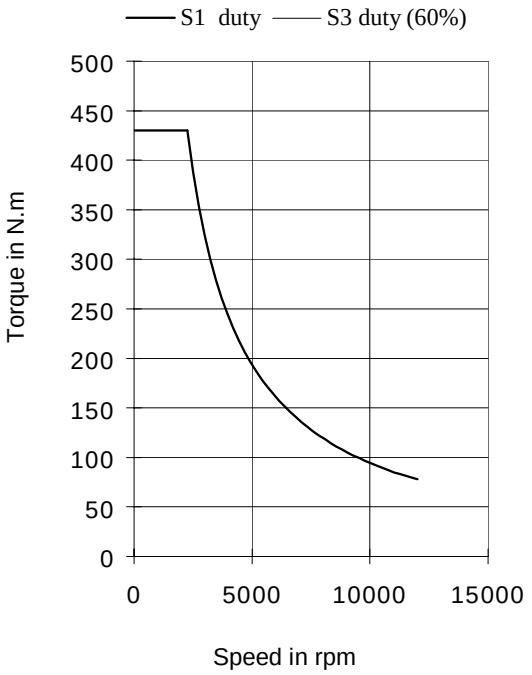
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

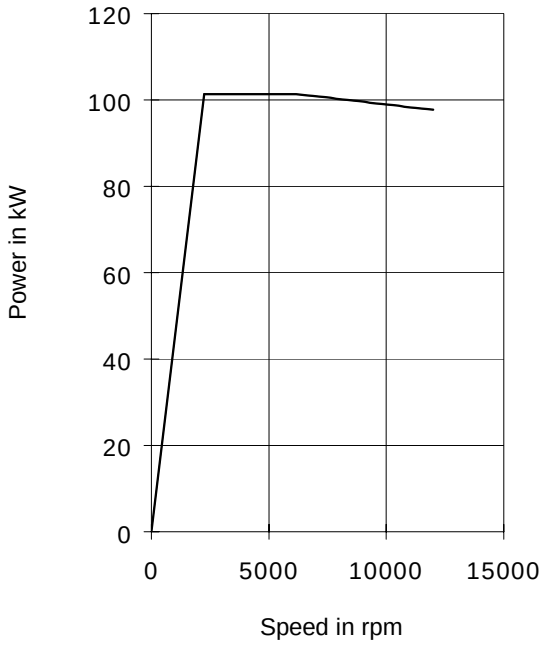
S1 power	***100***	*kW*	*Ps1*
S3 power	***-***	*kW*	*Ps3*
Low speed torque	***430***	*N.m*	M_o
Low speed S3 torque	***-***	*N.m*	M_o *S3*
Base speed	***2250***	*rpm*	*Nb*
Max speed	***12000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	$\hat{U}$
Permanent current at low speed	***288***	*Â*	$\hat{I}_o$
S3 current at low speed	***-***	*Â*	$\hat{I}_o$ *S3*
*Winding resistance(25°C) **	***0.063***	*Ω*	*Rb*
Rotor inertia	***0.235***	*kg.m²*	*J*
Thermal time constant	***4***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-008

Creation: 26 avr 1999	**Edition: 17/juin/1999**	**HWA50DB**	**a**

DC-BRUSHLESS MOTOR
HWB20HH
ELECTRONIC DRIVE
DIGIVEX 150 - 400

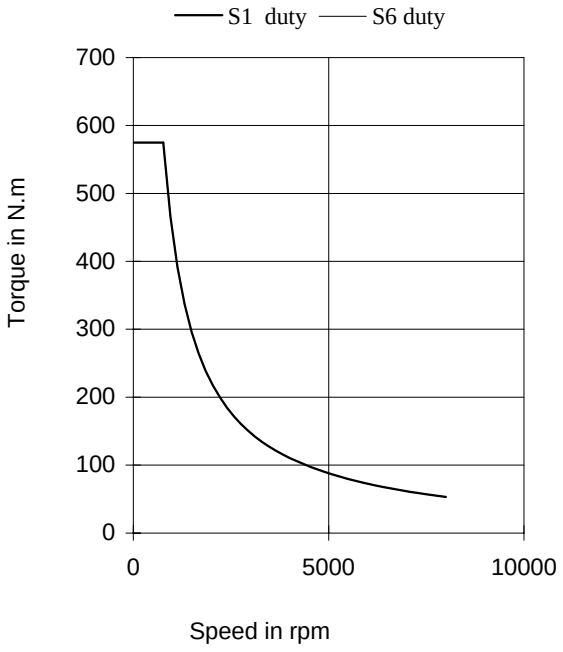
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

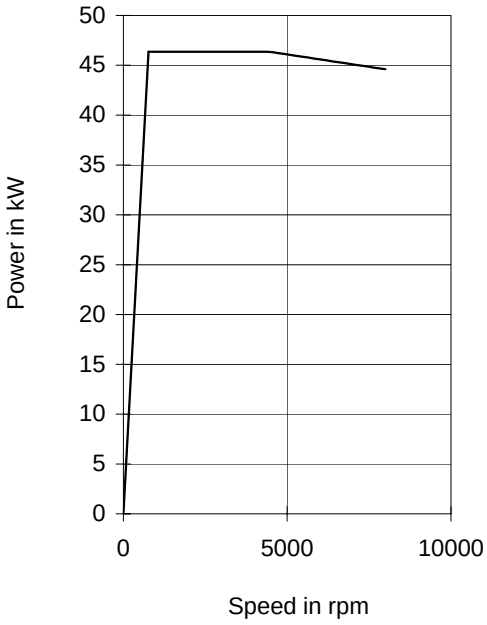
S1 power	***46***	*kW*	*Ps1*
S6 power	***-***	*kW*	*Ps3*
Low speed torque	***575***	*N.m*	*M*
Low speed S6 torque	***-***	*N.m*	*M S6*
Base speed (S1)	***770***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***147***	*Â*	*Î*
S6 current at low speed	***-***	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.235***	*Ω*	*Rb*
Rotor inertia	***0.35***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***15***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 10 mai 2001	**Edition:**	**29/avr/2002**	**HWB20HH**	**b**

DC-BRUSHLESS MOTOR
HWB20HD
ELECTRONIC DRIVE
DIGIVEX 300 - 400

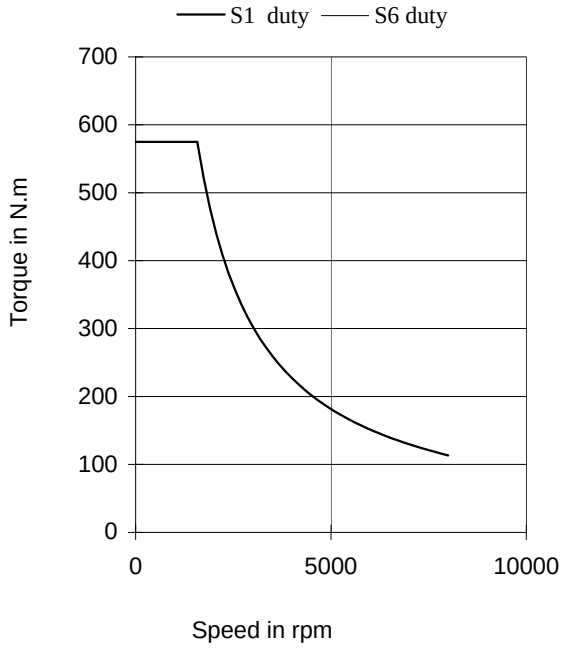
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

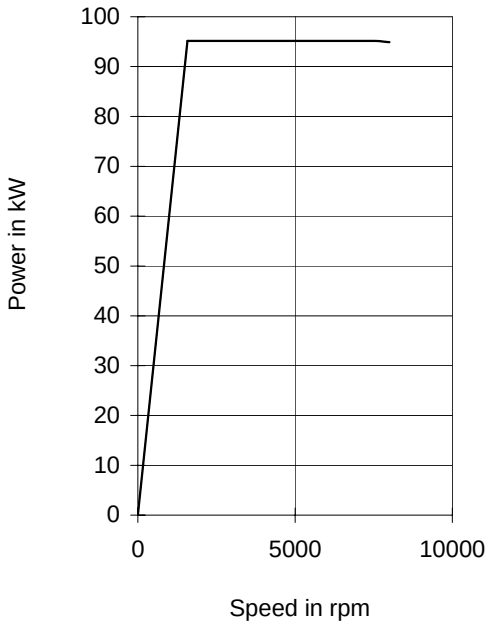
S1 power	***95***	*kW*	*Ps1*
S6 power	*-*	*kW*	*Ps3*
Low speed torque	***575***	*N.m*	*M*
Low speed S6 torque	*-*	*N.m*	*M S6*
Base speed (S1)	***1580***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***294***	*Â*	*Î*
S6 current at low speed	*-*	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.0588***	*Ω*	*Rb*
Rotor inertia	***0.35***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***15***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 14 févr 2002	**Edition:**	**29/avr/2002**	**HWB20HD**	**a**

DC-BRUSHLESS MOTOR
HWB20HJ
ELECTRONIC DRIVE
DIGIVEX 150 - 400

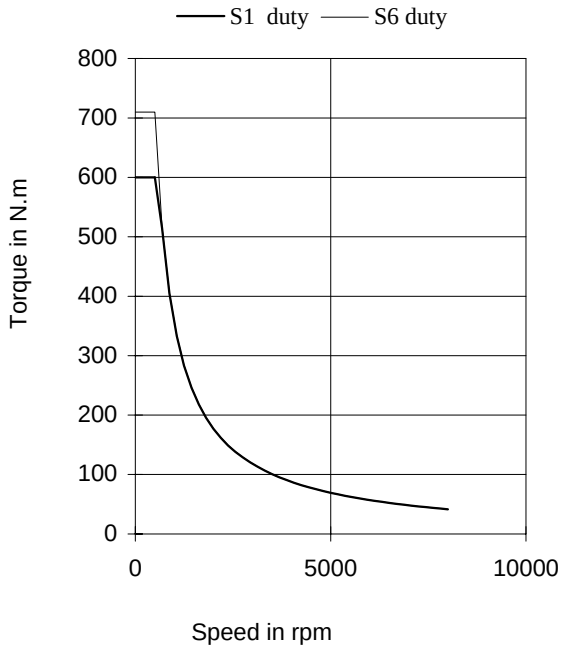
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

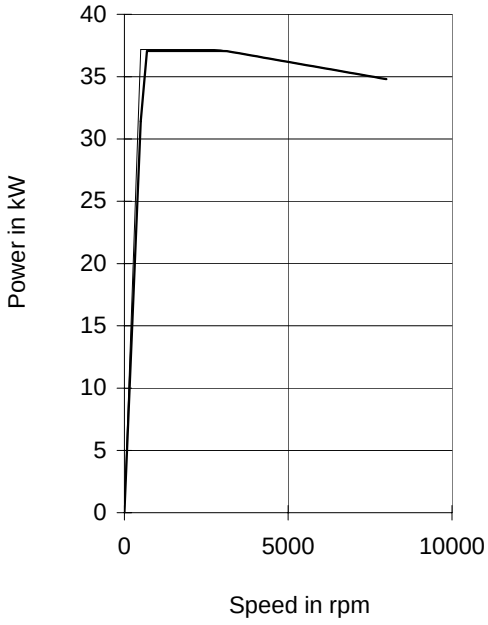
S1 power	***37***	*kW*	*Ps1*
S6 power	***37***	*kW*	*Ps3*
Low speed torque	***600***	*N.m*	*M*
Low speed S6 torque	***710***	*N.m*	*M S6*
Base speed (S1)	***590***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***123***	*Â*	*Î*
S6 current at low speed	***148***	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.392***	*Ω*	*Rb*
Rotor inertia	***0.35***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***15***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 14 juin 2001	**Edition:**	**29/avr/2002**	**HWB20HJ**	**b**

DC-BRUSHLESS MOTOR
HWB20HE
ELECTRONIC DRIVE
DIGIVEX 300 - 400

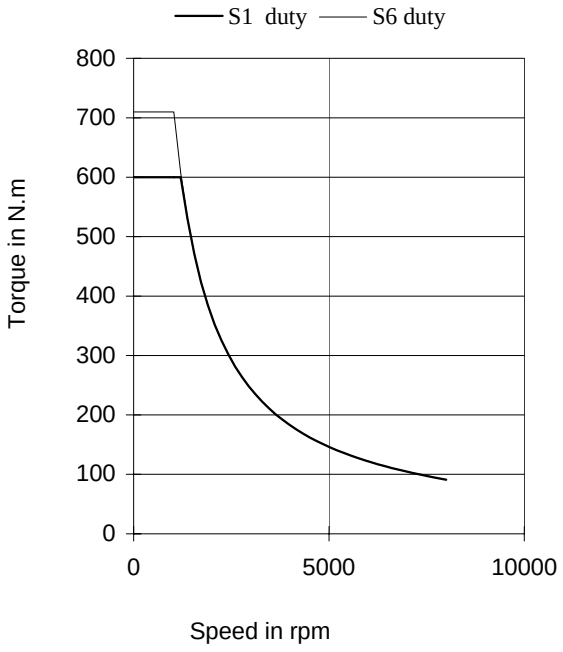
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

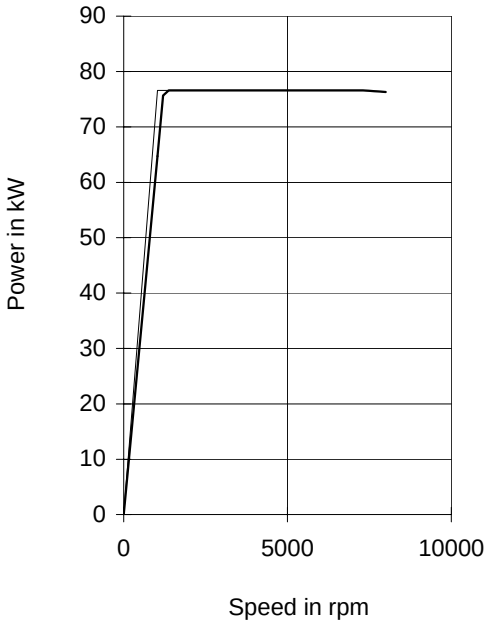
S1 power	***77***	*kW*	*Ps1*
S6 power	***77***	*kW*	*Ps3*
Low speed torque	***600***	*N.m*	*M*
Low speed S6 torque	***710***	*N.m*	*M S6*
Base speed (S1)	***1220***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***246***	*Â*	*I*
S6 current at low speed	***297***	*Â*	*I S3*
*Winding resistance(25°C) **	***0.0929***	*Ω*	*Rb*
Rotor inertia	***0.35***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***120***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***15***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 14 févr 2002	**Edition:**	**29/avr/2002**	**HWB20HE**	**a**

DC-BRUSHLESS MOTOR
HWB30HH
ELECTRONIC DRIVE
DIGIVEX 150 - 400

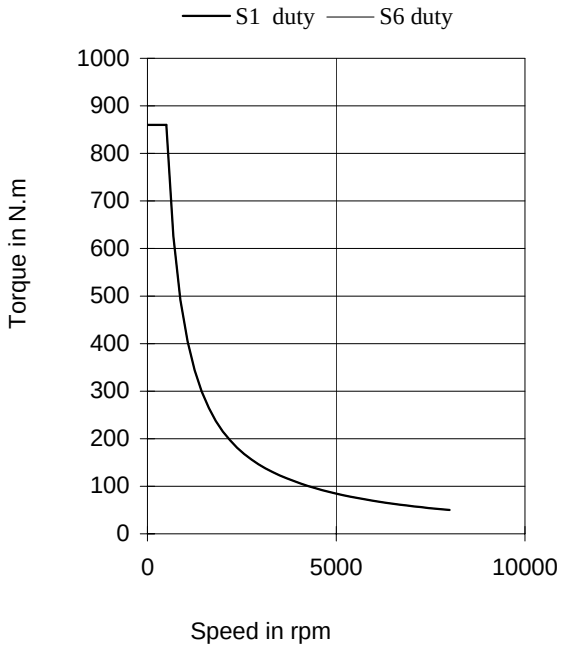
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

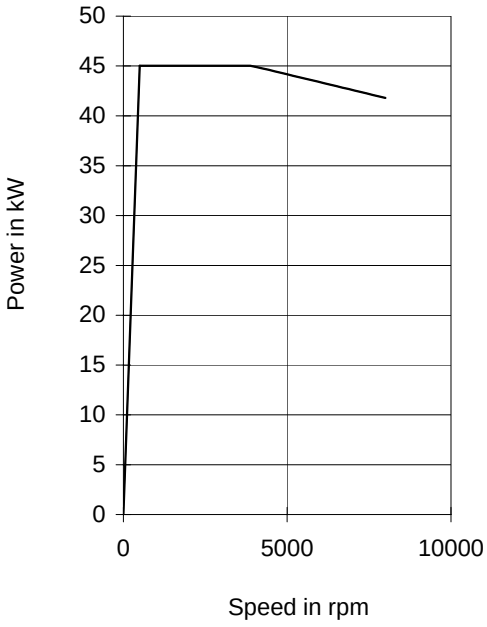
S1 power	***45***	*kW*	*Ps1*
S6 power	*-*	*kW*	*Ps3*
Low speed torque	***860***	*N.m*	*M*
Low speed S6 torque	*-*	*N.m*	*M S6*
Base speed (S1)	***500***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***147***	*Â*	*Î*
S6 current at low speed	*-*	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.315***	*Ω*	*Rb*
Rotor inertia	***0.49***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***170***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***20***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 24 avr 2001	**Edition:**	**29/avr/2002**	**HWB30HH**	**c**

DC-BRUSHLESS MOTOR
HWB30HD
ELECTRONIC DRIVE
DIGIVEX 300 - 400

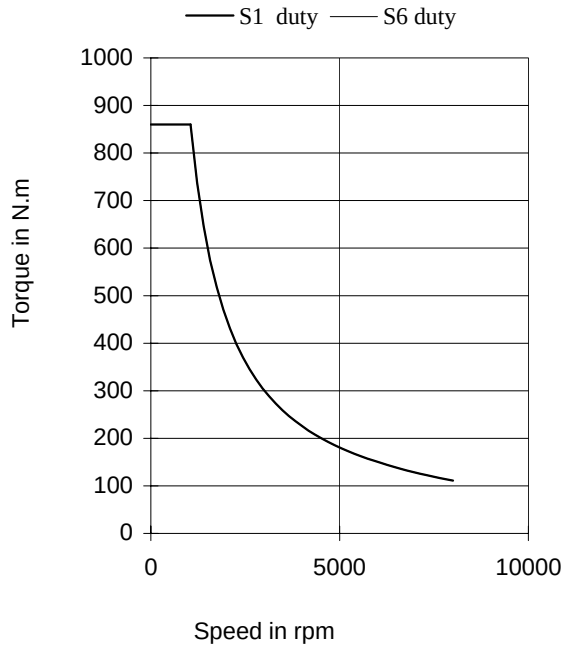
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

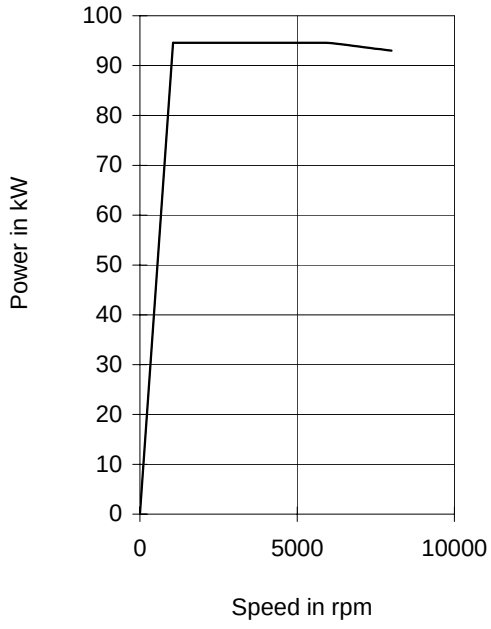
S1 power	***95***	*kW*	*Ps1*
S6 power	*-*	*kW*	*Ps3*
Low speed torque	***860***	*N.m*	*M*
Low speed S6 torque	*-*	*N.m*	*M S6*
Base speed (S1)	***1050***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***293***	*Â*	*Î*
S6 current at low speed	*-*	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.0788***	*Ω*	*Rb*
Rotor inertia	***0.49***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***170***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***20***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 14 févr 2002	**Edition:**	**29/avr/2002**	**HWB30HD**	**a**

DC-BRUSHLESS MOTOR
HWB30HJ
ELECTRONIC DRIVE
DIGIVEX 150 - 400

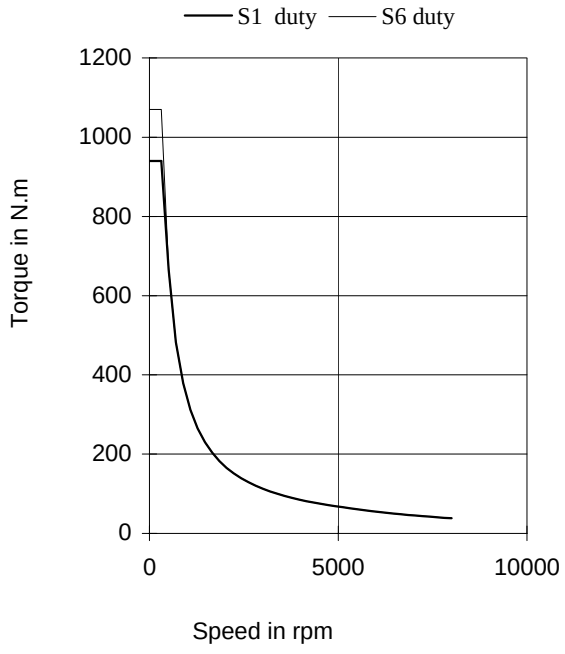
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

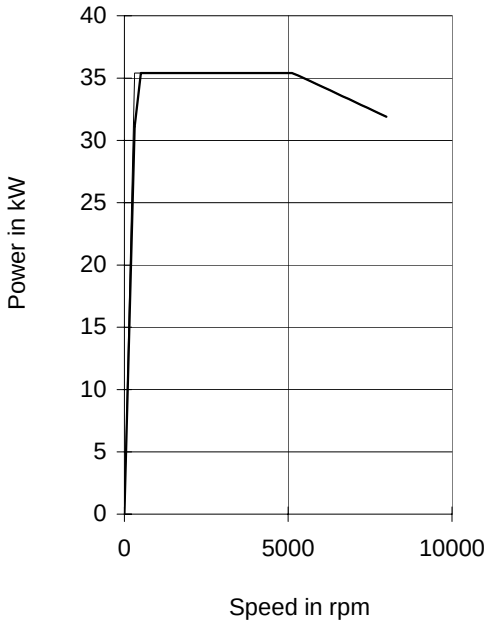
S1 power	***35***	*kW*	*Ps1*
S6 power	***35***	*kW*	*Ps3*
Low speed torque	***940***	*N.m*	*M*
Low speed S6 torque	***1070***	*N.m*	*M S6*
Base speed (S1)	***360***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***129***	*Â*	*Î*
S6 current at low speed	***149***	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.525***	*Ω*	*Rb*
Rotor inertia	***0.49***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***170***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***19***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 24 avr 2001	**Edition:**	**29/avr/2002**	**HWB30HJ**	**c**

DC-BRUSHLESS MOTOR
HWB30HE
ELECTRONIC DRIVE
DIGIVEX 300 - 400

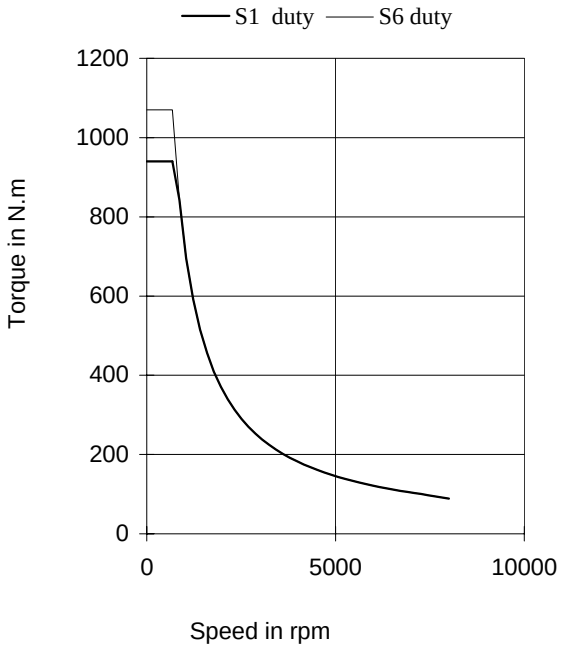
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

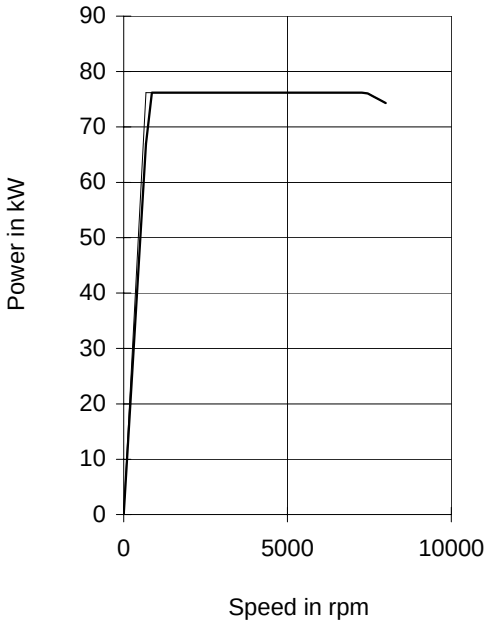
S1 power	***76***	*kW*	*Ps1*
S6 power	***76***	*kW*	*Ps3*
Low speed torque	***940***	*N.m*	*Mo*
Low speed S6 torque	***1070***	*N.m*	*Mo S6*
Base speed (S1)	***775***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***258***	*Â*	*Io*
S6 current at low speed	***298***	*Â*	*Io S3*
*Winding resistance(25°C) **	***0.124***	*Ω*	*Rb*
Rotor inertia	***0.49***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***170***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***20***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 14 févr 2002	**Edition:**	**29/avr/2002**	**HWB30HE**	**a**

DC-BRUSHLESS MOTOR
HWB40HH
ELECTRONIC DRIVE
DIGIVEX 150 - 400

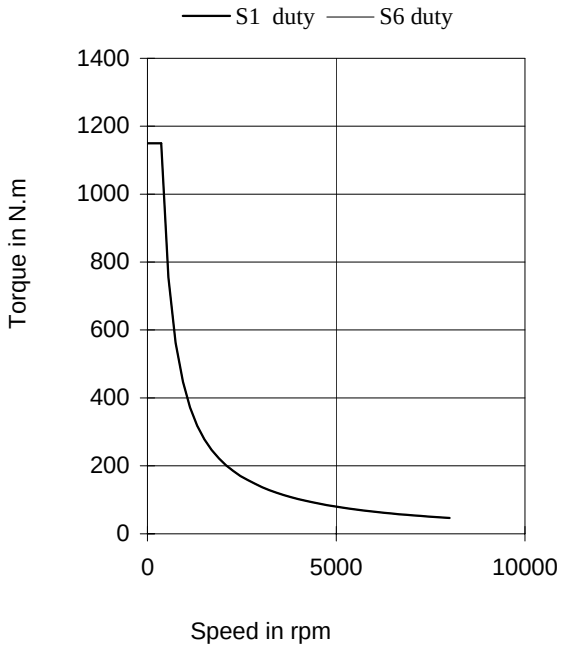
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

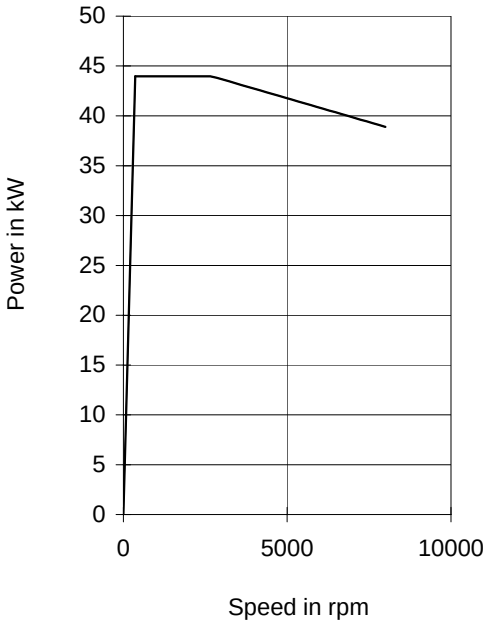
S1 power	***44***	*kW*	*Ps1*
S6 power	*-*	*kW*	*Ps3*
Low speed torque	***1150***	*N.m*	*M*
Low speed S6 torque	*-*	*N.m*	*M S6*
Base speed (S1)	***365***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***147***	*Â*	*Î*
S6 current at low speed	*-*	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.395***	*Ω*	*Rb*
Rotor inertia	***0.64***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***220***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 06 mars 2001	**Edition:**	**29/avr/2002**	**HWB40HH**	**g**

DC-BRUSHLESS MOTOR
HWB40HD
ELECTRONIC DRIVE
DIGIVEX 300 - 400

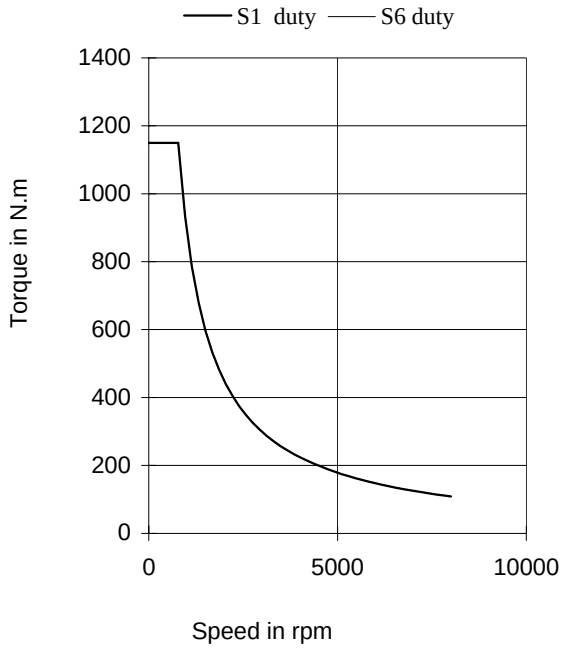
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

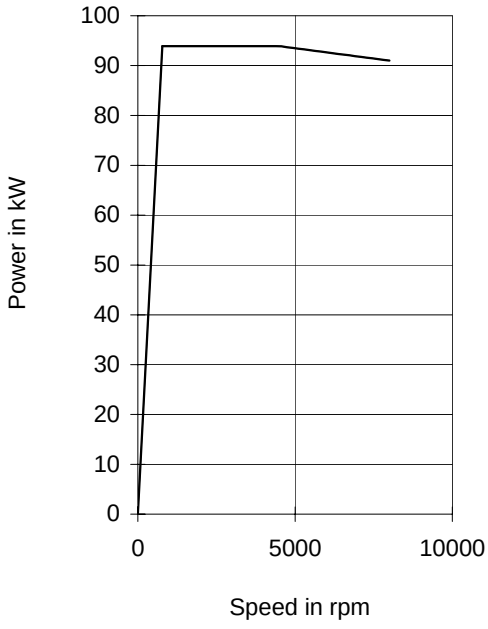
S1 power	***94***	*kW*	*Ps1*
S6 power	***-***	*kW*	*Ps3*
Low speed torque	***1150***	*N.m*	*M*
Low speed S6 torque	***-***	*N.m*	*M S6*
Base speed (S1)	***780***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***294***	*Â*	*Î*
S6 current at low speed	***-***	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.0987***	*Ω*	*Rb*
Rotor inertia	***0.64***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***220***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 09 mai 2001	**Edition:**	**29/avr/2002**	**HWB40HD**	**b**

DC-BRUSHLESS MOTOR
HWB40HJ
ELECTRONIC DRIVE
DIGIVEX 150 - 400

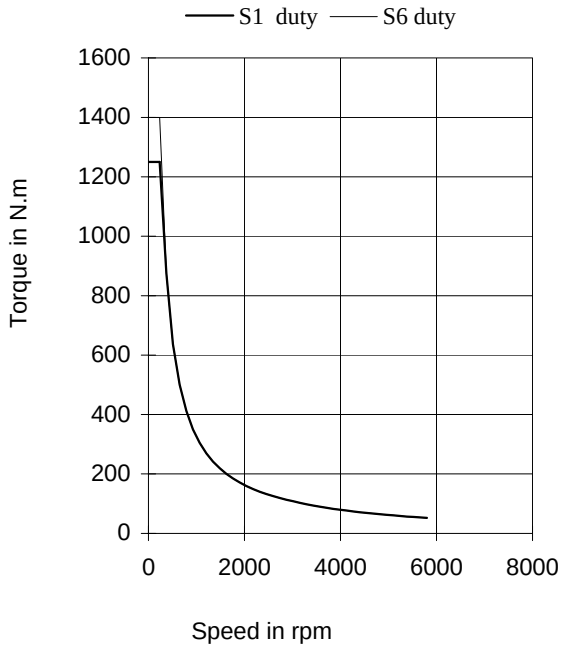
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

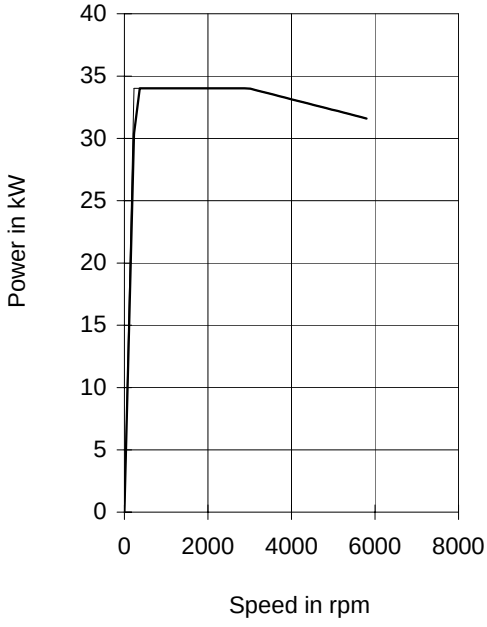
S1 power	***34***	*kW*	*Ps1*
S6 power	***34***	*kW*	*Ps3*
Low speed torque	***1250***	*N.m*	*M*
Low speed S6 torque	***1400***	*N.m*	*M S6*
Base speed (S1)	***260***	*rpm*	*Nb*
Max speed	***5800***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***129***	*Â*	*Î*
S6 current at low speed	***146***	*Â*	*Î S3*
*Winding resistance(25°C) **	***0.658***	*Ω*	*Rb*
Rotor inertia	***0.64***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***220***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***22***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 13 sept 2001	**Edition:**	**29/avr/2002**	**HWB40HJ**	**b**

DC-BRUSHLESS MOTOR
HWB40HE
ELECTRONIC DRIVE
DIGIVEX 300 - 400

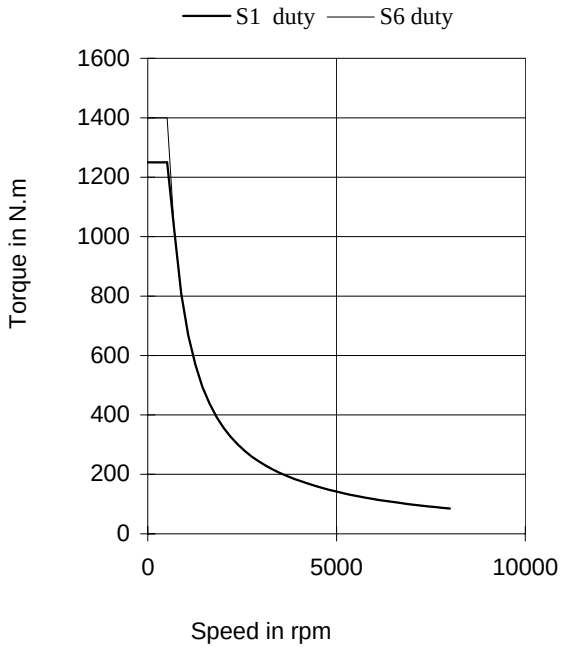
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

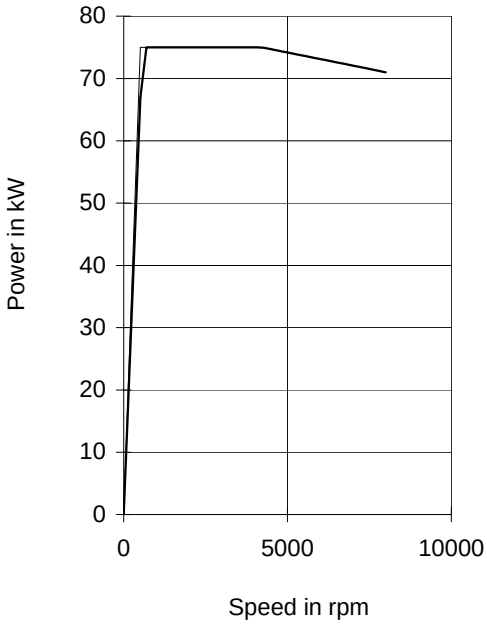
S1 power	***75***	*kW*	*Ps1*
S6 power	***75***	*kW*	*Ps3*
Low speed torque	***1250***	*N.m*	*Mb*
Low speed S6 torque	***1400***	*N.m*	*Mb S6*
Base speed (S1)	***573***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***257***	*Â*	*Îb*
S6 current at low speed	***292***	*Â*	*Îb S3*
*Winding resistance(25°C) **	***0.156***	*Ω*	*Rb*
Rotor inertia	***0.64***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***220***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values





FICHELV-011

Création: 13 juin 2001	**Edition:**	**29/avr/2002**	**HWB40HE**	**b**

DC-BRUSHLESS MOTOR
HWB40HF
ELECTRONIC DRIVE
DIGIVEX 300 - 400

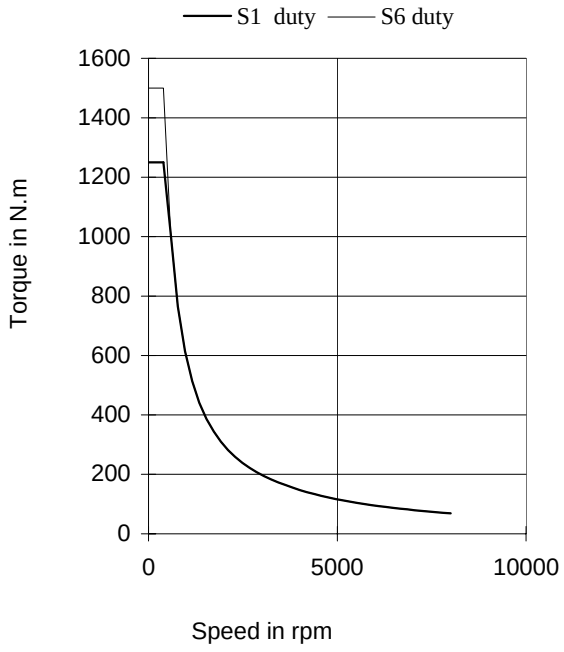
PARVEX
8 avenue du Lac / BP249
F-21007 DIJON Cedex

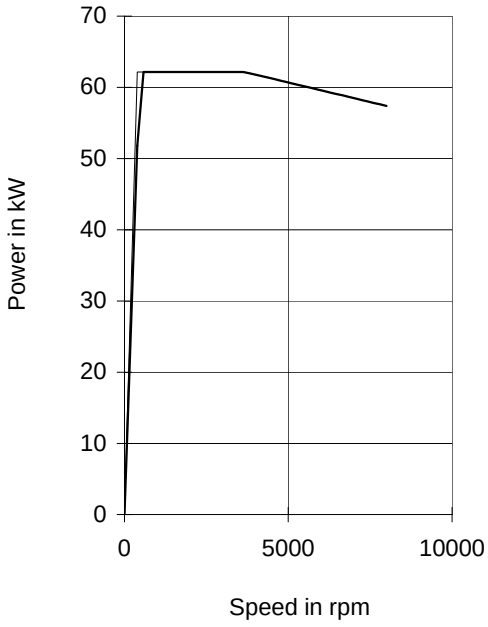
S1 power	***62***	*kW*	*Ps1*
S6 power	***62***	*kW*	*Ps3*
Low speed torque	***1250***	*N.m*	*M*
Low speed S6 torque	***1500***	*N.m*	*M S6*
Base speed (S1)	***475***	*rpm*	*Nb*
Max speed	***8000***	*rpm*	*N*
DC voltage supply when motor is loaded	***530***	*V*	*Û*
Permanent current at low speed	***214***	*Â*	*I*
S6 current at low speed	***264***	*Â*	*I S3*
*Winding resistance(25°C) **	***0.222***	*Ω*	*Rb*
Rotor inertia	***0.64***	*kg.m²*	*J*
Thermal time constant	***5***	*min*	*Tth*
Motor mass	***220***	*kg*	*M*
Cooling water flow (Tmax = 25 °C)	***25***	*l/min*	

All data are given in typical values under standard conditions

** Phase to phase*

Voltages and currents given in peak values



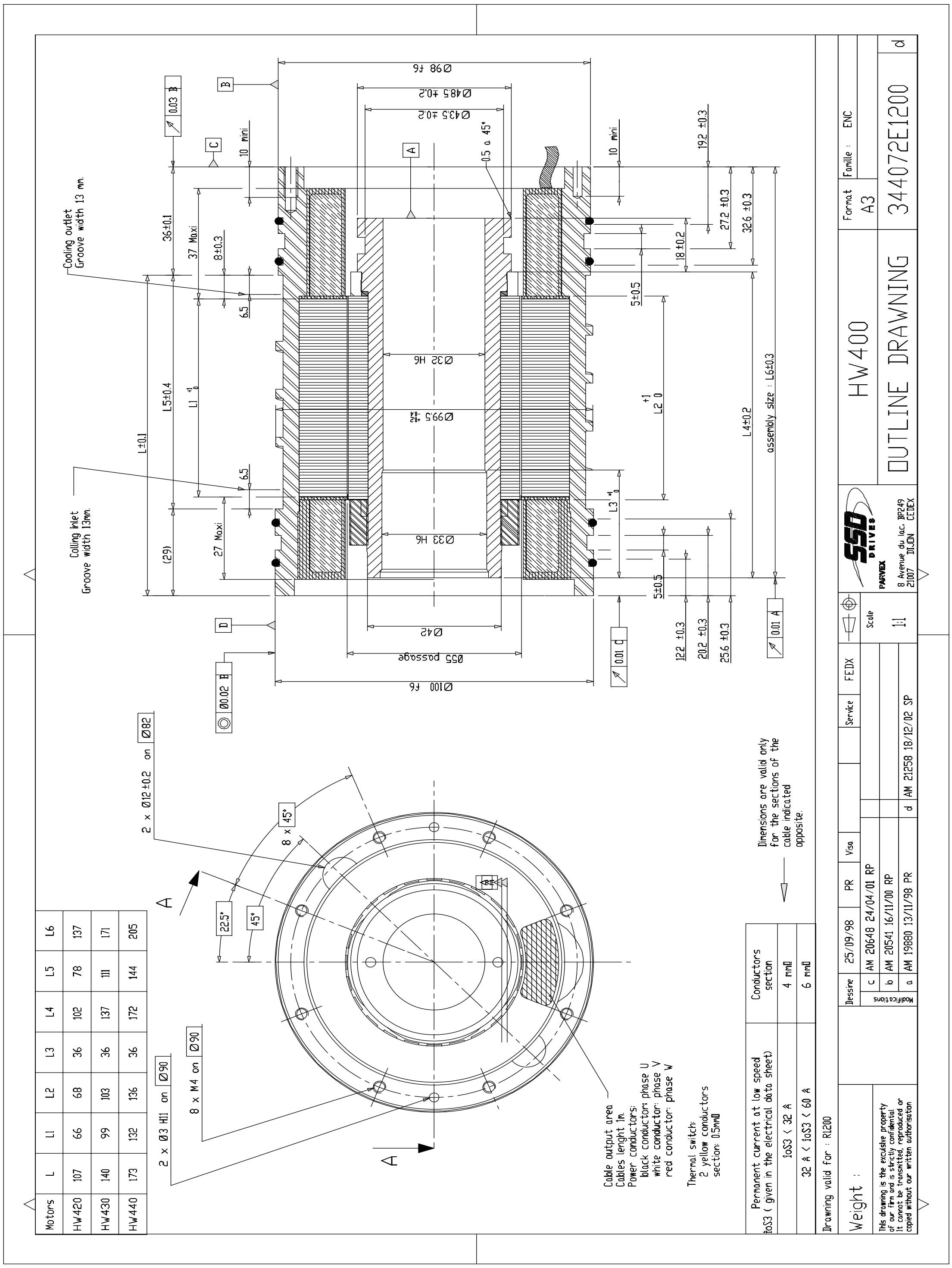


FICHELV-011

Création: 13 juin 2001	**Edition:**	**29/avr/2002**	**HWB40HF**	**b**

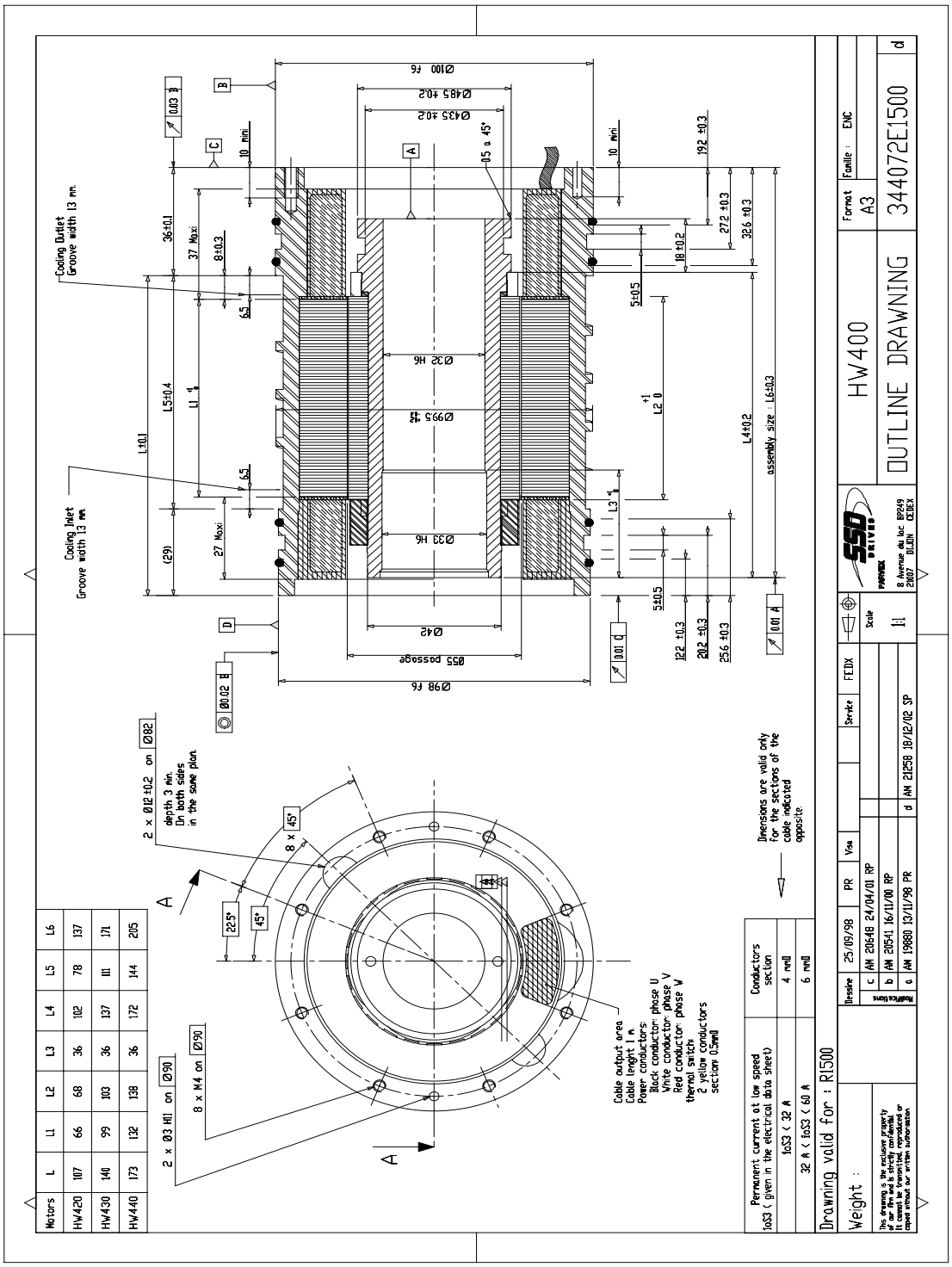
ANNEX II

HW Motors drawings

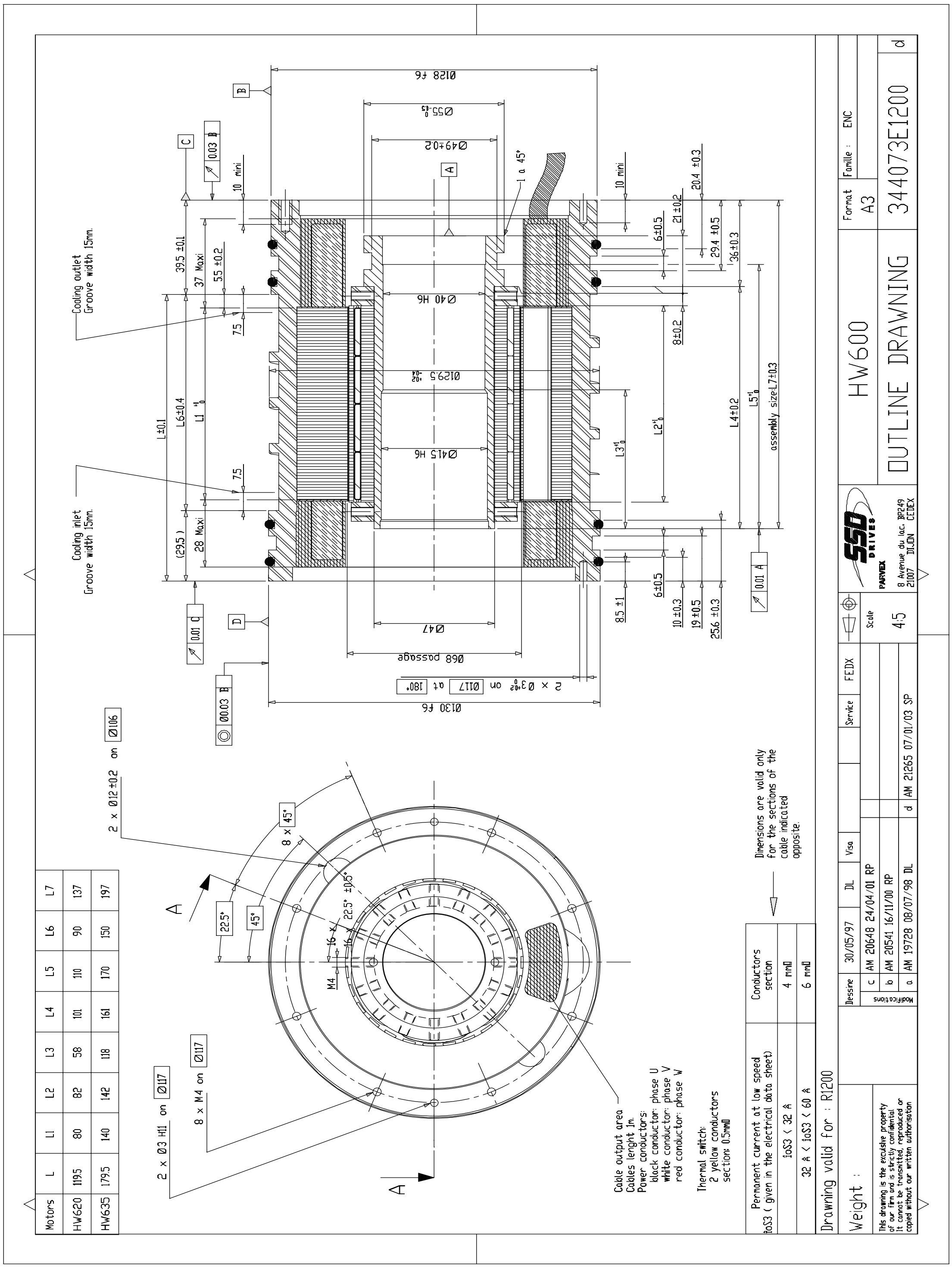


Motors	L	L1	L2	L3	L4	L5	L6
HW420	107	66	68	36	102	78	137
HW430	140	99	103	36	137	111	171
HW440	173	132	136	36	172	144	205

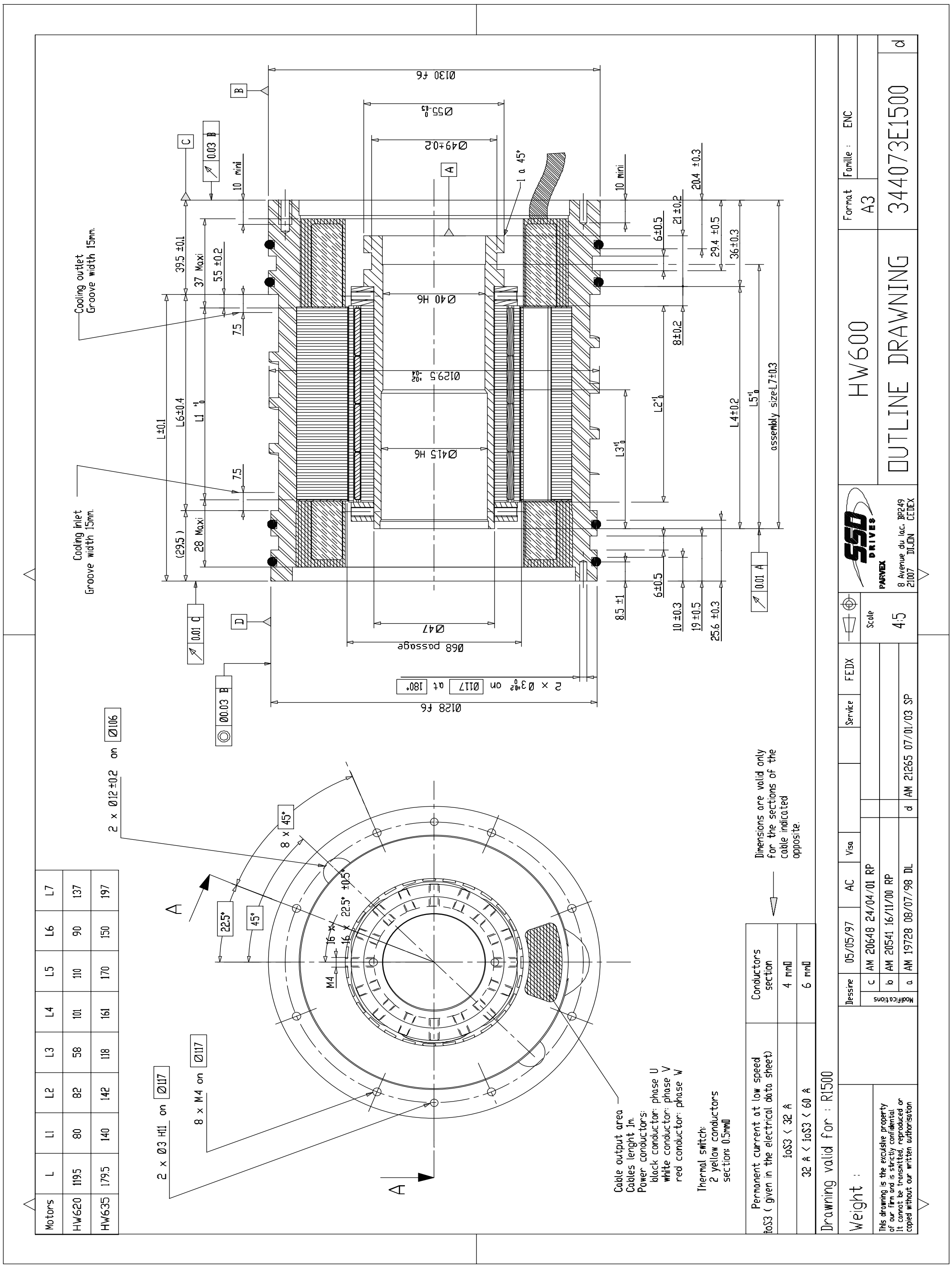
Permanent current at low speed IoS3 (given in the electrical data sheet)	Conductors section
IoS3 < 32 A	4 mm²
32 A < IoS3 < 60 A	6 mm²



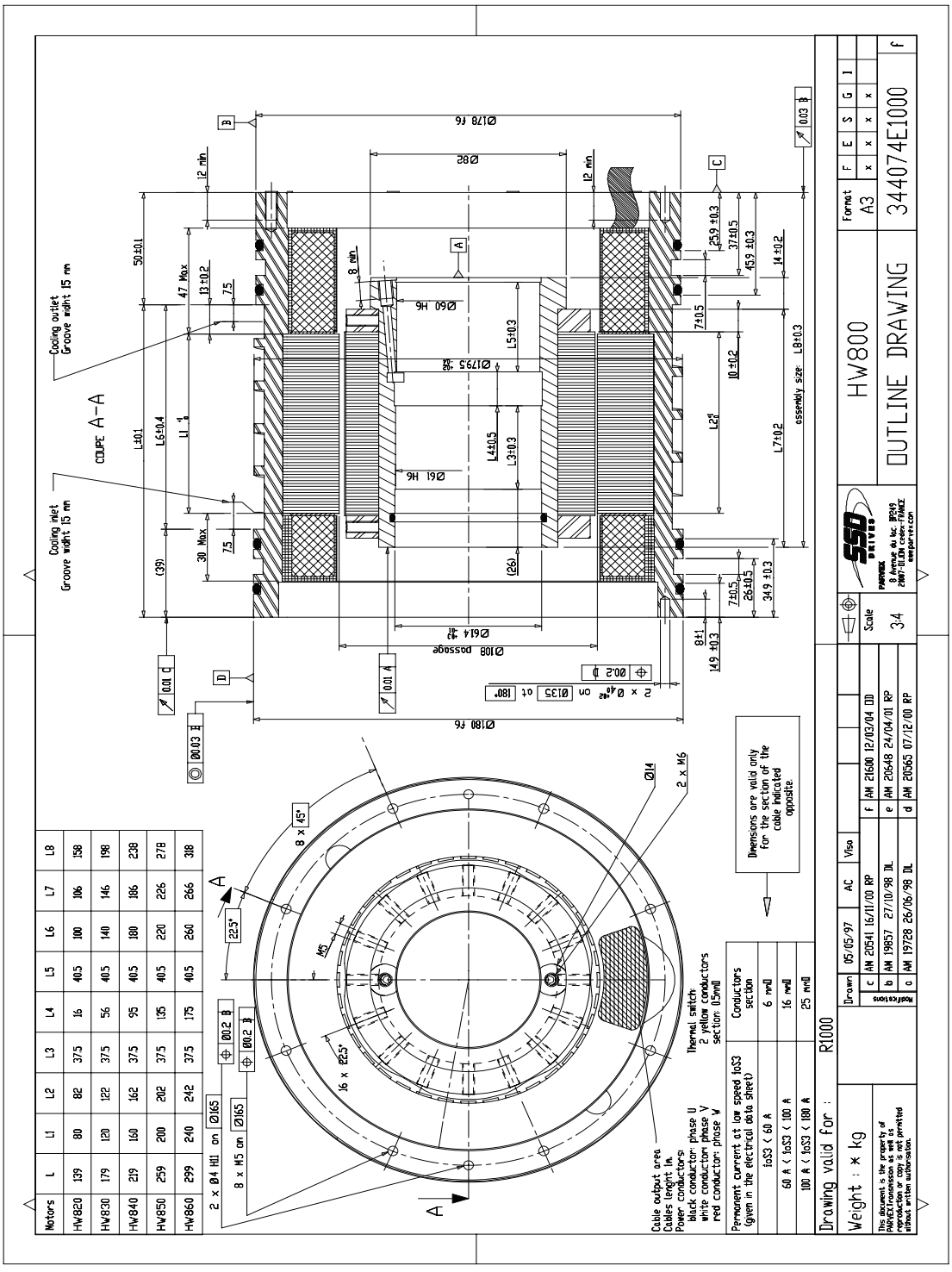
Motors	L	L1	L2	L3	L4	L5	L6
HW420	107	66	68	36	102	78	137
HW430	140	99	103	36	137	111	171
HW440	173	132	138	36	172	144	205



HW600
OUTLINE DRAWNING
344073E1200
Format A3
Famille : ENC
Scale 4:5
SSD DRIVES
PARVEX
8 Avenue du lac. BP249
21007 DIJON CEDEX
Motors | L | L1 | L2 | L3 | L4 | L5 | L6 | L7
HW620 | 1195 | 80 | 82 | 58 | 101 | 110 | 90 | 137
HW635 | 1795 | 140 | 142 | 118 | 161 | 170 | 150 | 197
Cooling outlet Groove width 15mm.
Cooling inlet Groove width 15mm.
Cable output area
Cables lenght 1m.
Power conductors:
black conductor: phase U
white conductor: phase V
red conductor: phase W
Thermal switch:
2 yellow conductors
sections 0.5mm²
Permanent current at low speed IoS3 (given in the electrical data sheet)
Conductors section
IoS3 < 32 A | 4 mm²
32 A < IoS3 < 60 A | 6 mm²
Dimensions are valid only for the sections of the cable indicated opposite.
Drawing valid for : R1200
Weight :
This drawing is the exclusive property of our firm and is strictly confidential. It cannot be transmitted, reproduced or copied without our written authorisation

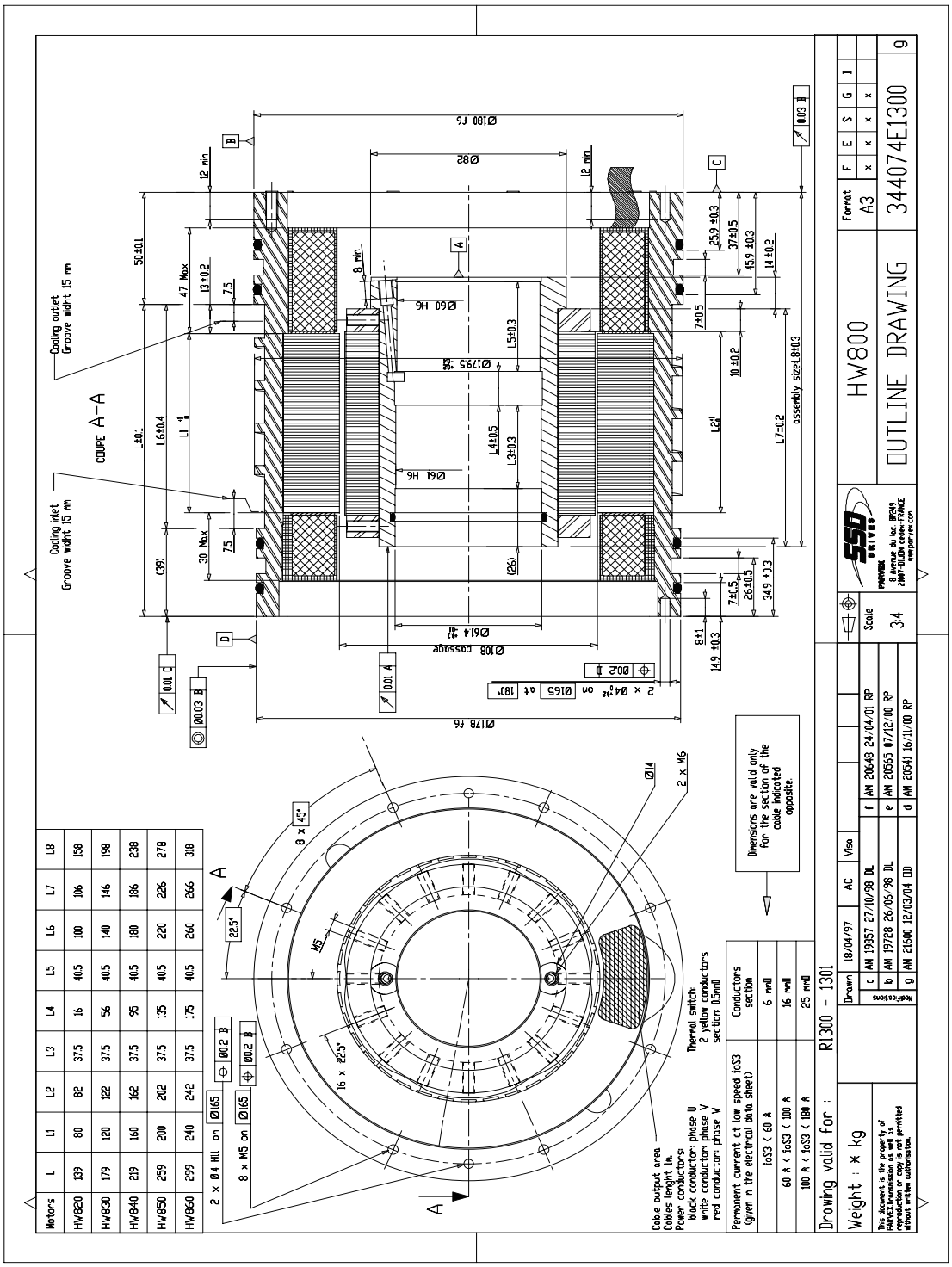


Motors | L | L1 | L2 | L3 | L4 | L5 | L6 | L7
HW620 | 119.5 | 80 | 82 | 58 | 101 | 110 | 90 | 137
HW635 | 179.5 | 140 | 142 | 118 | 161 | 170 | 150 | 197
Cooling outlet Groove width 15mm.
Cooling inlet Groove width 15mm.
Cable output area
Cables lenght Ln.
Power conductors:
black conductor: phase U
white conductor: phase V
red conductor: phase W
Thermal switch:
2 yellow conductors
sections 0.5mm²
Dimensions are valid only for the sections of the cable indicated opposite.
Permanent current at low speed IoS3 (given in the electrical data sheet)
Conductors section
IoS3 < 32 A
4 mm²
32 A < IoS3 < 60 A
6 mm²
Drawning valid for : R1500
Weight :
HW600
OUTLINE DRAWNING
344073E1500
Format A3
Scale 4:5
PARVEX
8 Avenue du lac, BP249 21007 DIJON CEDEX

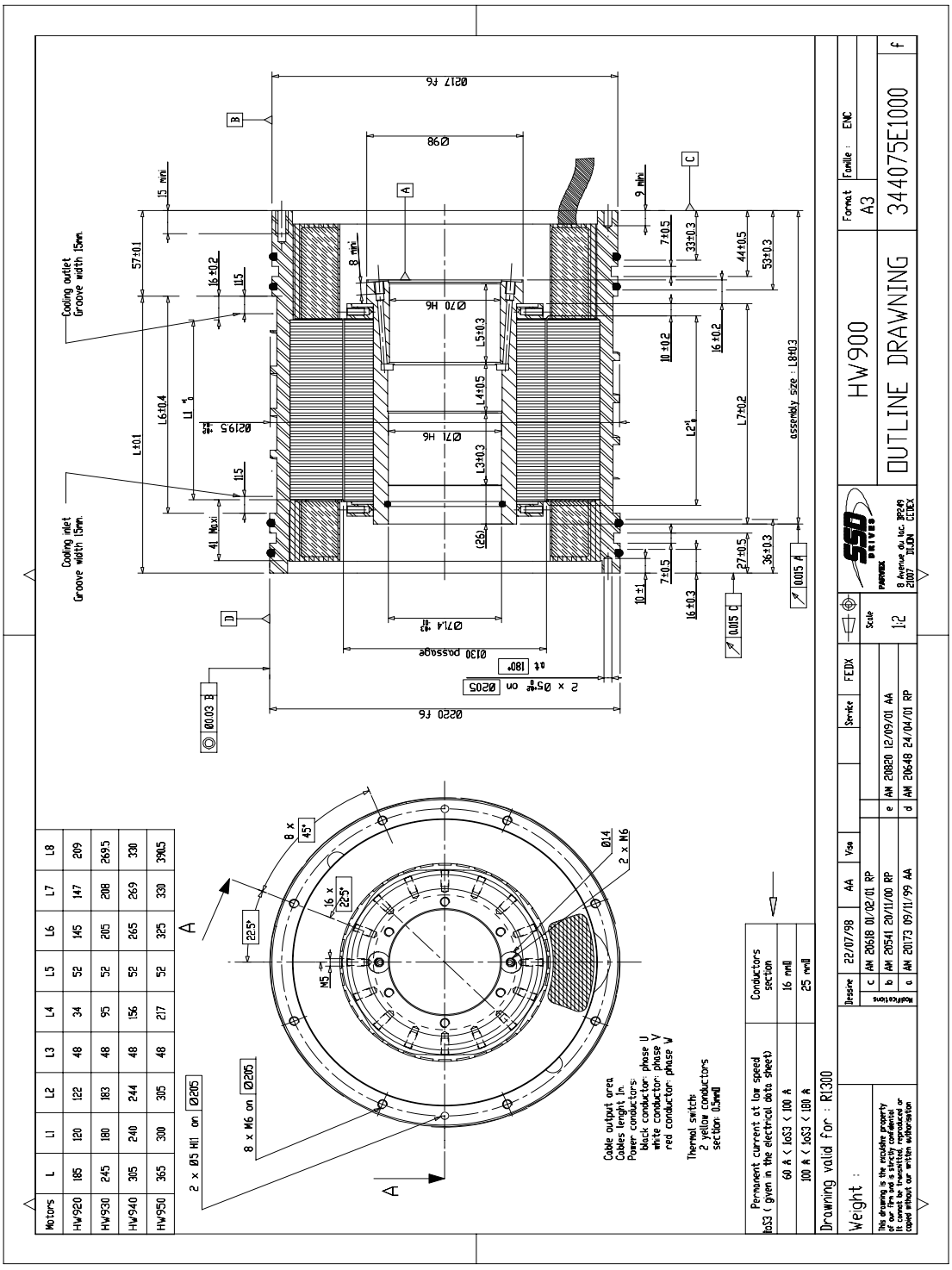


Motors	L	L1	L2	L3	L4	L5	L6	L7	L8
HW820	139	80	82	37.5	16	40.5	100	106	158
HW830	179	120	122	37.5	56	40.5	140	146	198
HW840	219	160	162	37.5	95	40.5	180	186	238
HW850	259	200	202	37.5	135	40.5	220	226	278
HW860	299	240	242	37.5	175	40.5	260	266	318

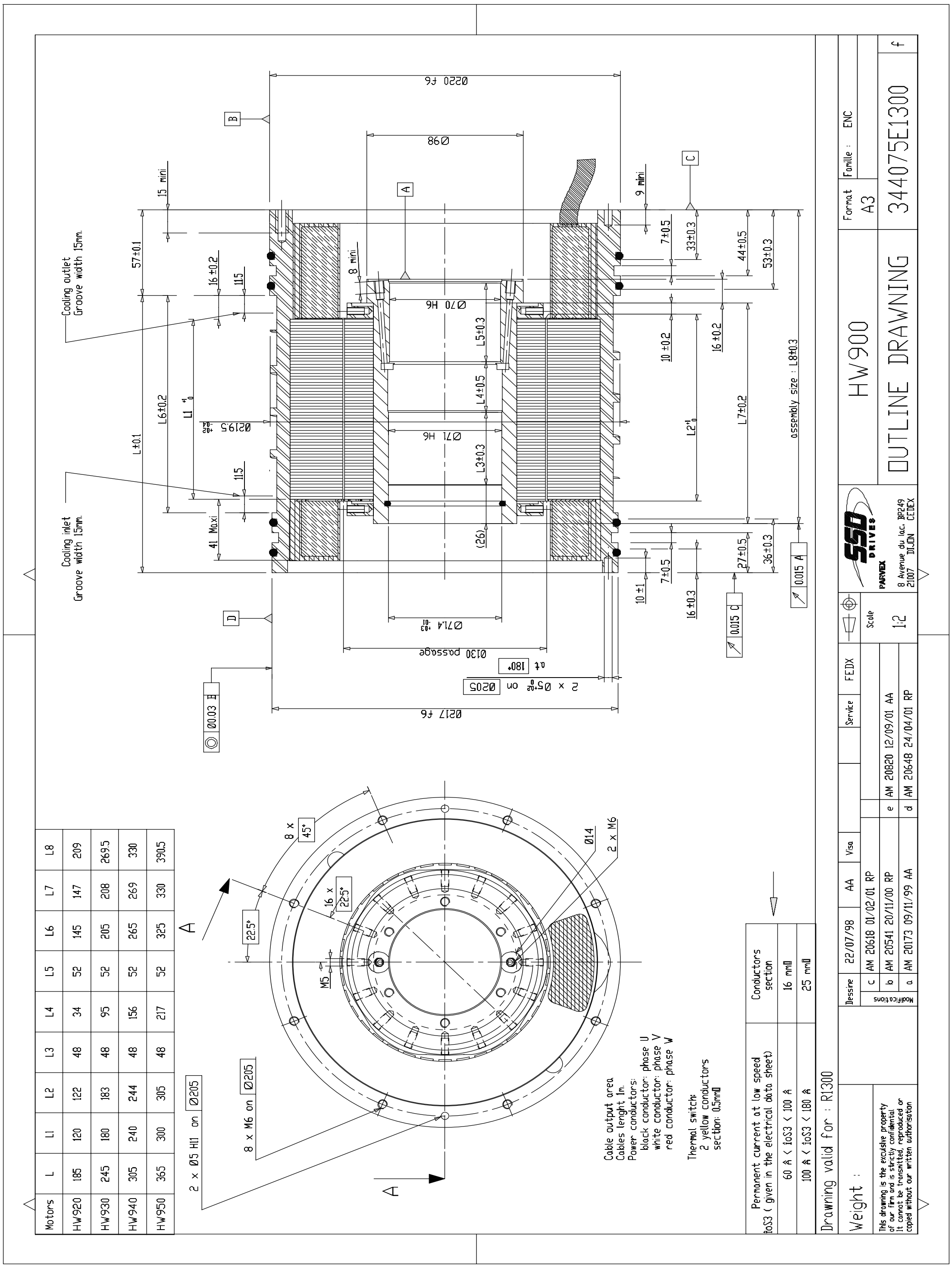
Modifications			
c	AM 20541 16/11/00 RP	f	AM 21600 12/03/04 CD
b	AM 19857 27/10/98 DL	e	AM 20648 24/04/01 RP
a	AM 19728 26/06/98 DL	d	AM 20565 07/12/00 RP



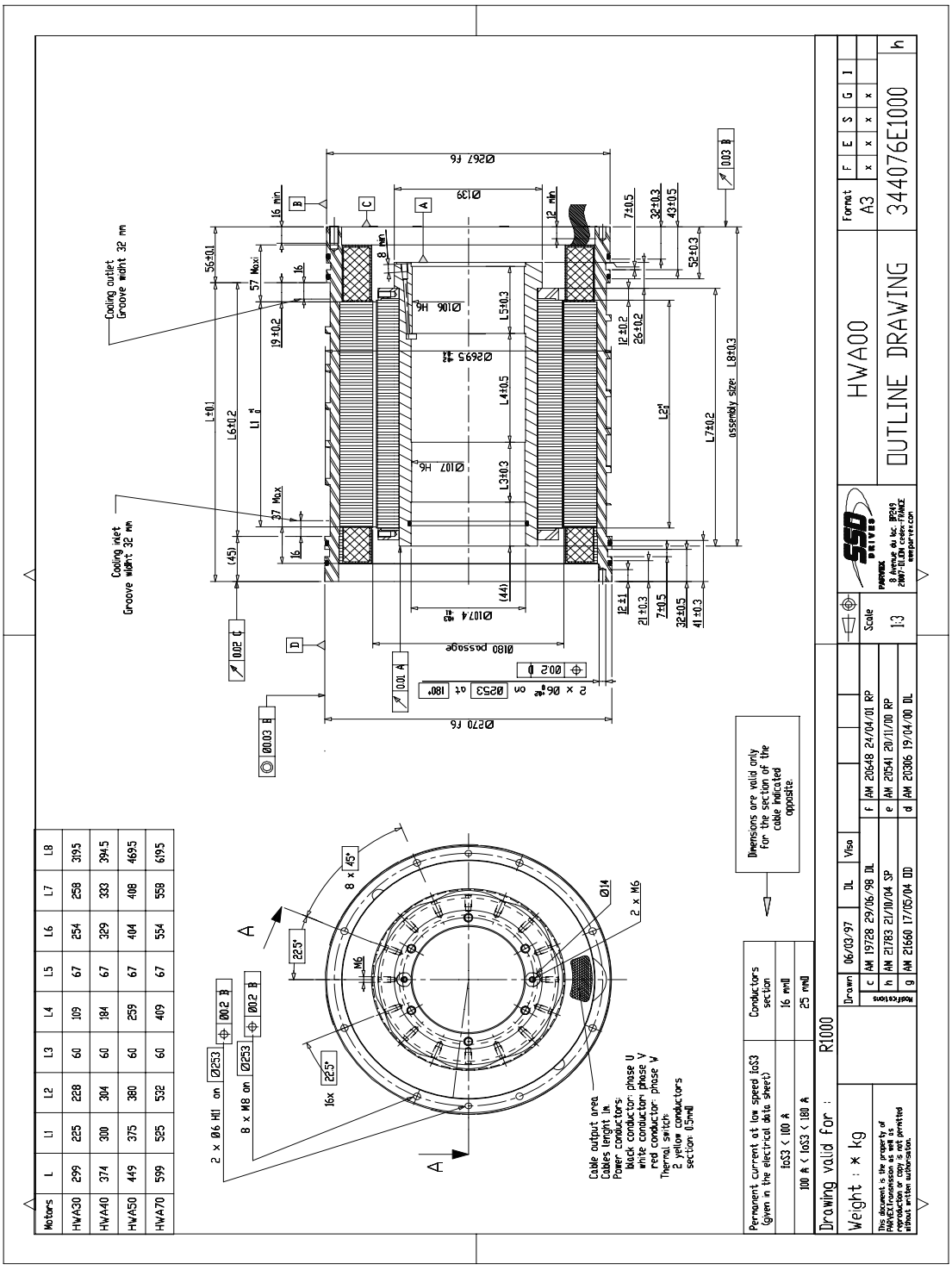
Motors	L	L1	L2	L3	L4	L5	L6	L7	L8
HW820	139	80	82	375	16	40.5	100	106	158
HW830	179	120	122	375	56	40.5	140	146	198
HW840	219	160	162	375	95	40.5	180	186	238
HW850	259	200	202	375	135	40.5	220	226	278
HW860	299	240	242	375	175	40.5	260	266	318



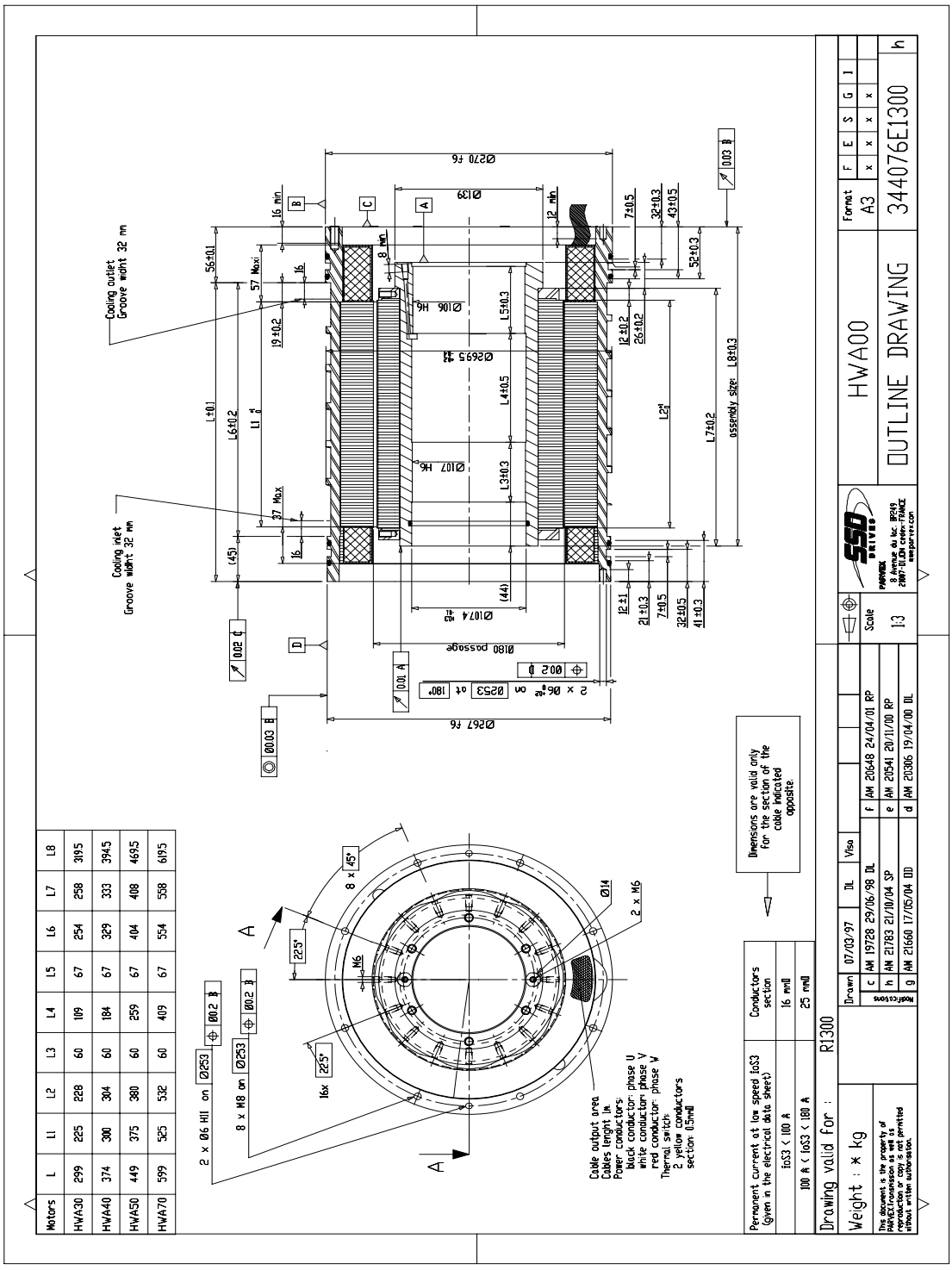
Motors	L	L1	L2	L3	L4	L5	L6	L7	L8
HW920	185	120	122	48	34	52	145	147	209
HW930	245	180	183	48	95	52	205	208	269,5
HW940	305	240	244	48	156	52	265	269	330
HW950	365	300	305	48	217	52	325	330	390,5



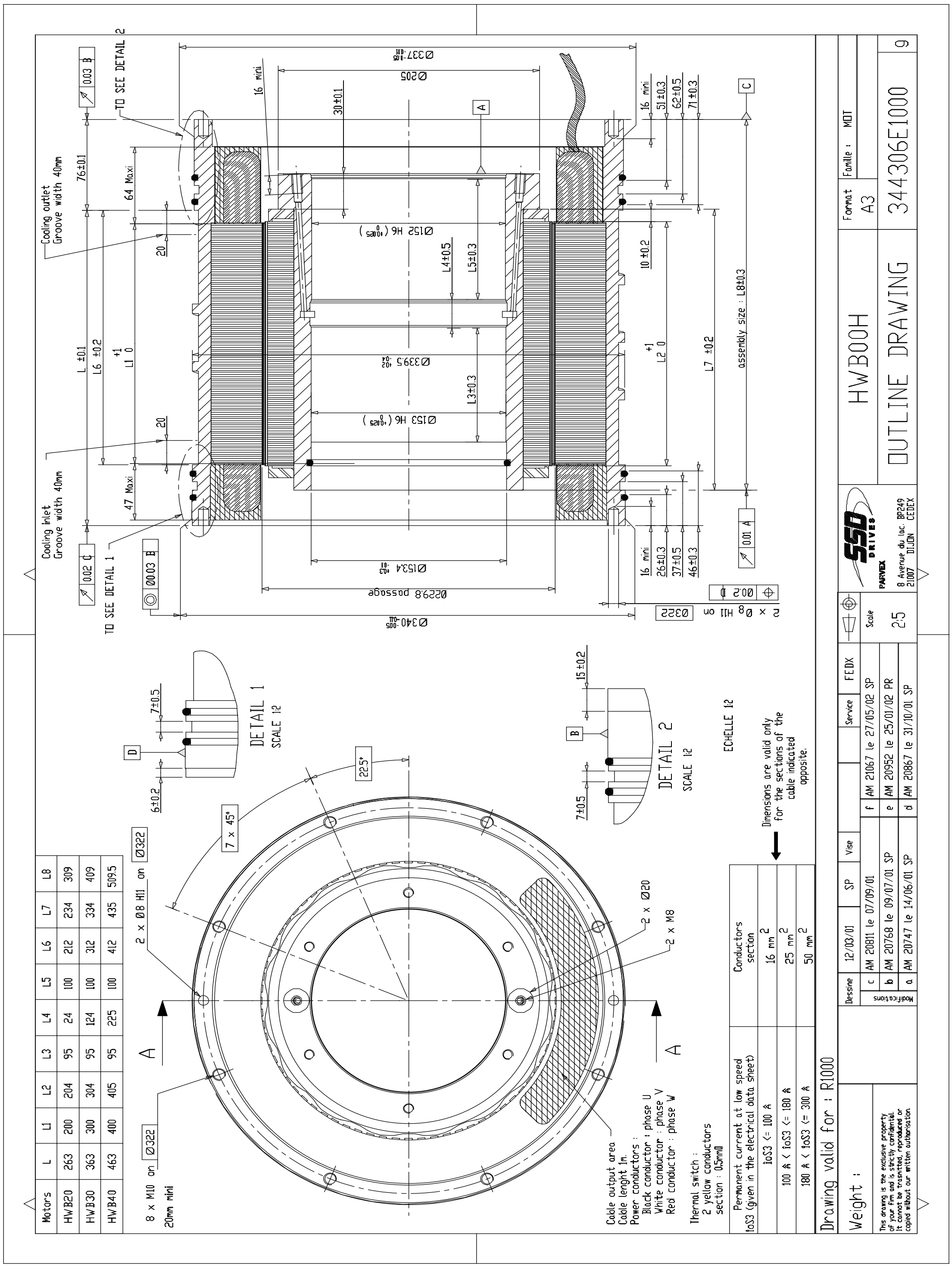
Motors	L	L1	L2	L3	L4	L5	L6	L7	L8
HW920	185	120	122	48	34	52	145	147	209
HW930	245	180	183	48	95	52	205	208	269.5
HW940	305	240	244	48	156	52	265	269	330
HW950	365	300	305	48	217	52	325	330	390.5



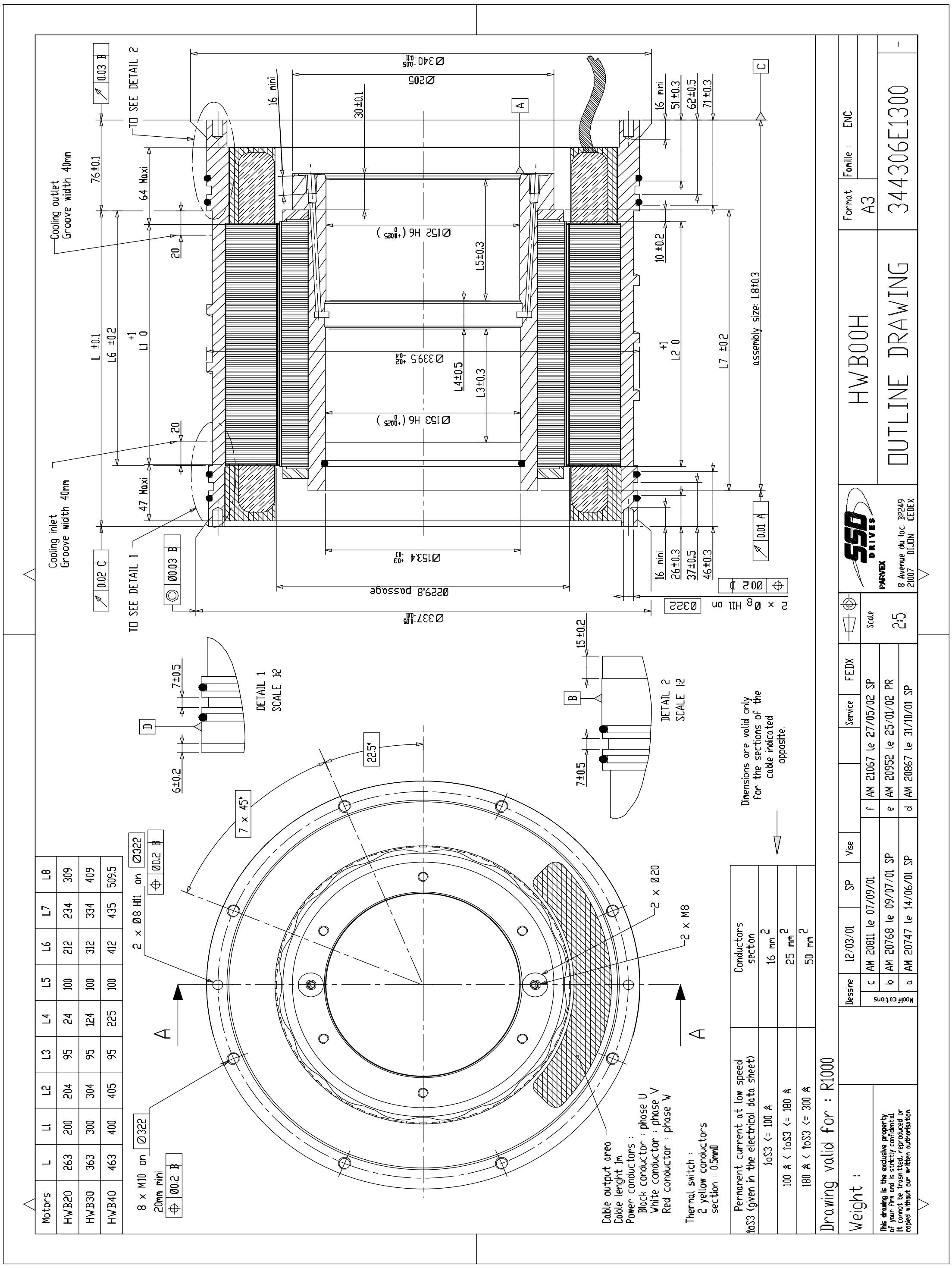
Motors	L	L1	L2	L3	L4	L5	L6	L7	L8
HWA30	299	225	228	60	109	67	254	258	395
HWA40	374	300	304	60	184	67	329	333	394.5
HWA50	449	375	380	60	259	67	404	408	4695
HWA70	599	525	532	60	409	67	554	558	6195



Motors	L	L1	L2	L3	L4	L5	L6	L7	L8
HWA30	299	225	228	60	109	67	254	258	395
HWA40	374	300	304	60	184	67	329	333	3945
HWA50	449	375	380	60	259	67	404	408	4695
HWA70	599	525	532	60	409	67	554	558	6195

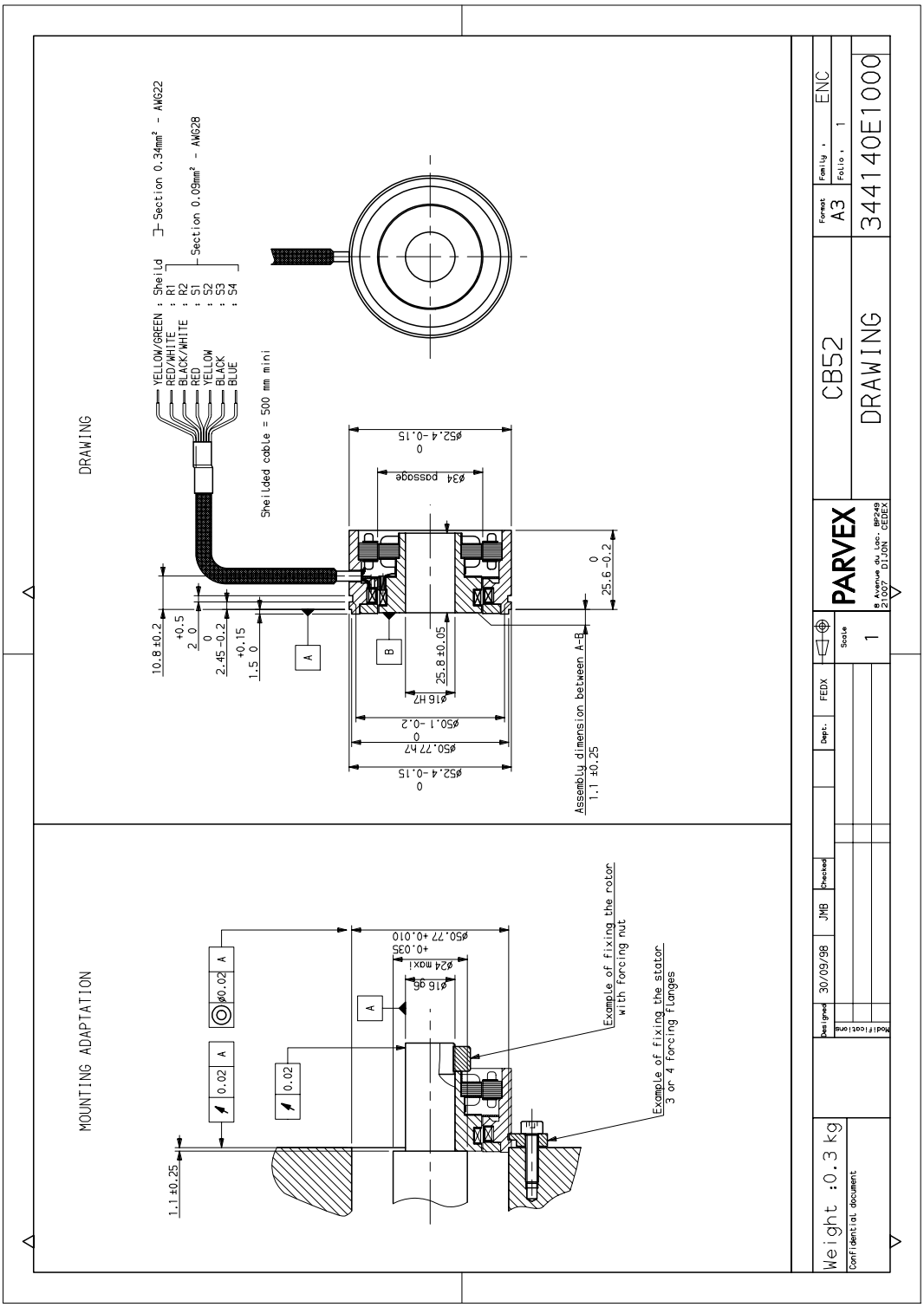


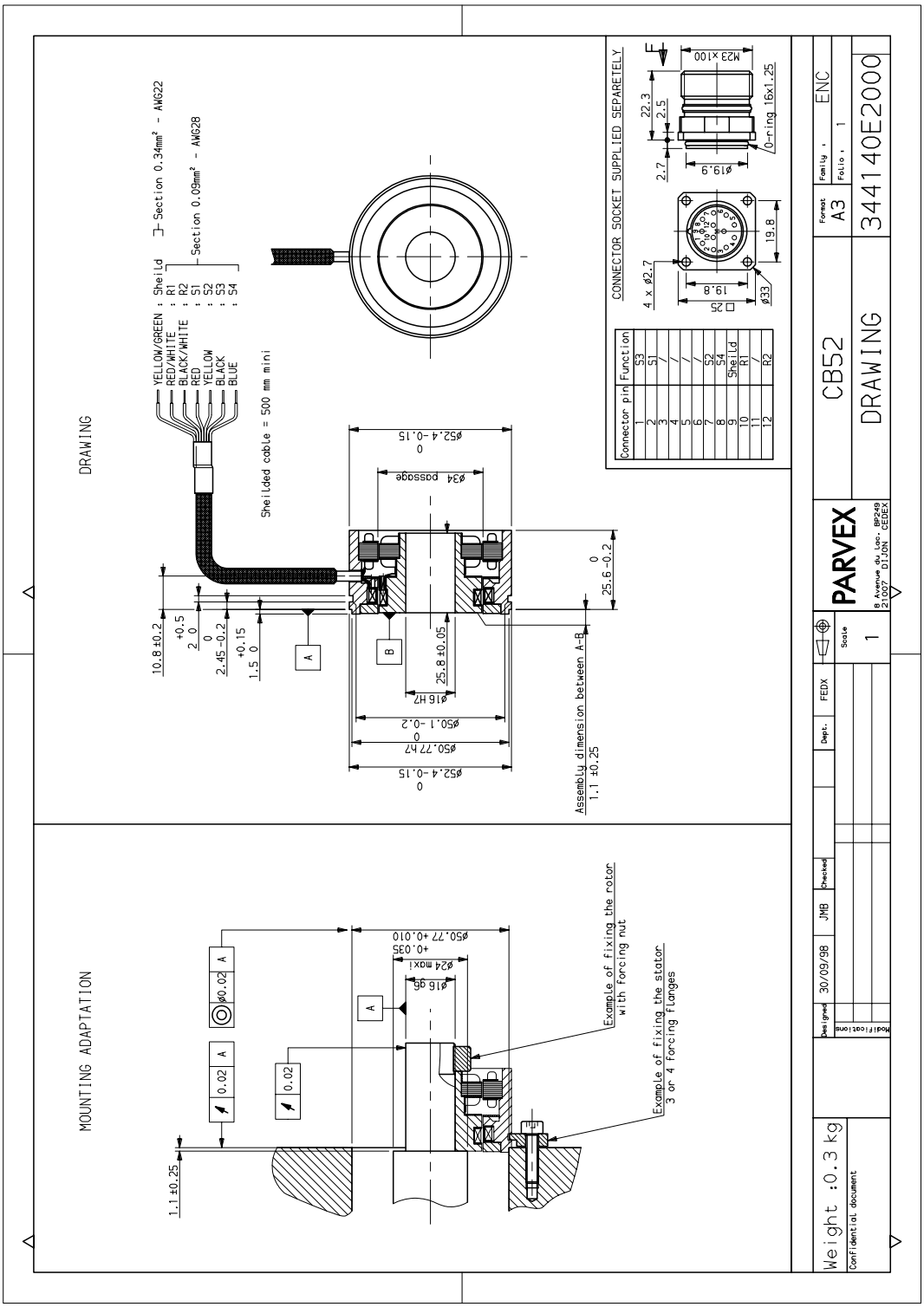
HW800H
OUTLINE DRAWING
344306E1000
Format A3
Famille : MOT
Scale 2:5
SSD DRIVES
PARVEX
8 Avenue du lac BP249 21007 DIJON CEDEX
Motors | L | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8
HWB20 | 263 | 200 | 204 | 95 | 24 | 100 | 212 | 234 | 309
HWB30 | 363 | 300 | 304 | 95 | 124 | 100 | 312 | 334 | 409
HWB40 | 463 | 400 | 405 | 95 | 225 | 100 | 412 | 435 | 509.5
Cooling outlet
Groove width 40mm
Cooling inlet
Groove width 40mm
TO SEE DETAIL 1
TO SEE DETAIL 2
DETAIL 1
SCALE 1:2
DETAIL 2
SCALE 1:2
ECHELLE 1:2
Cable output area
Cable lenght In.
Power conductors :
Black conductor : phase U
White conductor : phase V
Red conductor : phase W
Thermal switch :
2 yellow conductors
section : 0.5mm²
Permanent current at low speed
IoS3 (given in the electrical data sheet)
Conductors section
IoS3 <= 100 A | 16 mm²
100 A < IoS3 <= 180 A | 25 mm²
180 A < IoS3 <= 300 A | 50 mm²
Dimensions are valid only for the sections of the cable indicated opposite.
Drawing valid for : R1000
Weight :
assembly size : L8±0.3
Ø298 passage

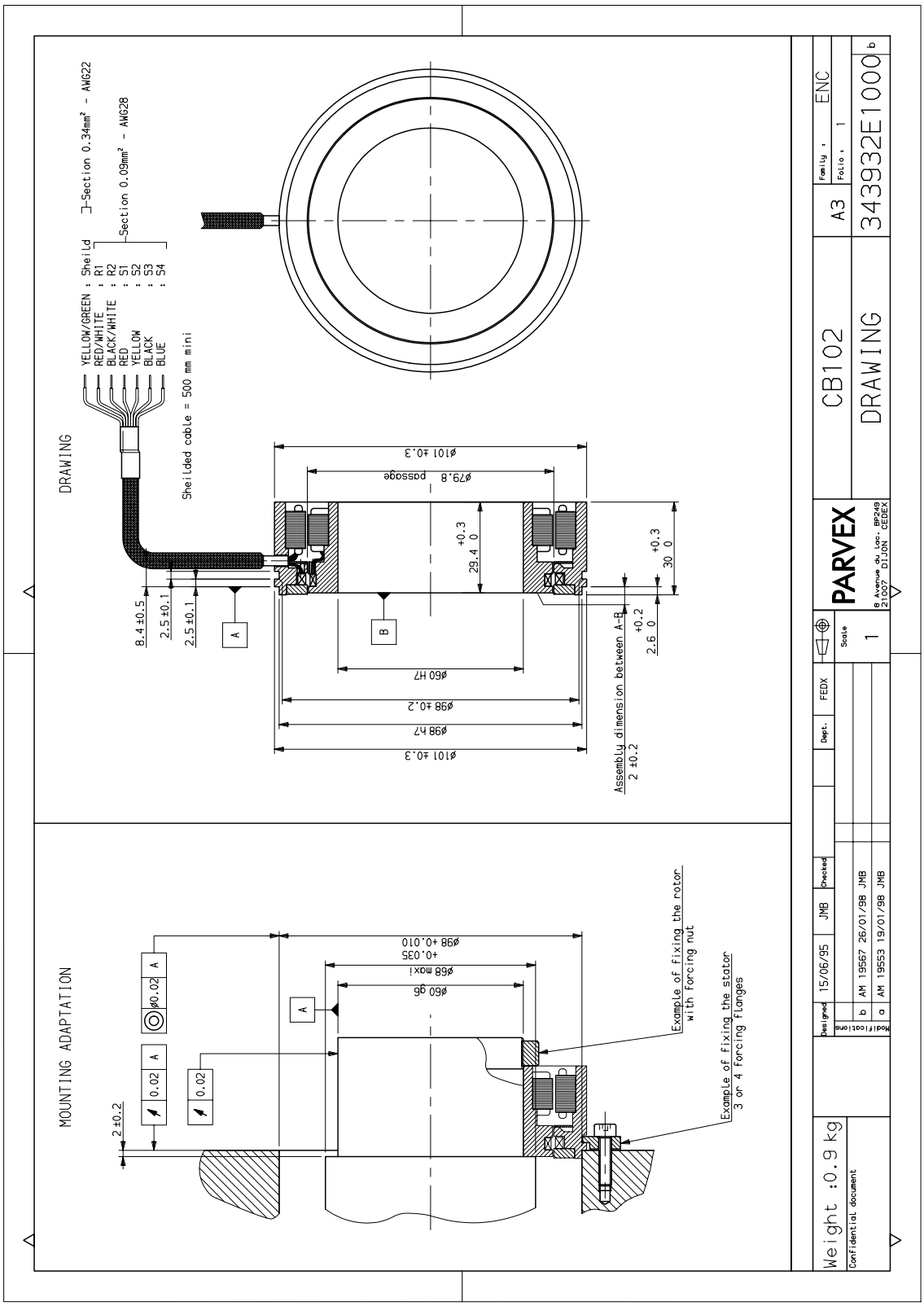

HWB00H
OUTLINE DRAWING
344306E1300
Format A3
Famille : ENC
Scale 2:5
Drawing valid for : R1000
Weight :
Motors | L | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8
HWB20 | 263 | 200 | 204 | 95 | 24 | 100 | 212 | 234 | 309
HWB30 | 363 | 300 | 304 | 95 | 124 | 100 | 312 | 334 | 409
HWB40 | 463 | 400 | 405 | 95 | 225 | 100 | 412 | 435 | 5095
Cooling outlet Groove width 40mm
Cooling inlet Groove width 40mm
TO SEE DETAIL 1
TO SEE DETAIL 2
DETAIL 1 SCALE 1:2
DETAIL 2 SCALE 1:2
Cable output area
Cable lenght 1m.
Power conductors :
Black conductor : phase U
White conductor : phase V
Red conductor : phase W
Thermal switch :
2 yellow conductors
section : 0.5mm²
Permanent current at low speed IoS3 (given in the electrical data sheet)
Conductors section
IoS3 <= 100 A | 16 mm²
100 A < IoS3 <= 180 A | 25 mm²
180 A < IoS3 <= 300 A | 50 mm²
Dimensions are valid only for the sections of the cable indicated opposite.
8 Avenue du lac BP249 21007 DIJON CEDEX

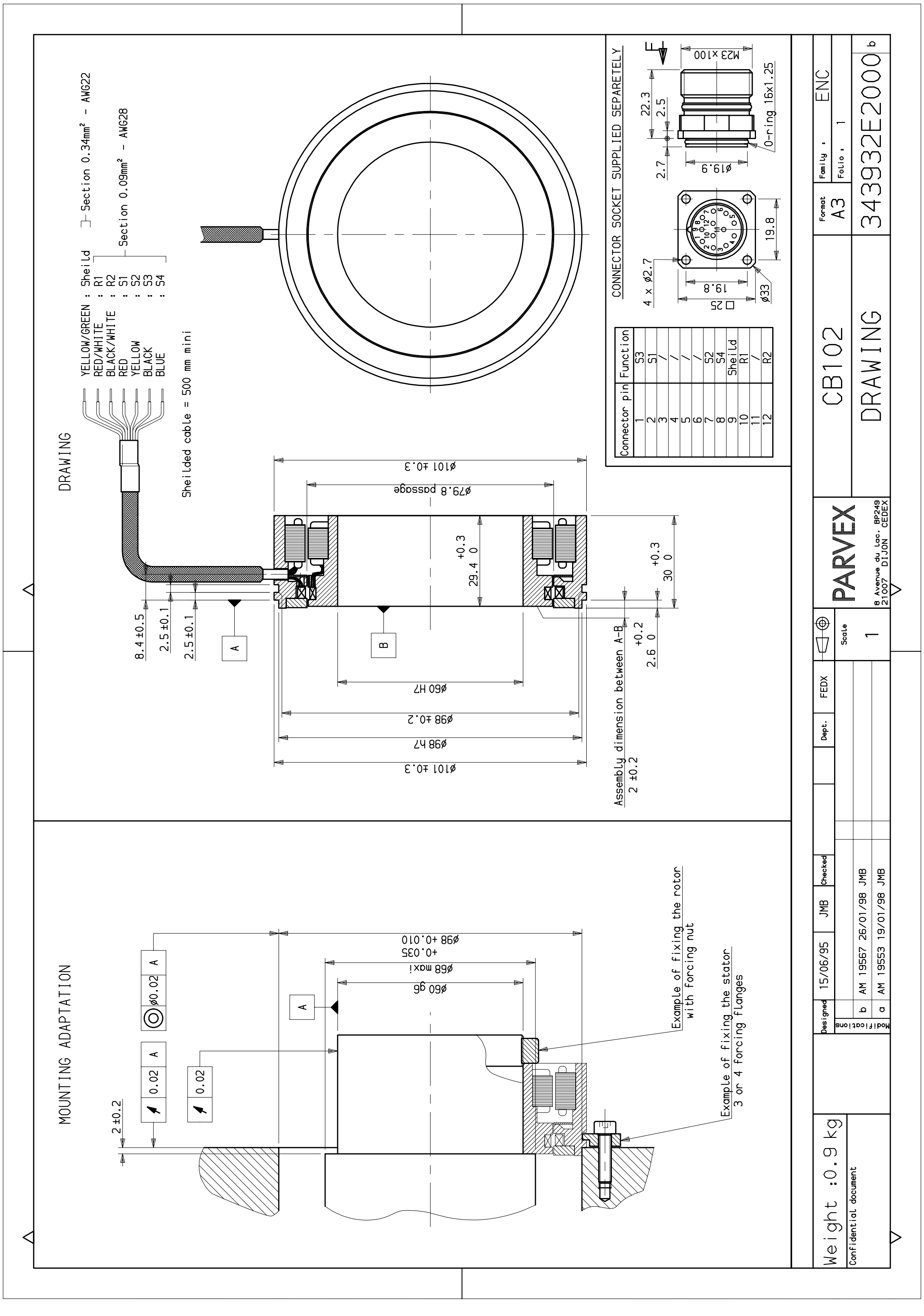
ANNEX III

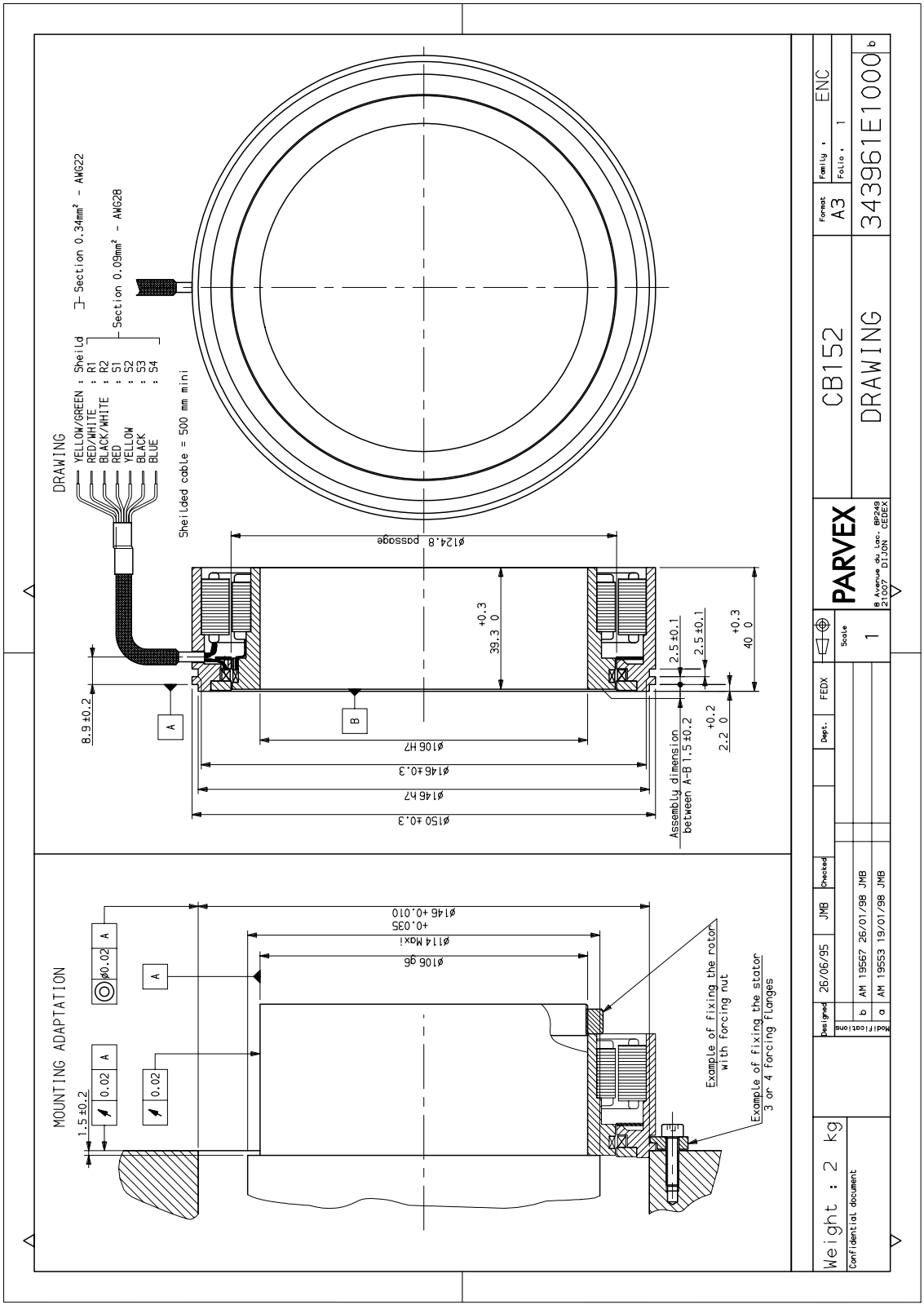
Resolver drawings

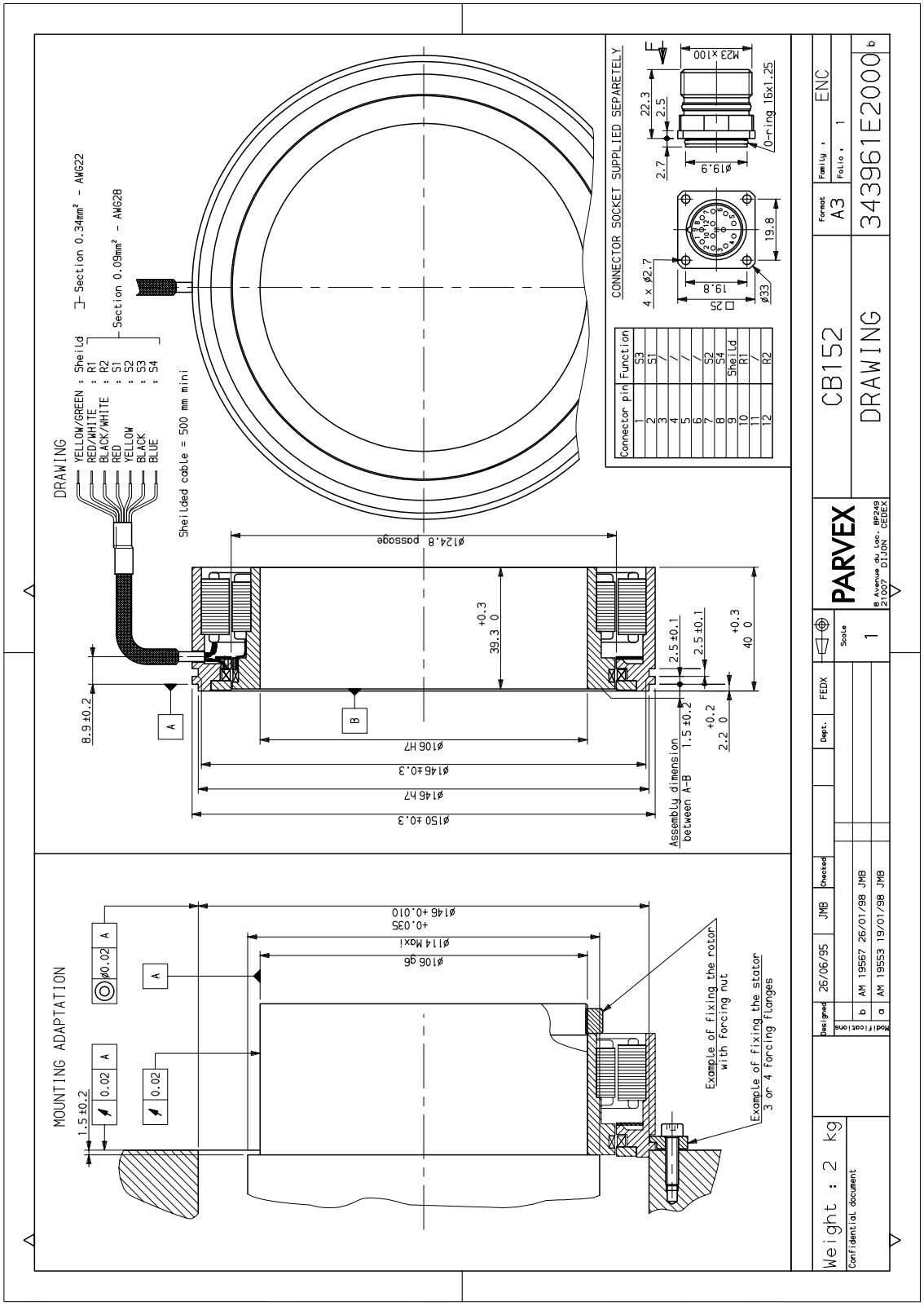

DRAWING
YELLOW/GREEN : Sheild
RED/WHITE : R1
BLACK/WHITE : R2
RED : S1
YELLOW : S2
BLACK : S3
BLUE : S4
Section 0.34mm² - AWG22
Section 0.09mm² - AWG28
Sheilded cable = 500 mm mini
Ø34 passage
Assembly dimension between A-B
1.1 ±0.25
MOUNTING ADAPTATION
Example of fixing the rotor with forcing nut
Example of fixing the stator 3 or 4 forcing flanges
PARVEX
CB52
DRAWING
Format A3
Family , ENC
Folio , 1
344140E1000
Scale 1
Designed 30/09/98 JMB
Checked
Dept. FEDX
Modifications
Weight :0.3 kg
Confidential document

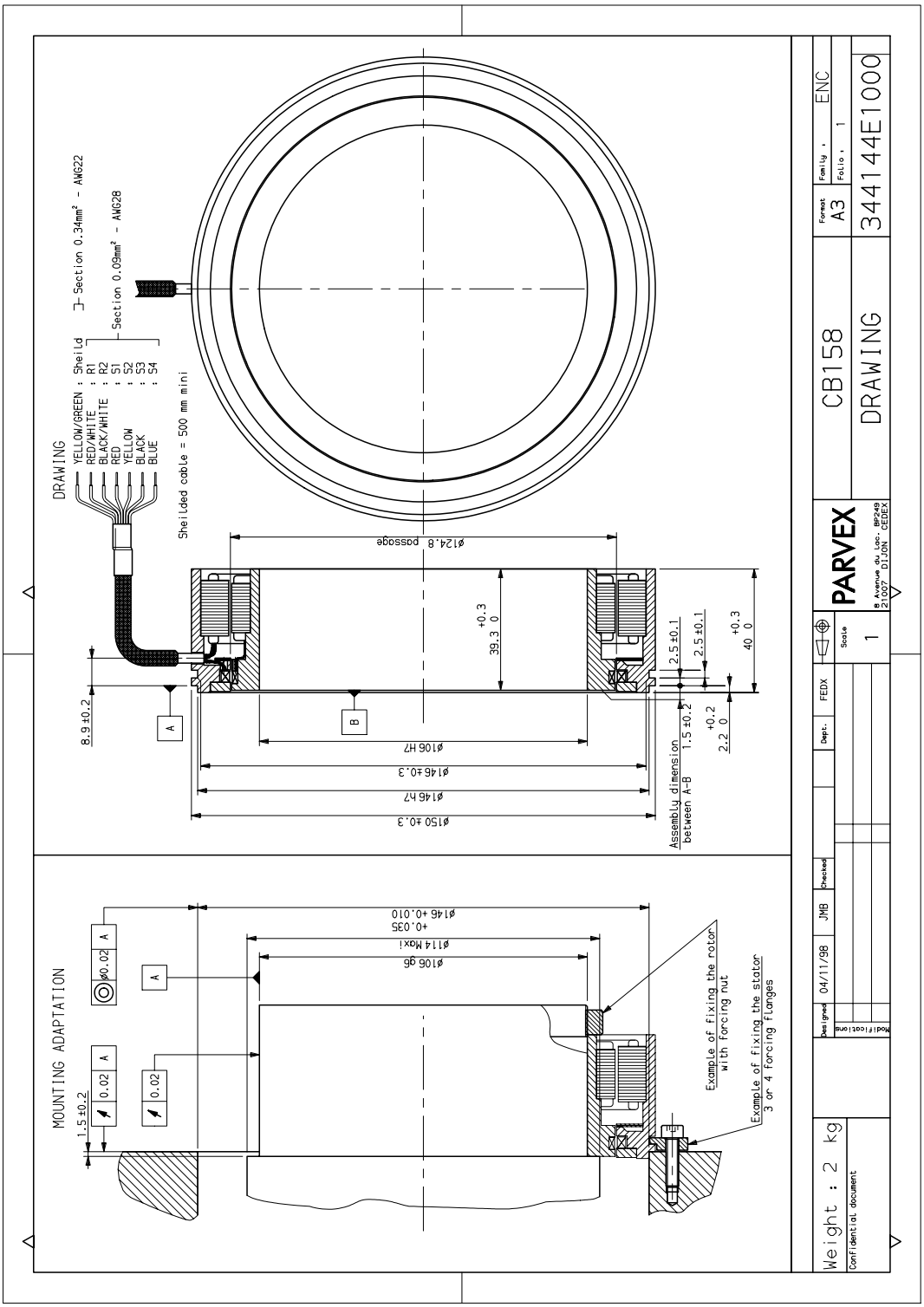

DRAWING
YELLOW/GREEN : Shelld
RED/WHITE : R1
BLACK/WHITE : R2
RED : S1
YELLOW : S2
BLACK : S3
BLUE : S4
Section 0.34mm² - AWG22
Section 0.09mm² - AWG28
Sheilded cable = 500 mm mini
CONNECTOR SOCKET SUPPLIED SEPARETELY
Connector pin
Function
S3
S1
S2
S4
Shelld
R1
R2
M23x100
O-ring 16x1.25
Ø34 passage
Assembly dimension between A-B
1.1 ±0.25
MOUNTING ADAPTATION
Example of fixing the rotor with forcing nut
Example of fixing the stator 3 or 4 forcing flanges
PARVEX
8 Avenue du Lac. BP249 21007 DIJON CEDEX
CB52
DRAWING
Format A3
Family : ENC
Folio : 1
344140E2000
Scale 1
Designed 30/09/98 JMB
Checked
Dept. FEDX
Modifications
Weight :0.3 kg
Confidential document

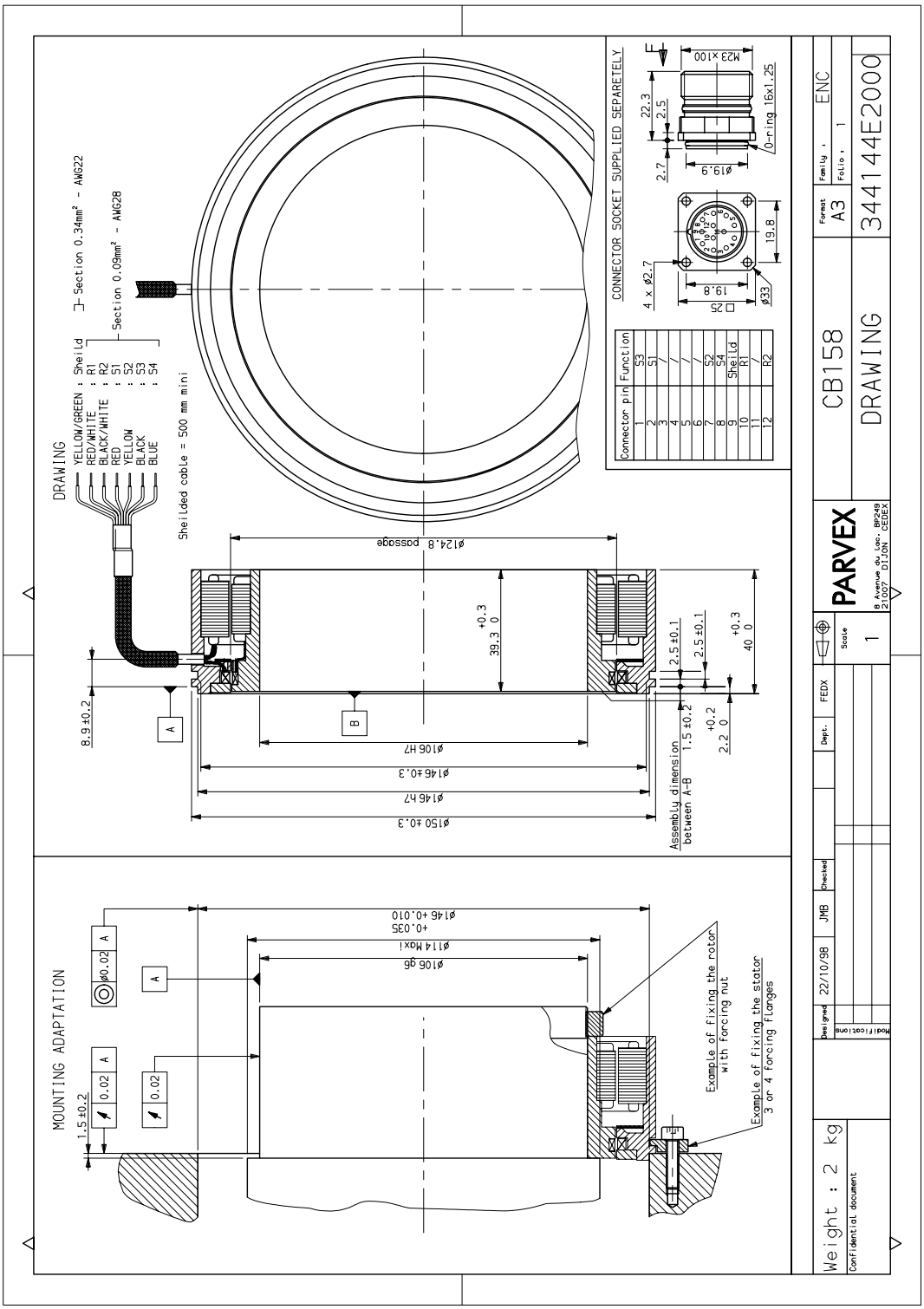

DRAWING
YELLOW/GREEN : Sheild
RED/WHITE : R1
BLACK/WHITE : R2
RED : S1
YELLOW : S2
BLACK : S3
BLUE : S4
Section 0.34mm² - AWG22
Section 0.09mm² - AWG28
Sheilded cable = 500 mm mini
ø101 ±0.3
ø79.8 passage
29.4 +0.3 0
30 +0.3 0
2.6 +0.2 0
Assembly dimension between A-B
2 ±0.2
8.4 ±0.5
2.5 ±0.1
2.5 ±0.1
ø60 H7
ø98 ±0.2
ø98 h7
ø101 ±0.3
MOUNTING ADAPTATION
2 ±0.2
0.02 A
ø0.02 A
0.02
ø98 +0.035 +0.010
ø68 max!
ø60 g6
Example of fixing the rotor with forcing nut
Example of fixing the stator 3 or 4 forcing flanges
Weight :0.9 kg
Confidential document
Designed 15/06/95 JMB
Checked
Dept. FEDX
Scale 1
Modifications
b AM 19567 26/01/98 JMB
a AM 19553 19/01/98 JMB
PARVEX
8 Avenue du Lac BP249 21007 DIJON CEDEX
CB102
DRAWING
A3
Family : ENC
Folio : 1
343932E1000 b


DRAWING
MOUNTING ADAPTATION
CONNECTOR SOCKET SUPPLIED SEPARETELY
Sheilded cable = 500 mm mini
Example of fixing the rotor with forcing nut
Example of fixing the stator 3 or 4 forcing flanges
PARVEX
CB102
DRAWING
343932E2000
Weight :0.9 kg
Confidential document


DRAWING
YELLOW/GREEN : Shield
RED/WHITE : R1
BLACK/WHITE : R2
RED : S1
YELLOW : S2
BLACK : S3
BLUE : S4
Section 0.34mm² - AWG22
Section 0.09mm² - AWG28
Sheilded cable = 500 mm mini
Ø124.8 passage
39.3 +0.3 0
2.5 ±0.1
2.5 ±0.1
40 +0.3 0
8.9 ±0.2
2.2 +0.2 0
Assembly dimension between A-B 1.5 ±0.2
Ø106 H7
Ø146 f7
Ø146 +0.010 +0.035
Ø114 Maxi
Ø106 g6
MOUNTING ADAPTATION
1.5 ±0.2
0.02 A
0.02
Example of fixing the rotor with forcing nut
Example of fixing the stator 3 or 4 forcing flanges
PARVEX
8 Avenue du Lac - BP249 21007 DIJON CEDEX
CB152
DRAWING
Format A3
Family : ENC
Folio : 1
343961E1000 b
Scale 1
Designed 26/06/95 JMB
Checked
Dept. FEDX
Mod. Modifications
b AM 19567 26/01/98 JMB
a AM 19553 19/01/98 JMB
Weight : 2 kg
Confidential document


DRAWING
YELLOW/GREEN : Sheild
RED/WHITE : R1
BLACK/WHITE : R2
RED : S1
YELLOW : S2
BLACK : S3
BLUE : S4
Section 0.34mm² - AWG22
Section 0.09mm² - AWG28
Sheilded cable = 500 mm mini
CONNECTOR SOCKET SUPPLIED SEPARETELY
Connector pin
Function
S3
S1
S2
S4
Sheild
R1
R2
M23 x100
O-ring 16x1.25
4 x Ø2.7
□25
Ø33
19.8
Ø19.9
22.3
2.5
2.7
Ø124.8 passage
8.9 ±0.2
39.3 +0.3 0
40 +0.3 0
2.5 ±0.1
2.2 +0.2 0
1.5 ±0.2
Ø106 H7
Ø146 f7
Ø146 f0.3
Ø150 f0.3
Assembly dimension between A-B
MOUNTING ADAPTATION
Ø0.02 A
0.02 A
0.02
Ø146 +0.010 +0.035
Ø114 Maxi
Ø106 g6
Example of fixing the rotor with forcing nut
Example of fixing the stator 3 or 4 forcing flanges
Weight : 2 kg
Confidential document
Designed 26/06/95 JMB
Checked
Dept. FEDX
Scale 1
PARVEX
8 Avenue du Lac. BP249 21007 DIJON CEDEX
CB152
DRAWING
Format A3
Family : ENC
Folio : 1
343961E2000 b
Modifications
b AM 19567 26/01/98 JMB
a AM 19553 19/01/98 JMB


DRAWING
YELLOW/GREEN : Sheild
RED/WHITE : R1
BLACK/WHITE : R2
RED : S1
YELLOW : S2
BLACK : S3
BLUE : S4
Section 0.34mm² - AWG22
Section 0.09mm² - AWG28
Sheilded cable = 500 mm mini
Ø124.8 passage
8.9 ±0.2
39.3 +0.3 0
2.5 ±0.1
2.5 ±0.1
40 +0.3 0
2.2 +0.2 0
Assembly dimension between A-B 1.5 ±0.2
Ø106 H7
Ø146 ±0.3
Ø146 H7
Ø150 ±0.3
MOUNTING ADAPTATION
1.5 ±0.2
0.02 A
0.02
Ø0.02 A
Ø146 +0.035 +0.010
Ø114 Maxi
Ø106 g6
Example of fixing the rotor with forcing nut
Example of fixing the stator 3 or 4 forcing flanges
Weight : 2 kg
Confidential document
Designed 04/11/98 JMB
Checked
Dept. FEDX
Scale 1
PARVEX
8 Avenue du Lac - BP 249 21007 DIJON CEDEX
CB158
DRAWING
Format A3
Family , ENC
Folio , 1
344144E1000


DRAWING
YELLOW/GREEN : Sheild
RED/WHITE : R1
BLACK/WHITE : R2
RED : S1
YELLOW : S2
BLACK : S3
BLUE : S4
Section 0.34mm² - AWG22
Section 0.09mm² - AWG28
Sheilded cable = 500 mm mini
CONNECTOR SOCKET SUPPLIED SEPARETELY
Connector pin
Function
S3
S1
S2
S4
Sheild
R1
R2
M23 x100
O-ring 16x1.25
Ø124.8 passage
Ø106 H7
Ø146 +0.3
Ø146 h7
Ø150 +0.3
Assembly dimension between A-B 1.5 ±0.2
MOUNTING ADAPTATION
Ø106 g6
Ø114 Maxi
Ø146 +0.035 +0.010
Example of fixing the rotor with forcing nut
Example of fixing the stator 3 or 4 forcing flanges
Weight : 2 kg
Confidential document
Designed 22/10/98 JMB
Checked
Dept. FEDX
Scale 1
PARVEX
8 Avenue du Lac. BP249 21007 DIJON CEDEX
CB158
DRAWING
Format A3
Family : ENC
Folio : 1
344144E2000

ANNEX IV

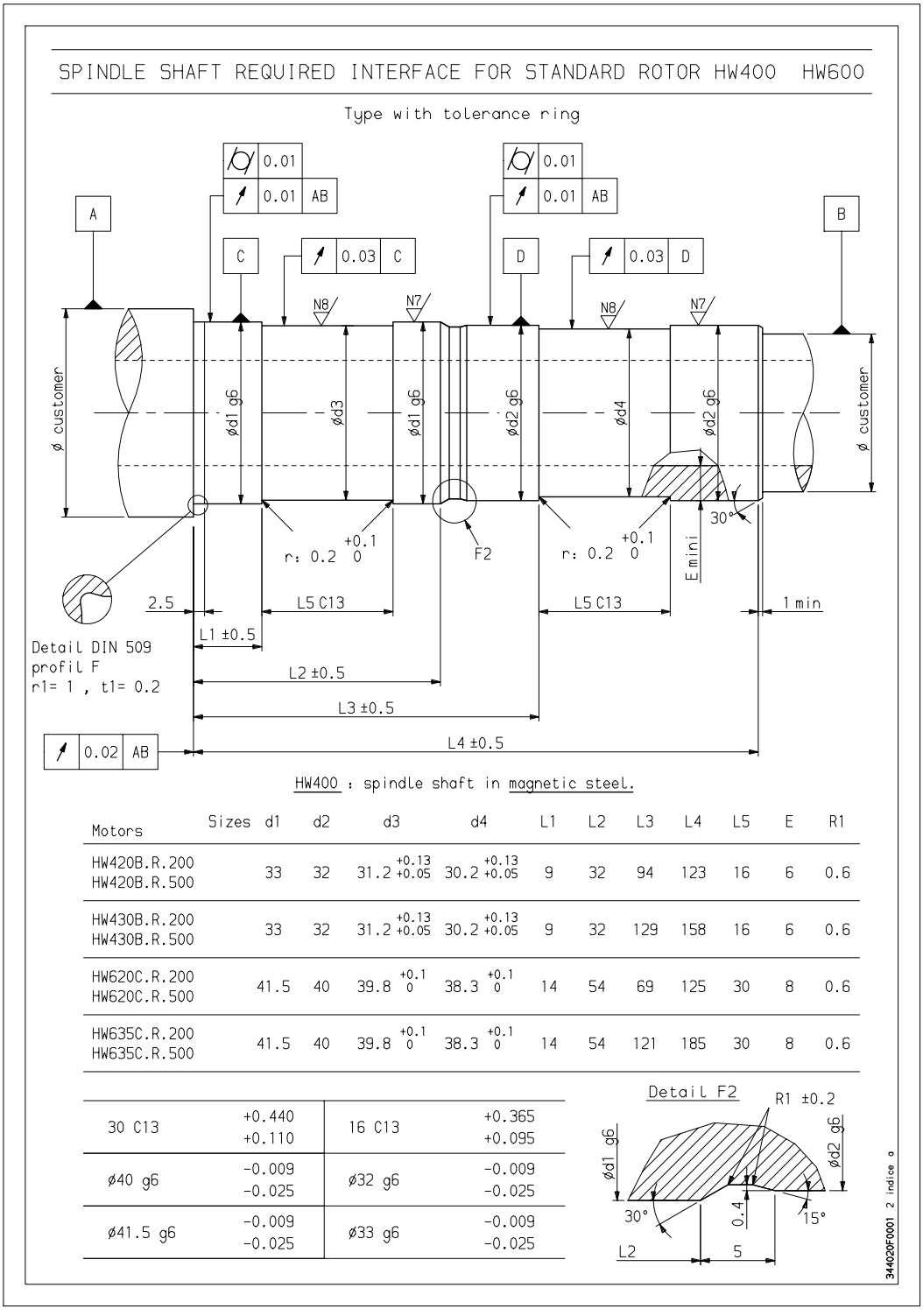
Recommended mechanical interfaces for HW motor assembly drawings

CODING

H W 420 B___ R___ 200

Winding letter (e.g. : U, P, K…) Cooling type (e.g. : 1 for water)

e.g. HW420B.R.200 is valid for HW420BUR1200

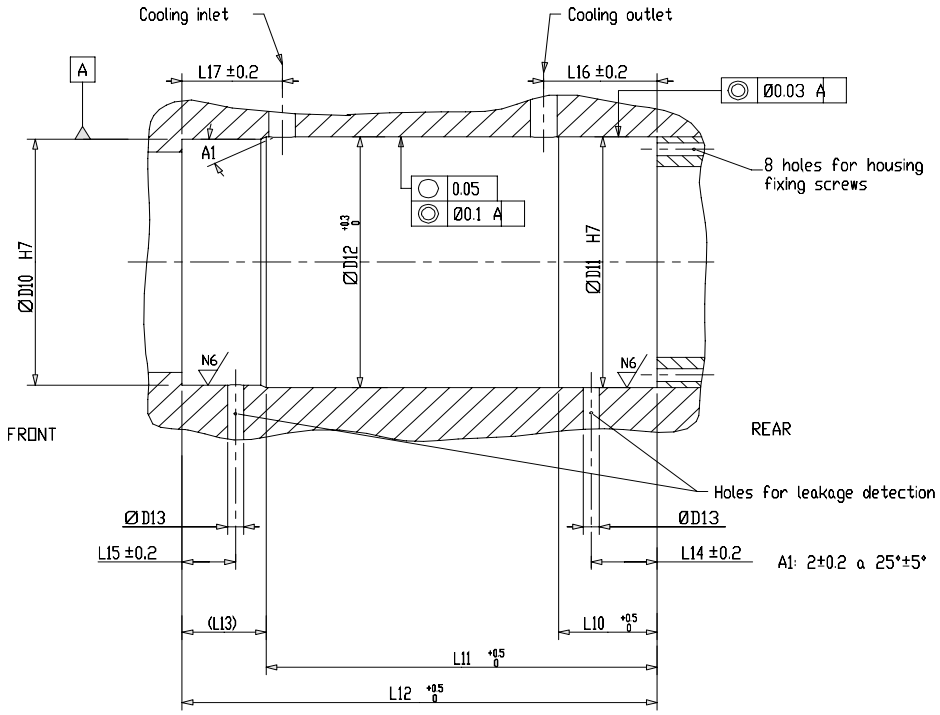


HW400 : spindle shaft in magnetic steel.

Motors	Sizes	d1	d2	d3	d4	L1	L2	L3	L4	L5	E	R1
HW420B.R.200 HW420B.R.500		33	32	31.2 +0.13 +0.05	30.2 +0.13 +0.05	9	32	94	123	16	6	0.6
HW430B.R.200 HW430B.R.500		33	32	31.2 +0.13 +0.05	30.2 +0.13 +0.05	9	32	129	158	16	6	0.6
HW620C.R.200 HW620C.R.500		41.5	40	39.8 +0.1 0	38.3 +0.1 0	14	54	69	125	30	8	0.6
HW635C.R.200 HW635C.R.500		41.5	40	39.8 +0.1 0	38.3 +0.1 0	14	54	121	185	30	8	0.6

30 C13	+0.440 +0.110	16 C13	+0.365 +0.095
ø40 g6	-0.009 -0.025	ø32 g6	-0.009 -0.025
ø41.5 g6	-0.009 -0.025	ø33 g6	-0.009 -0.025

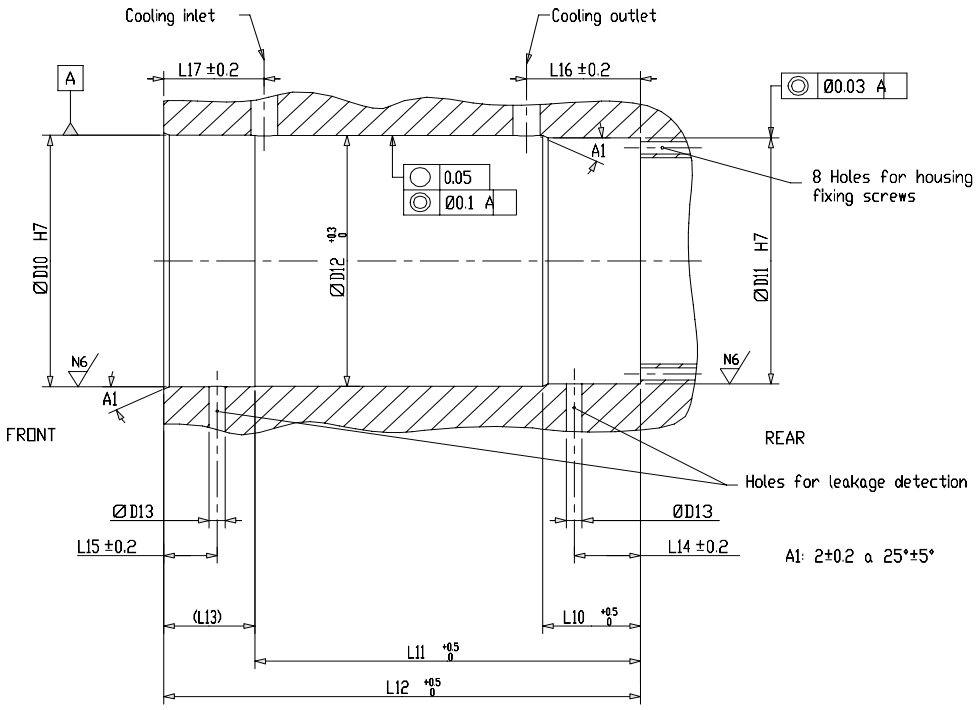
COLLING JACKET REQUIRED INTERFACE FOR STANDARD STATOR HW400 / HW600



Motors	Sizes	D10	D11	D12	D13	L10	L11	L12	L13	L14	L15	L16	L17
HW420B.R.300 HW420B.R.400 HW420B.R.500		98	100	99.9	6	37	113.5	145	35	24.7	20	42.5	37.5
HW430B.R.300 HW430B.R.400 HW430B.R.500		98	100	99.9	6	37	146.5	178	35	24.7	20	42.5	37.5
HW440B.R.300 HW440B.R.400 HW440B.R.500		98	100	99.9	6	37	179.5	211	35	24.7	20	42.5	37.5
HW620C.R.300 HW620C.R.400 HW620C.R.500		128	130	129.9	7	40	128.5	161	35	26.5	18.5	47.5	38.5
HW635C.R.300 HW635C.R.400 HW635C.R.500		128	130	129.9	77	40	188.5	221	35	26.5	18.5	47.5	38.5

344020F0006 Indice a

COOLING JACKET INTERFACE FOR STANDARD STATOR HW400 / HW600

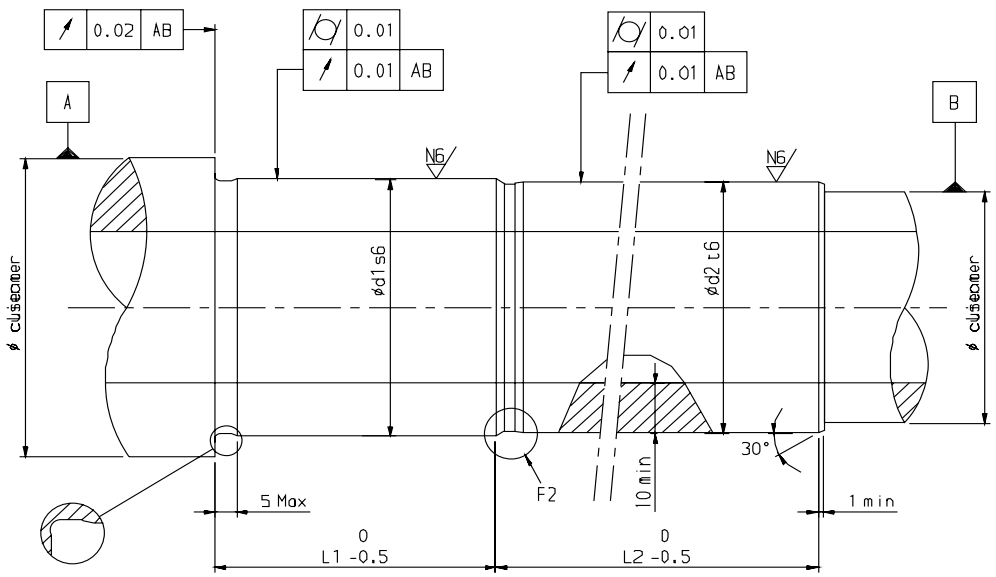


Motors	Sizes	D10	D11	D12	D13	L10	L11	L12	L13	L14	L15	L16	L17
HW420B.R.000 HW420B.R.100 HW420B.R.200		100	98	99.9	6	36.5	111	145	34	24.7	20	42.5	37.5
HW430B.R.000 HW430B.R.100 HW430B.R.200		100	98	99.9	6	36.5	144	178	34	24.7	20	42.5	37.5
HW440B.R.000 HW440B.R.100 HW440B.R.200		100	98	99.9	6	36.5	177	211	34	24.7	20	42.5	37.5
HW620C.R.000 HW620C.R.100 HW620C.R.200		130	128	129.9	7	41	127	161	34	26.5	18.5	47	39
HW635C.R.000 HW635C.R.100 HW635C.R.200		130	128	129.9	77	41	187	221	34	26.5	18.5	47	39

3440201F0005 Indice a

SPINDLE SHAFT REQUIRED INTERFACE FOR STANDARD ROTOR HW800 / HW900 / HWA00

Type with shrinking

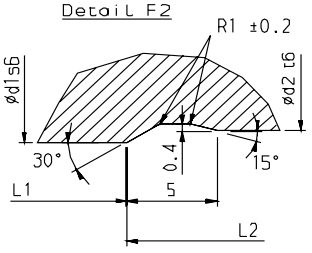


Detail DIN 509
profil F

Motors		Sizes	d1	d2	L1	L2	R1
HW820C.R.000	HW820C.R.300		61	60	66	56	0.6
HW840C.R.000	HW840C.R.300		61	60	66	136	0.6
HW920C.R.000	HW920C.R.300		71	70	77	88	0.6
HW930C.R.000	HW930C.R.300		71	70	77	149	0.6
HW950C.R.000	HW950C.R.300		71	70	77	271	0.6
HWA30D.R.000	HWA30D.R.300		107	106	107	179	0.6
HWA50D.R.000	HWA50D.R.300		107	106	107	329	0.6

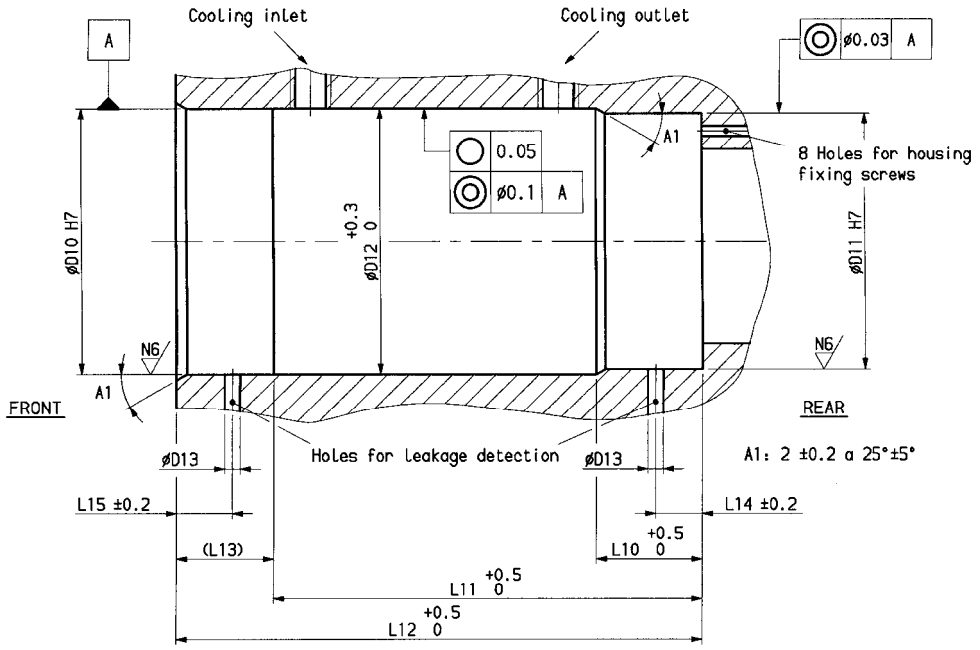
ø60 t6	+0.085 +0.066	ø61 s6	+0.072 +0.053
ø70 t6	+0.094 +0.075	ø71 s6	+0.078 +0.059
ø106 t6	+0.126 +0.104	ø107 s6	+0.101 +0.079

Detail F2



3440206F0002 2 indice a

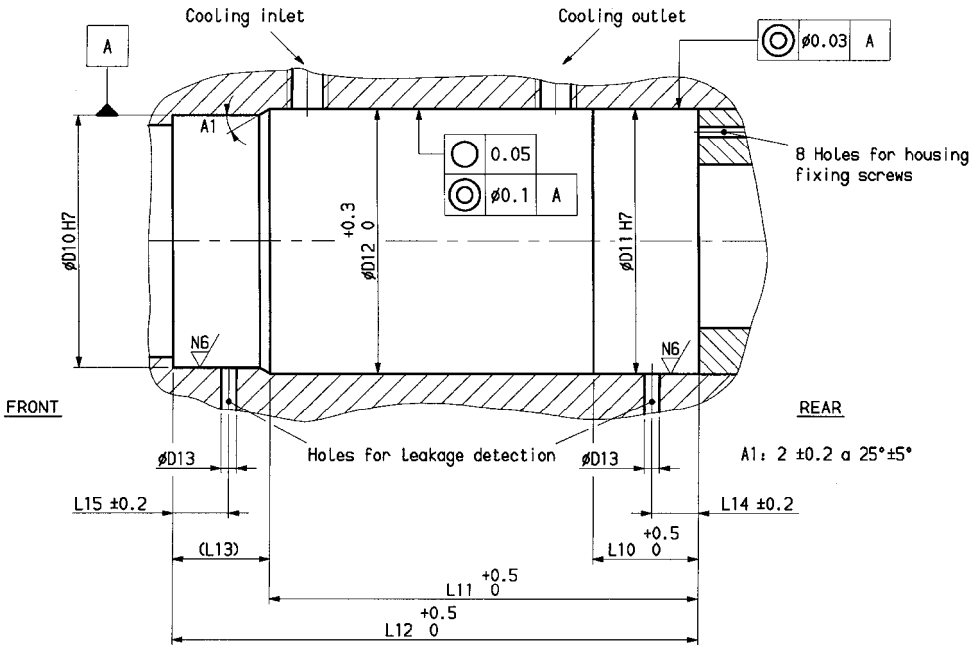
COOLING JACKET REQUIRED INTERFACE FOR STANDARD STATOR HW800 / HW900 / HWA00



Motors	Sizes	D10	D11	D12	D13	L10	L11	L12	L13	L14	L15
HW820C.R.000 HW820C.R.100 HW820C.R.200		180	178	179.9	8	52.5	147	191	44	33.5	25
HW840C.R.000 HW840C.R.100 HW840C.R.200		180	178	179.9	8	52.5	227	271	44	33.5	25
HW920C.R.000 HW920C.R.100 HW920C.R.200		220	217	219.9	8	59.5	199	244	45	40.5	26
HW930C.R.000 HW930C.R.100 HW930C.R.200		220	217	219.9	8	59.5	259	304	45	40.5	26
HW950C.R.000 HW950C.R.100 HW950C.R.200		220	217	219.9	8	59.5	379	424	45	40.5	26
HWA30D.R.000 HWA30D.R.100 HWA30D.R.200		270	267	269.9	8	58.5	307	357	50	39.5	31
HWA50D.R.000 HWA50D.R.100 HWA50D.R.200		270	267	269.9	8	58.5	457	507	50	39.5	31

344020F0003 2 Indice a

COOLING JACKET REQUIRED INTERFACE FOR STANDARD STATOR HW800 / HW900 / HWA00

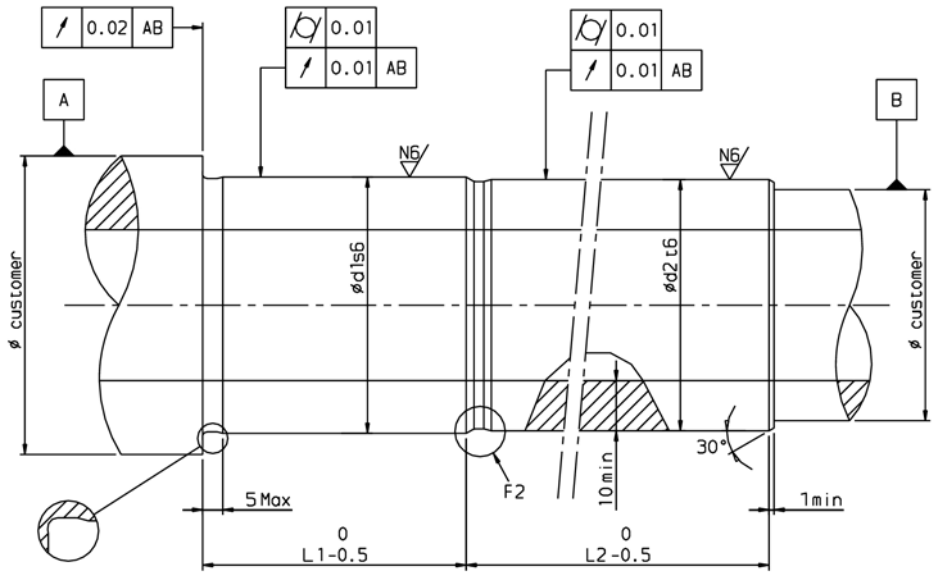


Motors	Sizes	D10	D11	D12	D13	L10	L11	L12	L13	L14	L15
HW820C.R.300 HW820C.R.400 HW820C.R.500		178	180	179.9	8	51	146	191	45	33.5	25
HW840C.R.300 HW840C.R.400 HW840C.R.500		178	180	179.9	8	51	226	271	45	33.5	25
HW920C.R.300 HW920C.R.400 HW920C.R.500		217	220	219.9	8	58	198	244	46	40.5	26
HW930C.R.300 HW930C.R.400 HW930C.R.500		217	220	219.9	8	58	258	304	46	40.5	26
HW950C.R.300 HW950C.R.400 HW950C.R.500		217	220	219.9	8	58	378	424	46	40.5	26
HWA30D.R.300 HWA30D.R.400 HWA30D.R.500		267	270	269.9	8	57	306	357	51	39.5	31
HWA50D.R.300 HWA50D.R.400 HWA50D.R.500		267	270	269.9	8	57	456	507	51	39.5	31

344020F0004 2 indice a

SPINDLE SHAFT REQUIRED INTERFACE FOR STANDARD ROTOR HWB

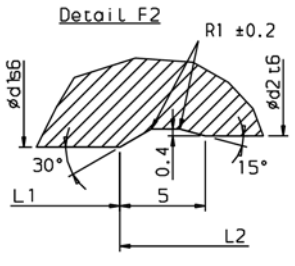
Type with shrinking



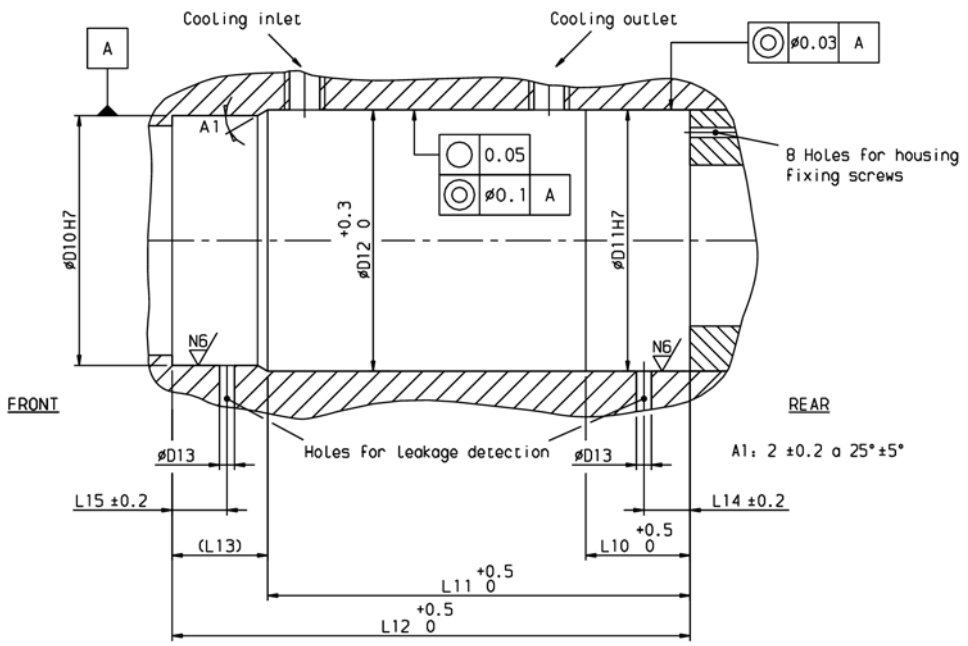
Detail DIN 509
profil F

Motors		Sizes	d1	d2	L1	L2	R1
HWB20H.R.000	HWB20H.R.300		153	152	138	127	0.6
HWB30H.R.000	HWB30H.R.300		153	152	138	227	0.6
HWB40H.R.000	HWB40H.R.300		153	152	138	328	0.6

ø152 t6	+0.159 +0.134	ø153 s6	+0.125 +0.100



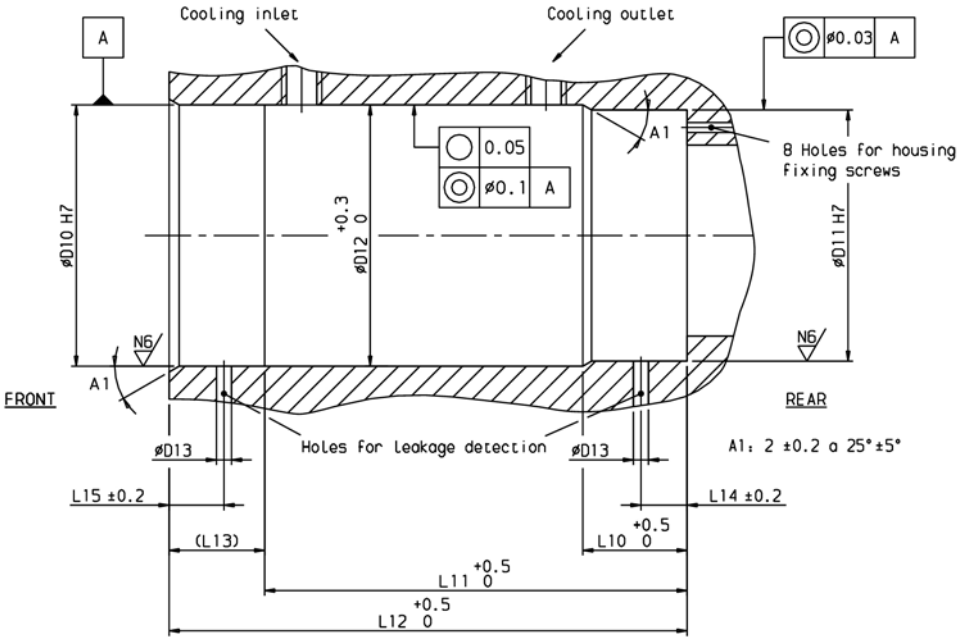
COOLING JACKET REQUIRED INTERFACE FOR STANDARD STATOR HWB



Motors	Sizes	D10	D11	D12	D13	L10	L11	L12	L13	L14	L15
HWB20H.R.300 HWB20H.R.400 HWB20H.R.500		337	340	339.9	8	77	284	341	57	58.5	36
HWB30H.R.300 HWB30H.R.400 HWB30H.R.500		337	340	339.9	8	77	384	441	57	58.5	36
HWB40H.R.300 HWB40H.R.400 HWB40H.R.500		337	340	339.9	8	77	484	541	57	58.5	36

3440206009 2 indice -

COOLING JACKET REQUIRED INTERFACE FOR STANDARD STATOR HWB



Motors	Sizes	D10	D11	D12	D13	L10	L11	L12	L13	L14	L15
HWB20H.R.000 HWB20H.R.100 HWB20H.R.200		340	337	339.9	8	78.5	285	341	56	58.5	36
HWB30H.R.000 HWB30H.R.100 HWB30H.R.200		340	337	339.9	8	78.5	385	441	56	58.5	36
HWB40H.R.000 HWB40H.R.100 HWB40H.R.200		340	337	339.9	8	78.5	485	541	56	58.5	36

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