



AC TRACTION MOTORS

MODULAR DESIGNS

PRODUCT SPECIFICATION

BRUSH HMA AND TRACTION MOTORS

BRUSH HMA has many years valuable experience with the design and manufacture of traction motors for trains, metro's, trams and busses. This experience has been built up over the years as the major motor supplier to the Dutch Railways and local transport (tram and metro) companies.

Until the end of the 1980's, these motors were of DC design, for use with chopper drives. With the fast development of GTO and IGBT technologies throughout the 1980's and 1990's, HMA's specialist knowledge was concentrated on the design of AC traction motors for inverter drives, in close collaboration with the traction department of the former Holec Machines and Apparatus, now known as Alstom Traxis.

This collaboration has led to a wealth of experience in the field of inverter driven motors under demanding traction conditions.

MOTOR DESIGNS

BRUSH HMA's AC traction motors are specially designed to suit customer's requirements. Our experience has led to a wide range of modular designs that can be adapted to suit any particular application – bogie, axle or carriage mounted, as well as water-cooled wheel hub motors are available. Our motors are suitable for GTO- and IGBT-switched inverters of any make.

Attention has been paid to designing rugged motors with:

- low noise levels
- low maintenance requirements
- very high reliability
- expected service lifetimes of over 30 years

HMA will design the performance of the motor to the customers specification, ensuring an optimised solution for the performance required and the bogie employed.

HMA also has the in house skills and specialised software to carry out complicated dynamic drive line calculations to predict the system's dynamic performance.

TRAINS



Class 323 motor for British Railways. Self ventilated motor 146 kW.



BLS motor for Swiss Railways. Force ventilated motor 213 kW.



SM90 motor for Dutch Railways. Force ventilated motor 278 kW.

METROS



Motor for Helsinki Metro. Self ventilated, fully enclosed motor 96 kW.

TRAMS



Motor for City Tram Amsterdam. Self ventilated, fully enclosed motor 36 kW.

BUSES



Double motor for Sprint Tram Amsterdam. Self ventilated motor 2 x 74 kW.



MDDM motor for Dutch Railways. Adtranz design. 334 kW.

LICENSED MANUFACTURE

Licensed manufacture of traction motors is also possible at BRUSH HMA. HMA has references with most of the major train equipment suppliers.



TGV motor for Thalys. Alstom design. 990 kW.

REFERENCE LIST OF AC TRACTION MOTORS

Project	End User	Appl.	Type	Power	Qty	Year
HKL-DWA	Helsinki Metro	Metro	MDMKT 39/32,5	96kW	10	2007
	Bern	Train	DMKT 7.8/32.5	213kW	55	2007
Hybrid Bus	Eindhoven	Bus	MDMKT 46/6.3	39kW	6	2006
Hybrid Bus	Korea	Bus	MDMKT 46/6.3	39kW	4	2006
Hybrid Loc	Alstom Stendal	Loc	DMKT 47.8/32.5	213kW	2	2006
BLS	BLS Repeat	Train	DMKT 47.8/32.5	213kW	25	2000/2005

REFERENCE LIST PNEUMATIC DC CONTACTORS AND LINE BREAKERS

Application	End User	Type	Qty	Year
City Tram Rotterdam Double Decker Trains VIRM II	Ret NS(Dutch Railways)	GMMS 414	36	2000
		GPT 310	756	2000
		GMD 414	109	2000
		GMC 220	109	2000
		GMC 210	109	2000
		RTS 41 H	106	2000
Commuter Trains SGM II Trains	NS (Dutch Railway) Alstom Canada	PST 310	50	2001
		GMMS 315	24	2002
Double Decker Trains VIRM III	NS (Dutch Railways)	GPT 310	378	2003
		GMD 414	63	2003
		GMC 220	63	2003
		GMC 210	63	2003
		RTS 41 H	21	2003
		PST 415	230	2003
Commuter Trains SGM III Double Decker Trains VIRM IV	NS (Dutch Railway) NS (Dutch Railway)	GPT 310	500	2007
		GMD 414	100	2007
		GMC 220	100	2007
		GMC 210	100	2007
		RTS 41 H	50	2007

SPECIFICATIONS:

Powers: to 1000 kW
Voltage: to 2000 V
No. of poles: 4/6
Insulation: Class 200+
Standards: IEC 349-2
Quality: ISO 9001 : 2000
Applications: Train, loco, tram, metro,
bus, hybrid vehicles
Cooling: self-ventilated
forced-ventilated
water-cooled
Mounting: axle/bogie/carriage/wheel

For more information please contact us at:

BRUSH HMA B.V
 Ringdijk 390B,
 2983 GS Ridderkerk,
 The Netherlands.
Tel: +31 (0) 180 445501
E-mail: servicenl@brush.eu
Fax: +31 (0) 180 445445
Website: www.brush.eu

Or contact BRUSH directly at:

Email: salesnl@brush.eu
Tel: +31 (0) 180 445500



Certificate No 21024



Certificate No 21025



Certificate No 936683



Certificate No 00282



Certificate No 00066

BRUSH ELECTRICAL MACHINES Ltd
 Falcon Works, Nottingham Road,
 Loughborough, Leics. LE11 1EX England
Tel: +44 (0)1509 611511
Fax: +44 (0)1509 610440
E-mail: salesuk@brush.eu
Web: www.brush.eu

BRUSH HMA b.v.
 PO Box 3007, 2980 DA Ridderkerk
 The Netherlands
Tel: +31 180 445500
Fax: +31 180 445566
Email: salesnl@brush.eu
Web: www.brush.eu

BRUSH SEM s.r.o.
 Edvarda Benese 39, 301 00 Plzeň
 Czech Republic
Tel: +420 37 8210111
Fax: +420 37 8210214
Email: salescz@brush.eu
Web: www.brush.eu

BRUSH TURBOGENERATORS Inc.
 15110 Northwest Freeway, Suite 150,
 Houston, Texas 77040, USA
Tel: +1 (281) 580 1314
Fax: +1 (281) 580 5801
Email: salesus@brush.eu
Web: www.brush.eu