

Amorphous Alloys for Transformer Cores

Metglas® Amorphous Transformer cores are manufactured from low loss **Metglas® 2605SA1** and **Metglas® 2605HB1M** transformer core alloys. These low loss, high permeability alloys have excellent performance for single and three phase commercial, industrial and distribution transformer applications.

1. Alloys and the specification

Alloy		2605SA1	2605HB1M
Induction at 60 Hz and 80 A/m* (T)		≥1.35	≥1.50
Core Loss* (W/kg)	at 60 Hz and 1.3 T	≤0.17	≤0.17
	at 60 Hz and 1.4 T	≤0.20	≤0.20
Exciting Apparent Power* at 60 Hz and 1.4 T (VA/kg)		≤1.10	≤0.50

* These numbers in the above table are measured according to ASTM A 932/A 932 M - 01.

2. General Properties and Characteristics

Electromagnetic

Alloy	Saturation Induction (T)	Electrical Resistivity (μΩm)	Magnetostriction (x10 ⁻⁶)	Curie Temperature (°C)
2605SA1	1.56	1.3	27	395
2605HB1M	1.63	1.2	27	364

The numbers in the above table are not guaranteed

Physical

Alloy	Density (g/cm ³)	Crystallization Temperature (°C)	Tensile Strength (N/mm ²)	Young's Modulus (GPa)	Vickers Hardness Hv-50 g load	Thermal Expansion Coefficient (x10 ⁻⁶ /°C)
						30 - 300°C
2605SA1	7.18	510	2,000	110	900	7.6
2605HB1M	7.33	489	2,100	120	900	4.3

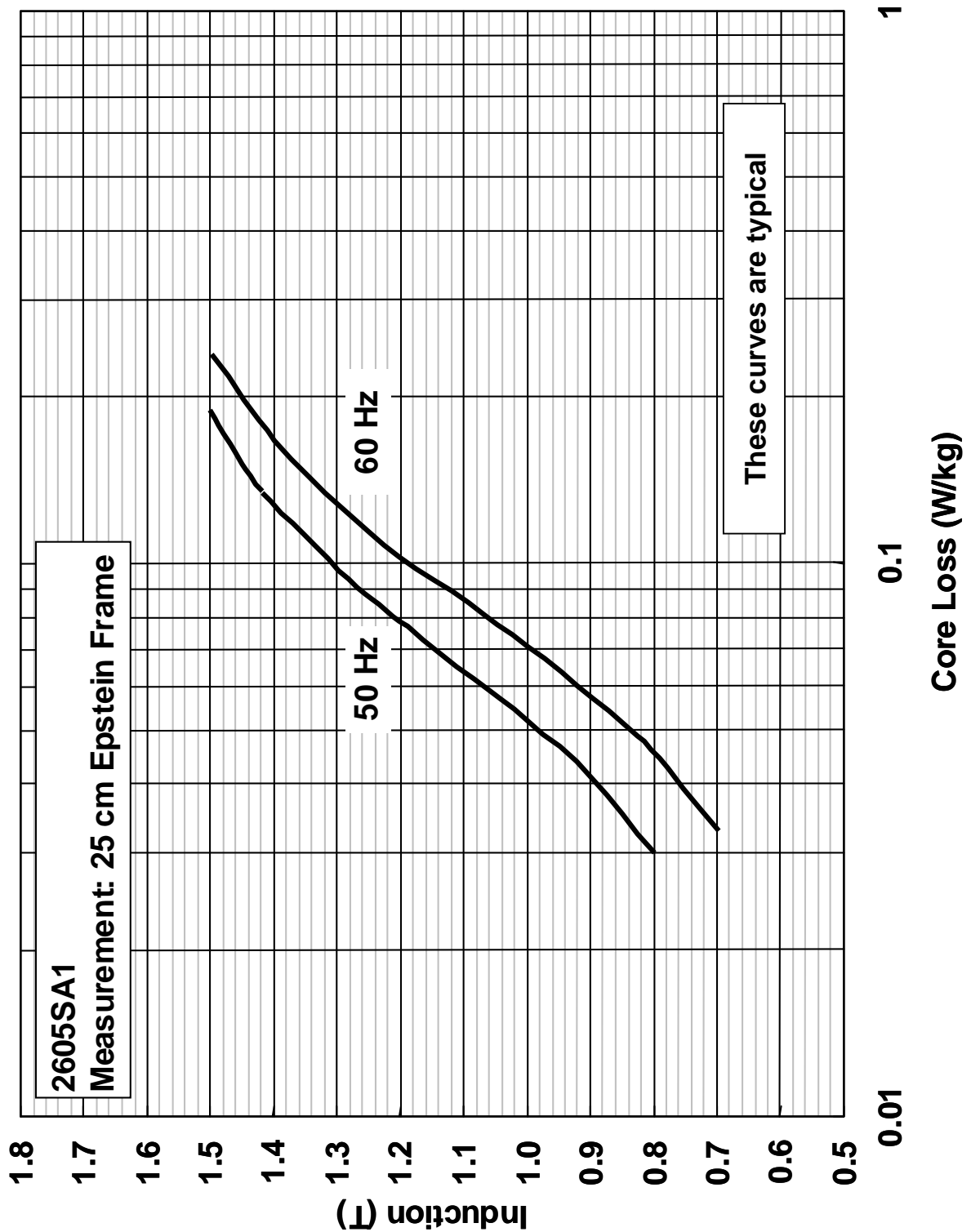
The numbers in the above table are not guaranteed

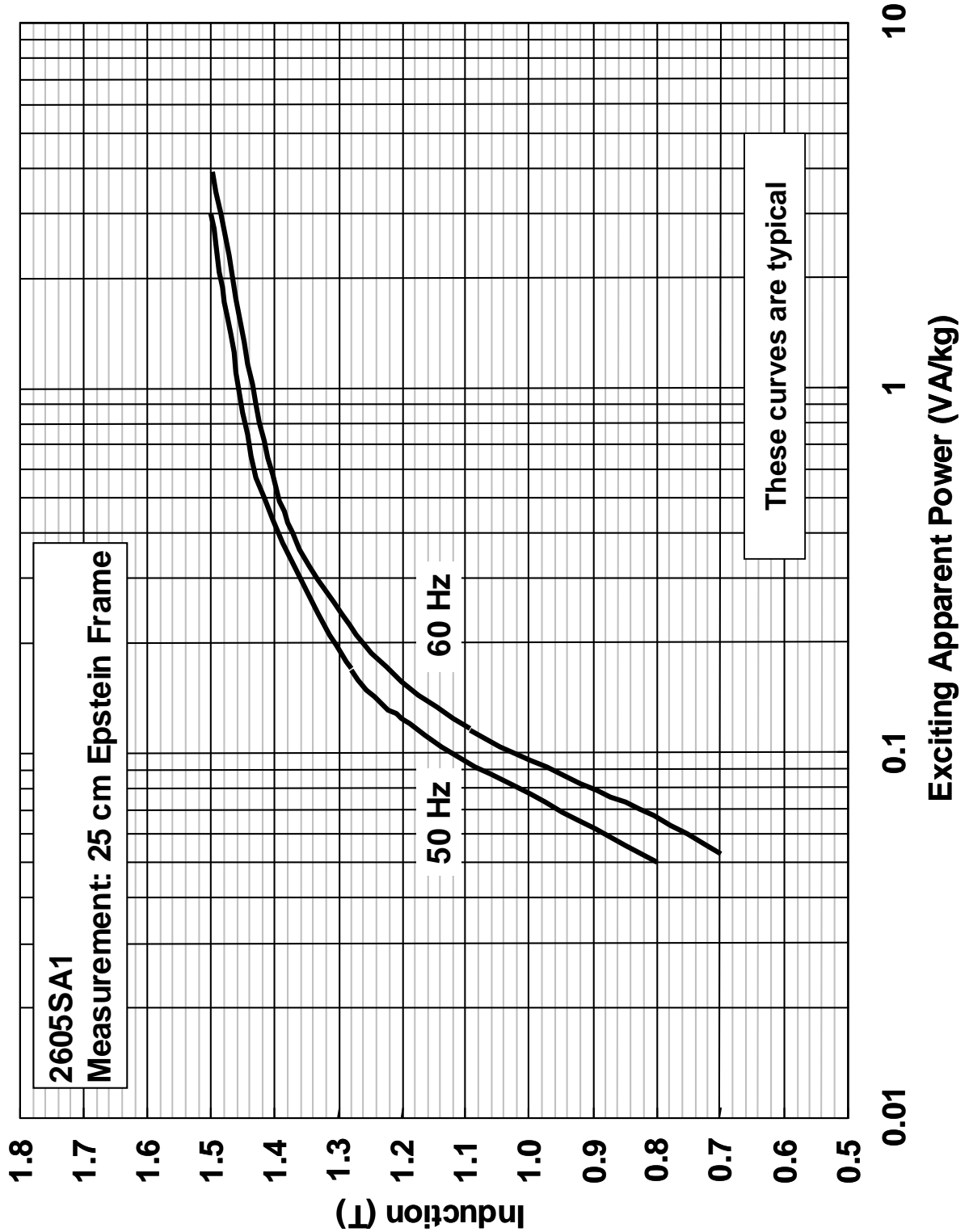
3. Ribbon Dimensions and Lamination Factor

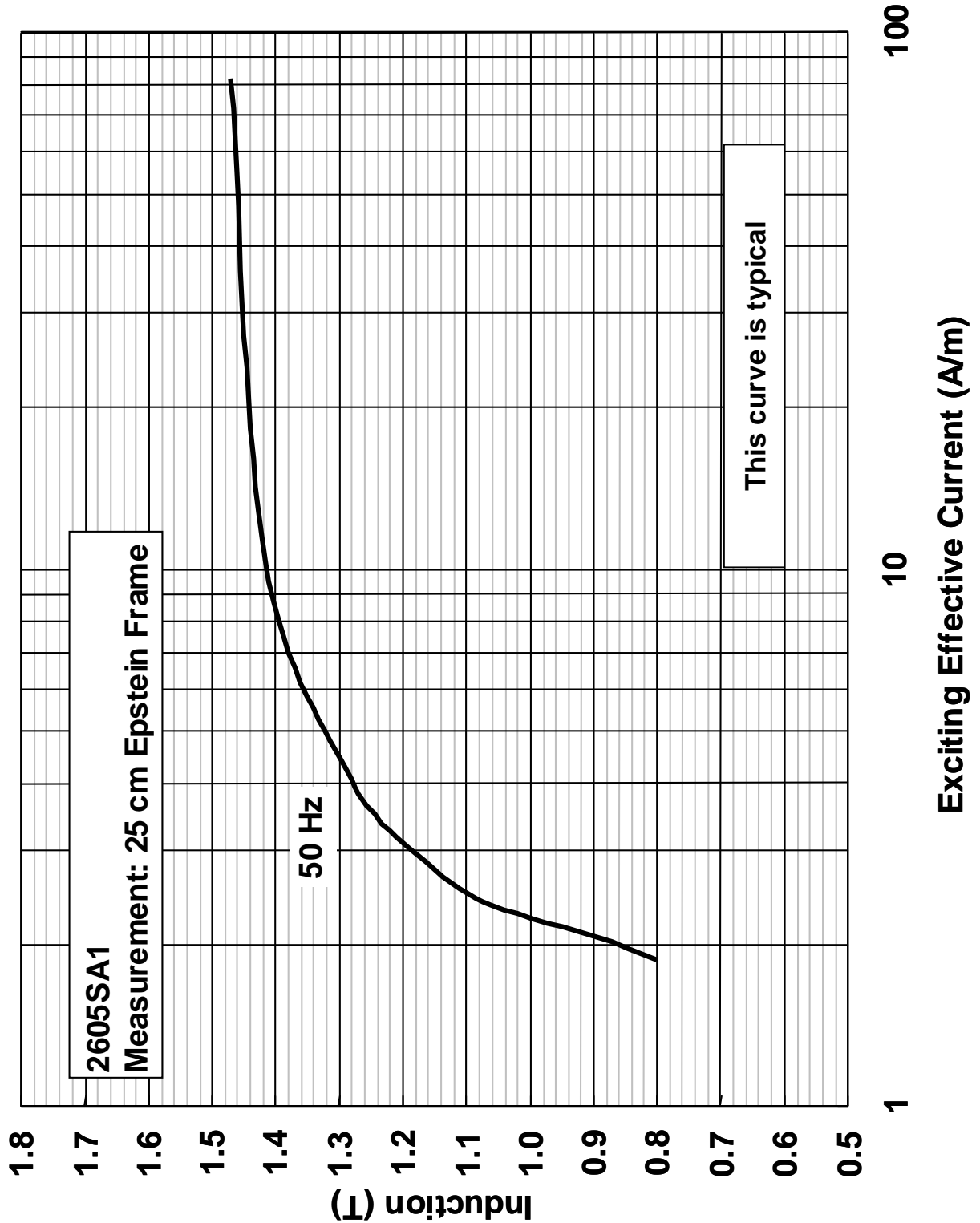
Alloy	Thickness (μm)	Standard Available Widths (mm)			Lamination Factor (%)
2605SA1	25 ± 4	142.2 ± 1.0	170.2 ± 1.1	213.4 ± 1.4	≥84
2605HB1M					

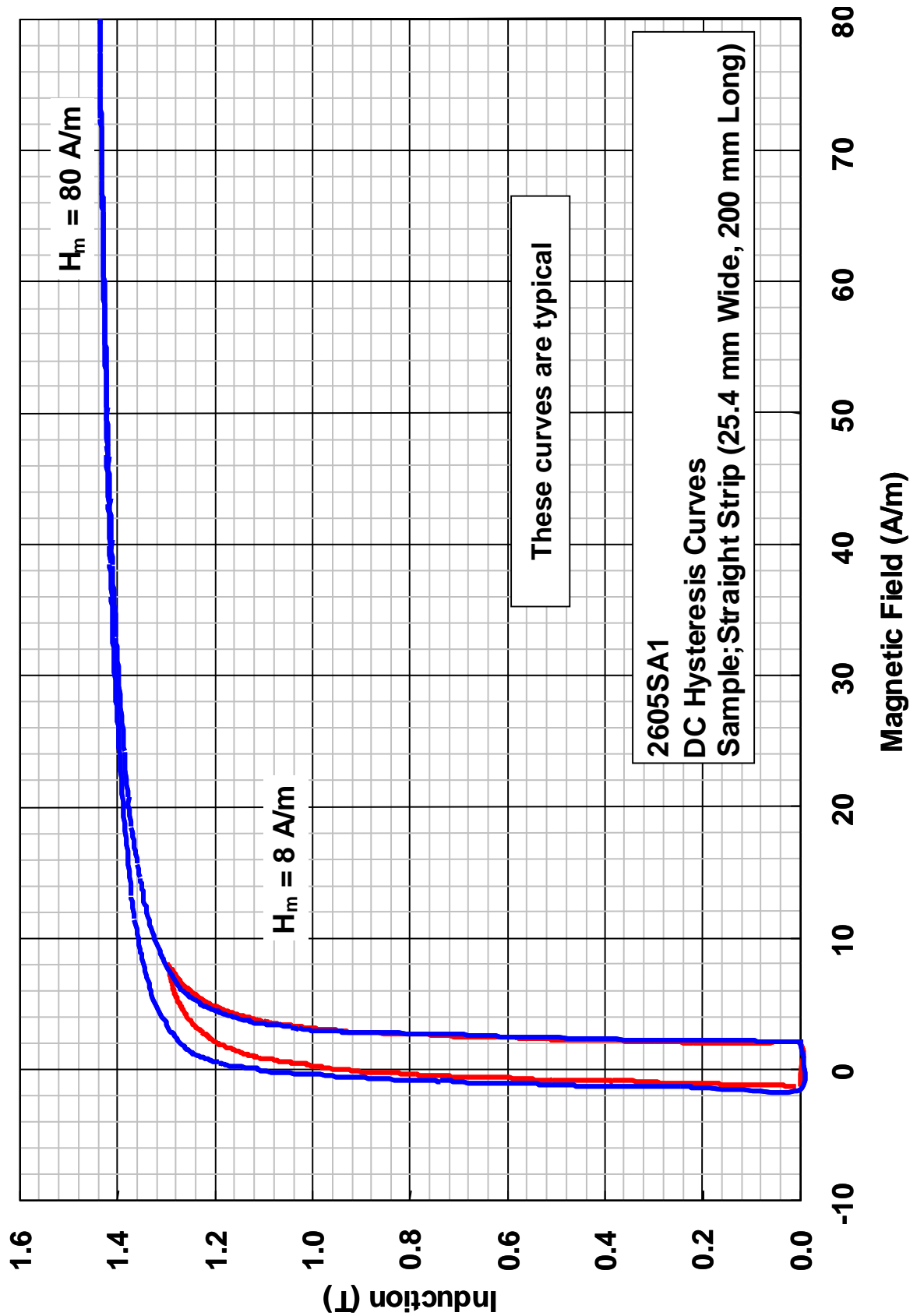
4. Typical Magnetic Properties

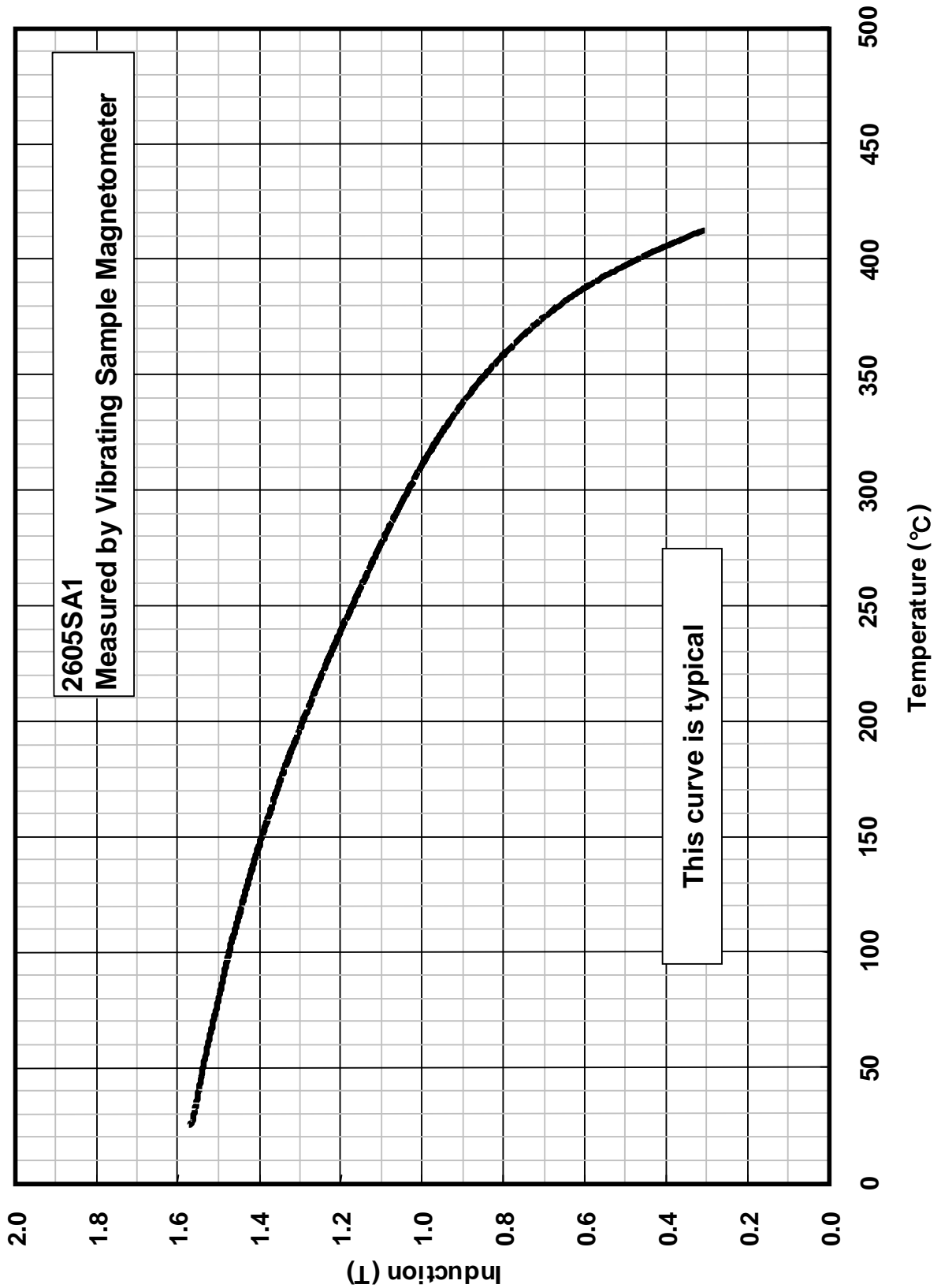
In the following pages some examples of the properties on 2605SA1 and 2605HB1M transformer core alloys are shown. AC magnetic properties were measured by 25 cm Epstein test frame method. DC hysteresis curves were measured by a Single Strip Test method. The samples were 25.4 mm wide and 200 mm long. The heat treatment of the samples were performed at 370°C for 2 hours for 2605SA1 alloy and at 340 °C for 2 hours for 2605HB1M alloy in a magnetic field of 2400 A/m directed along the long axis of the ribbon to release stress and induce the magnetic anisotropy along the long axis of the ribbon. These properties are not guaranteed.

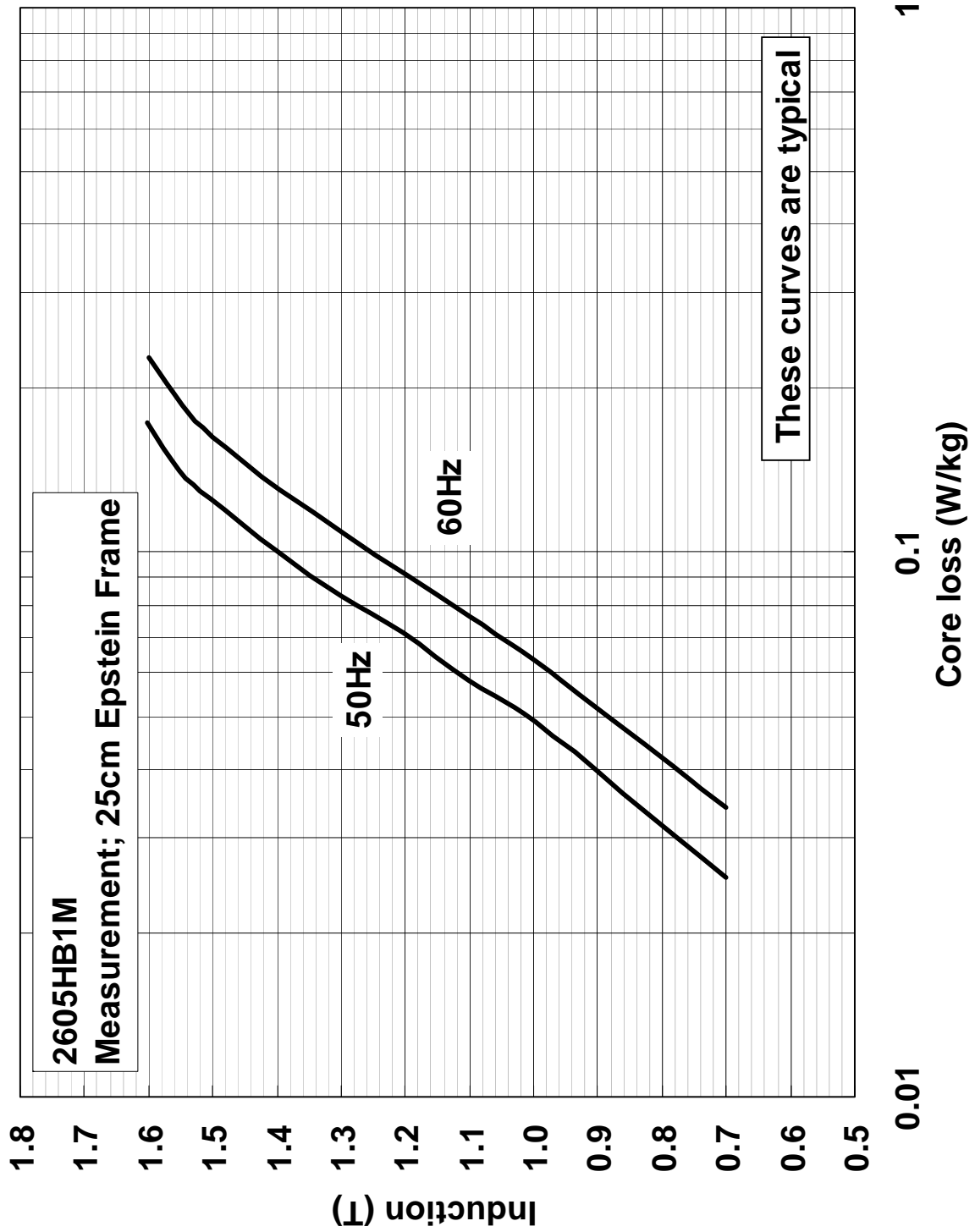


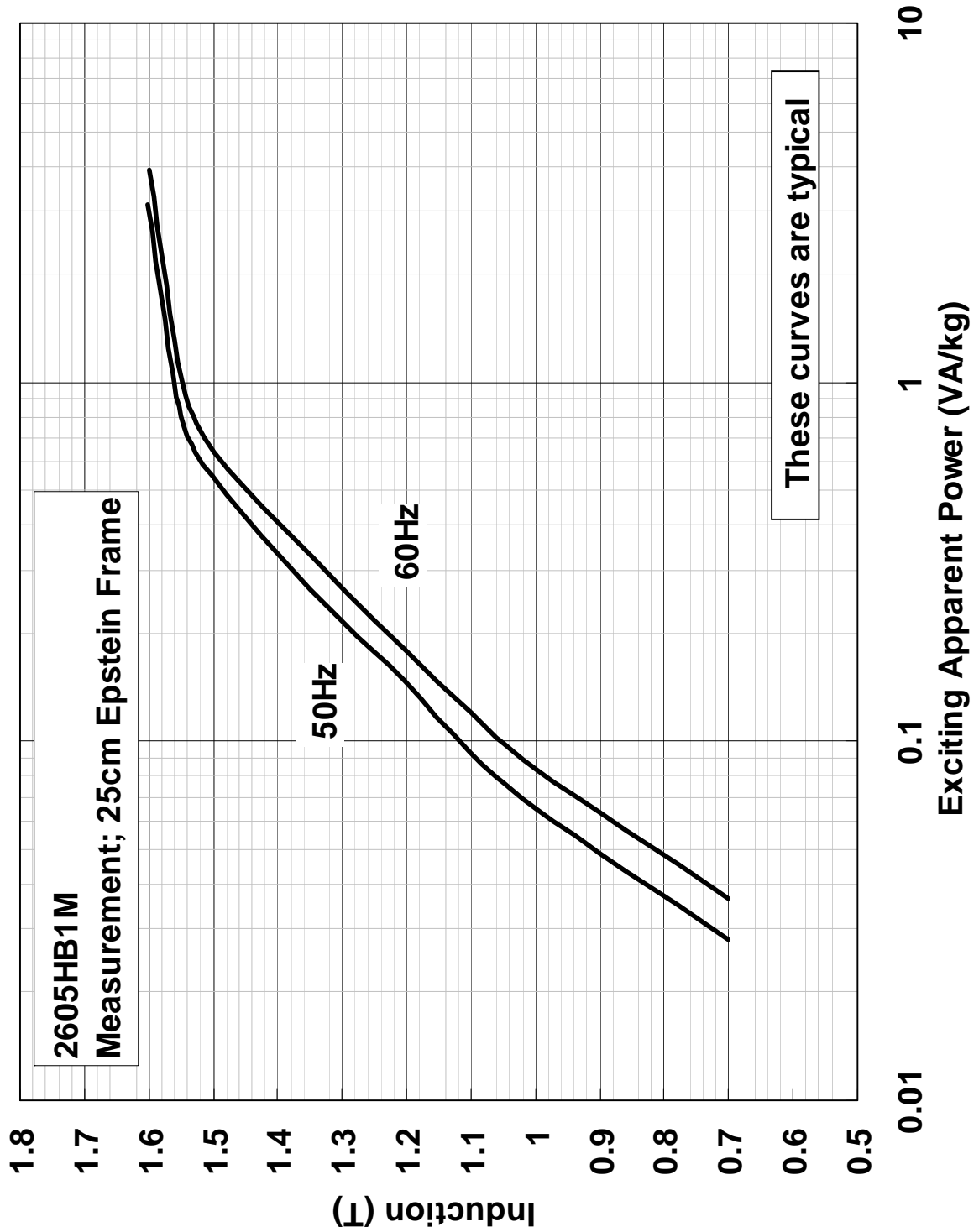


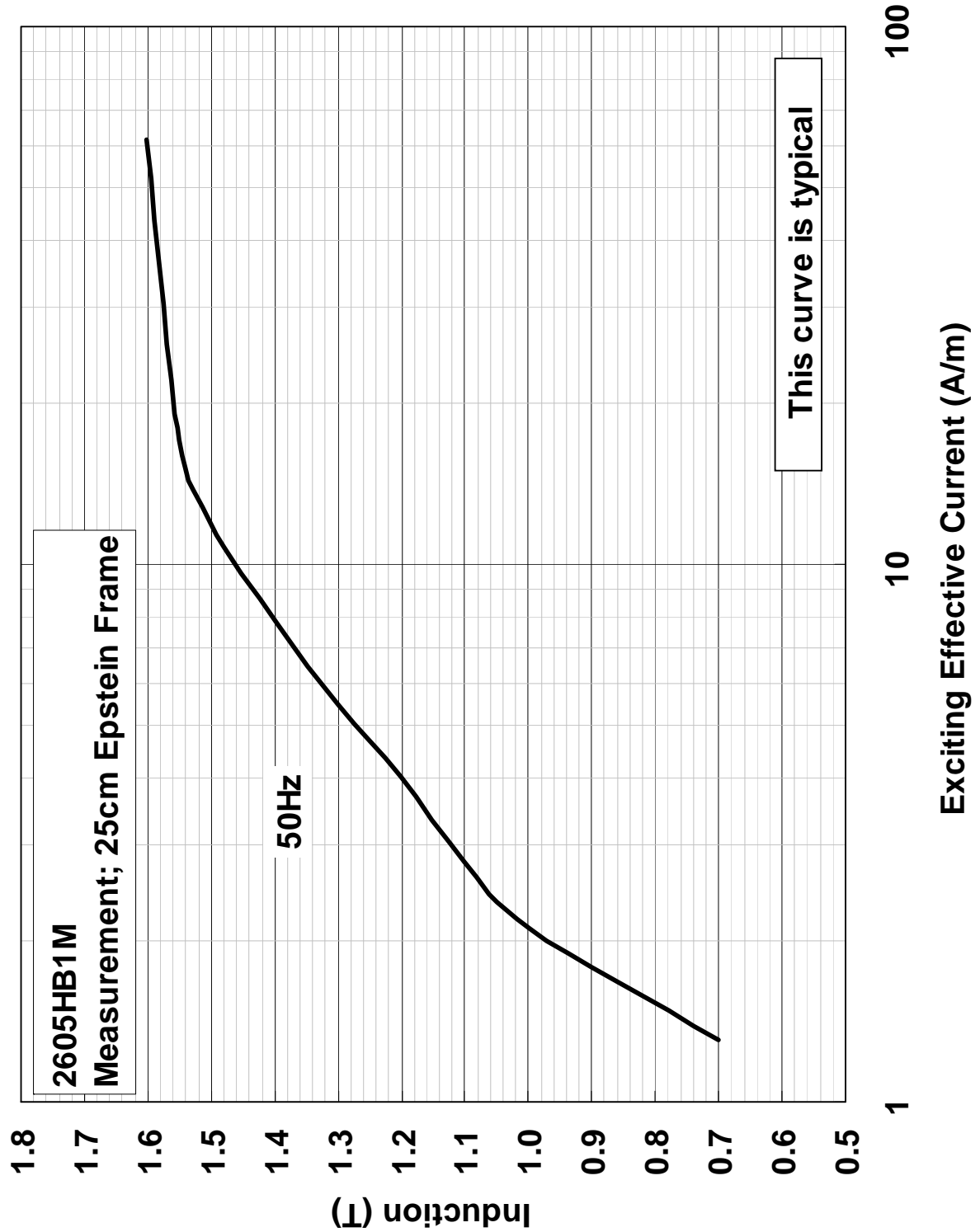


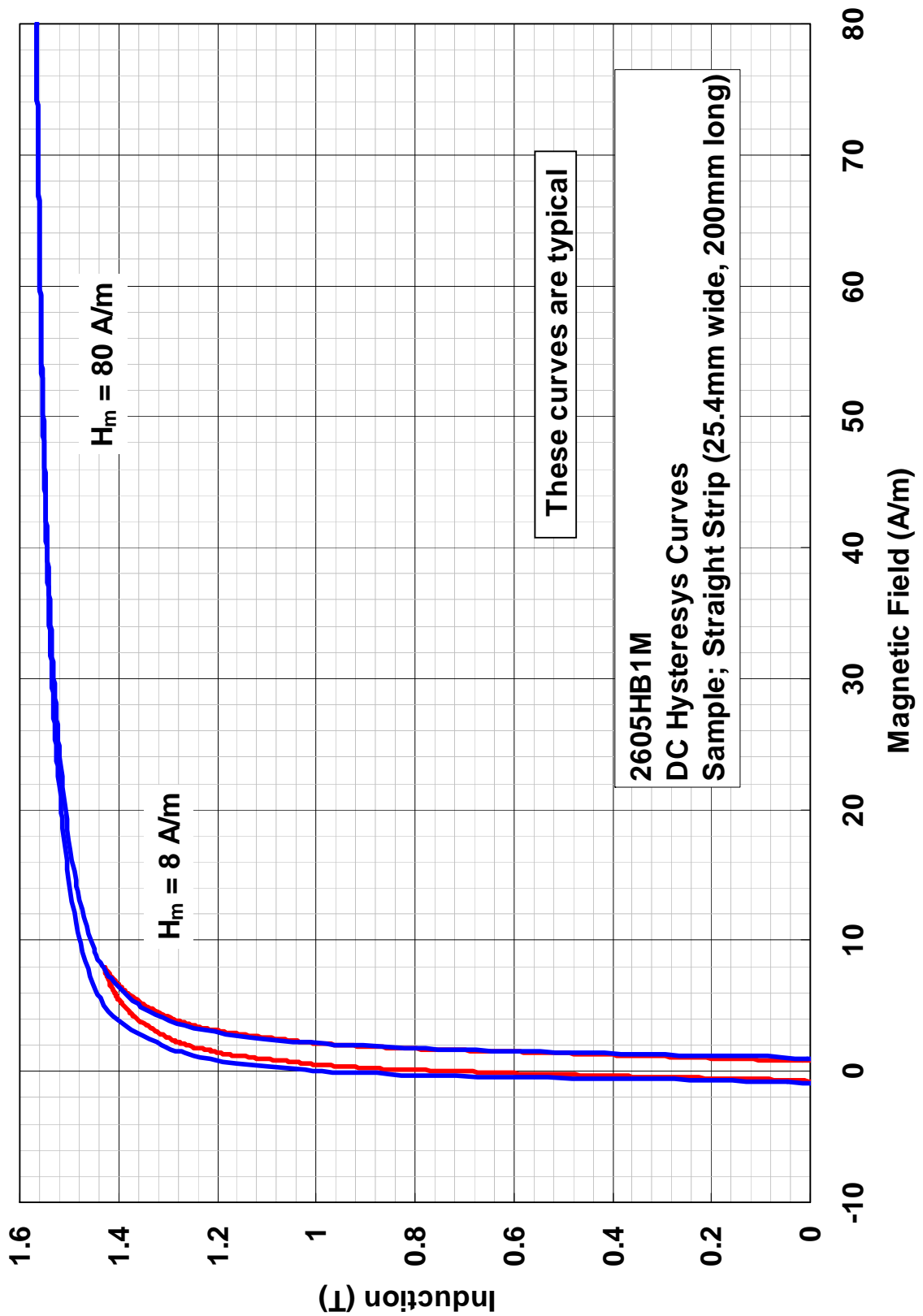


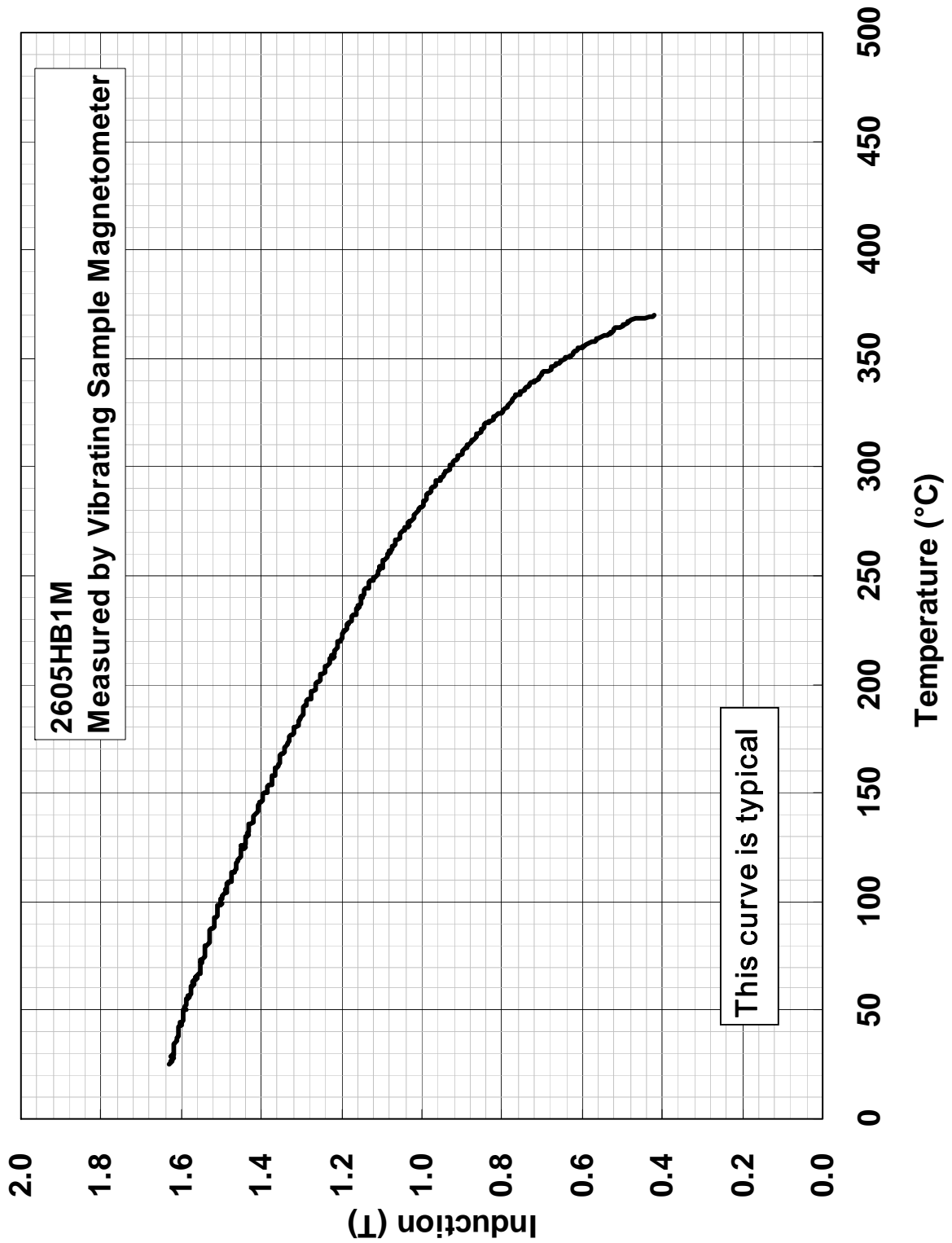






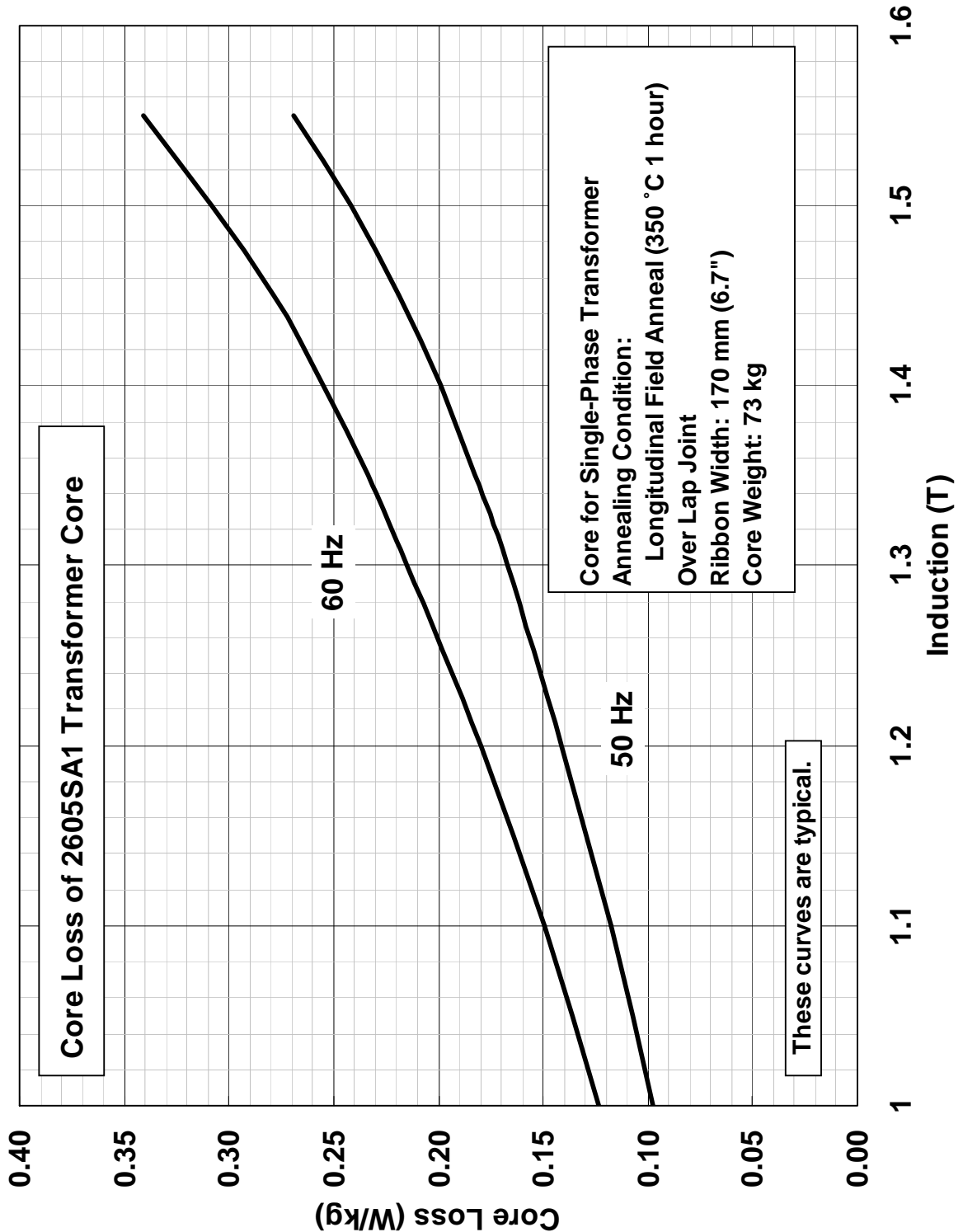


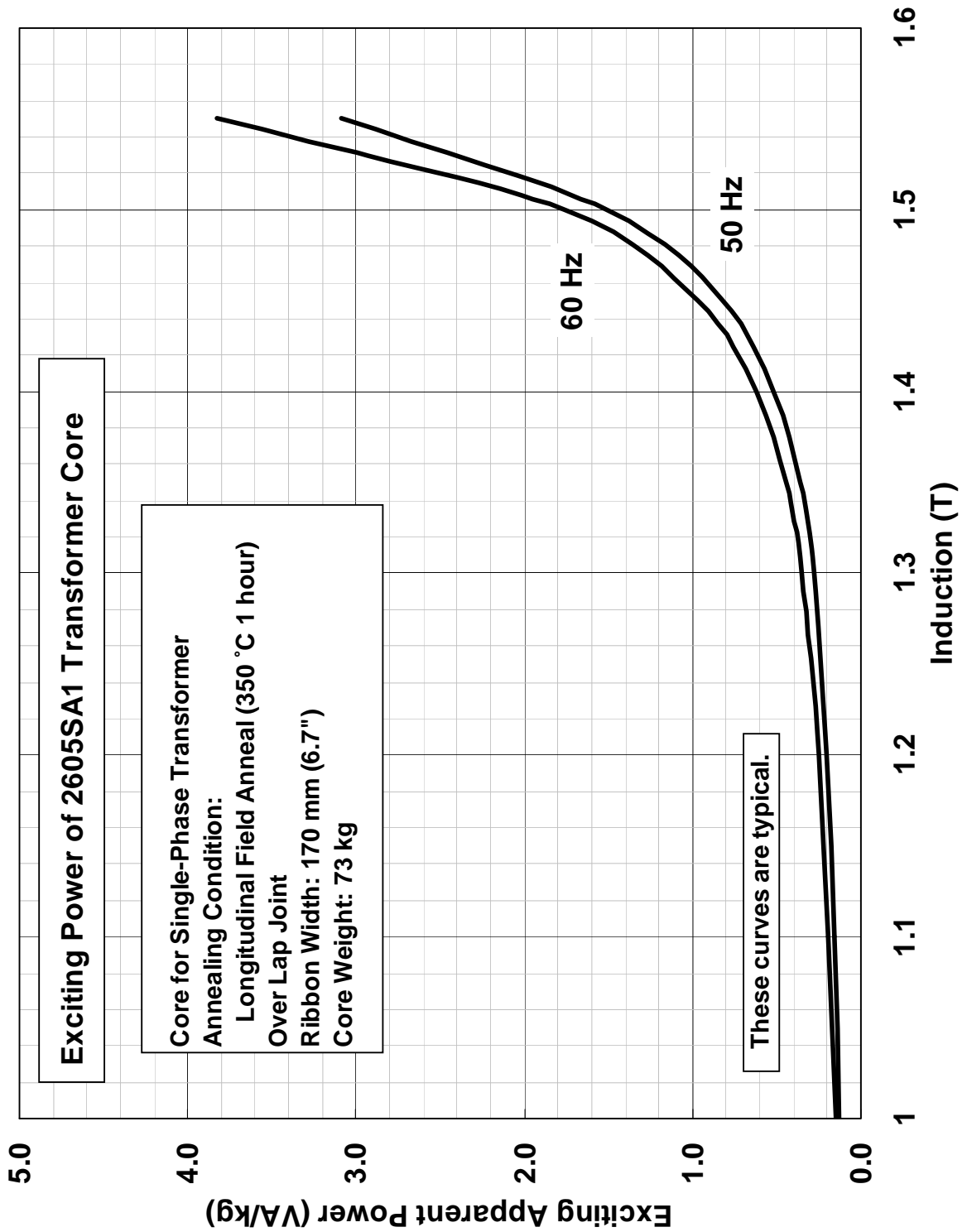


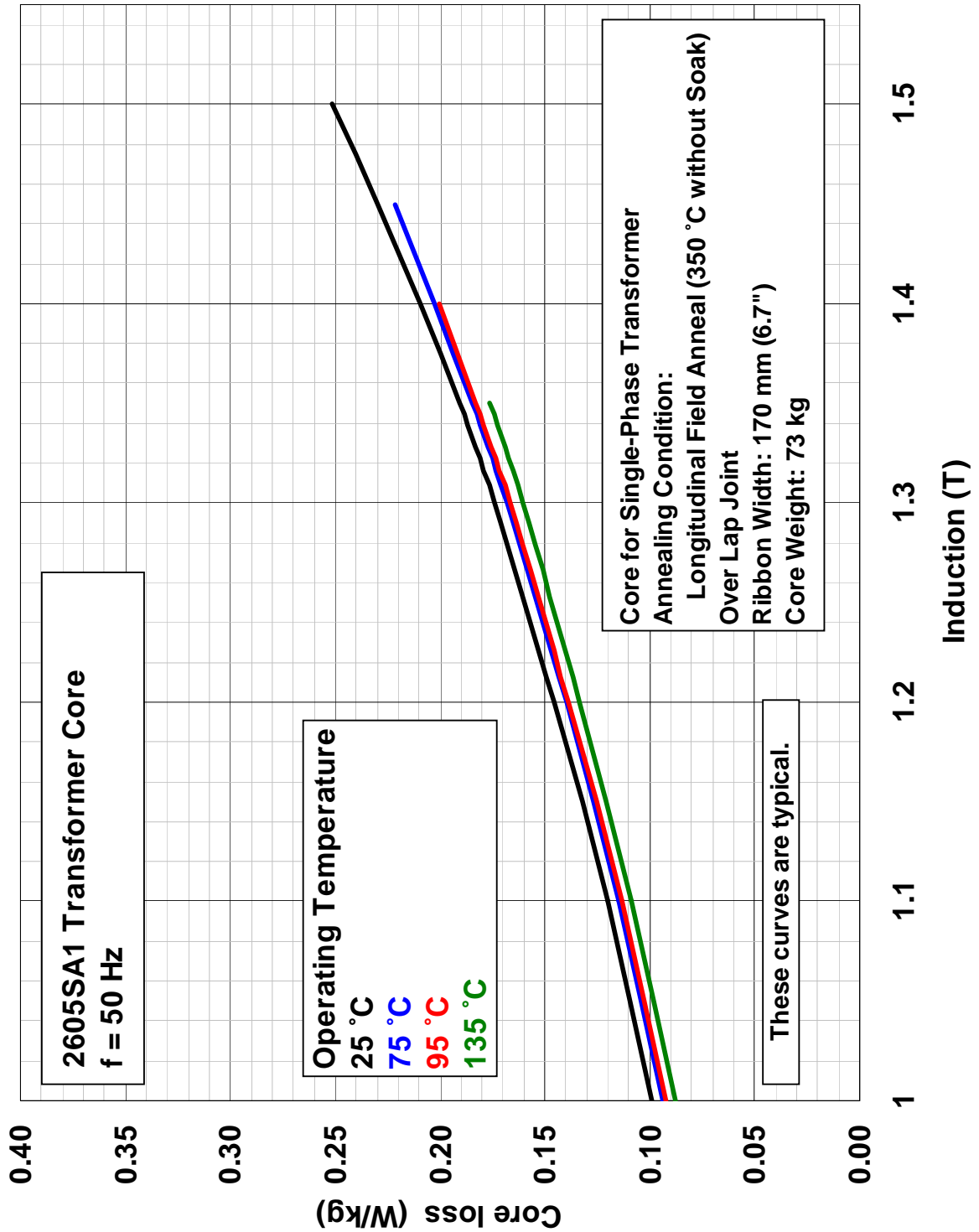


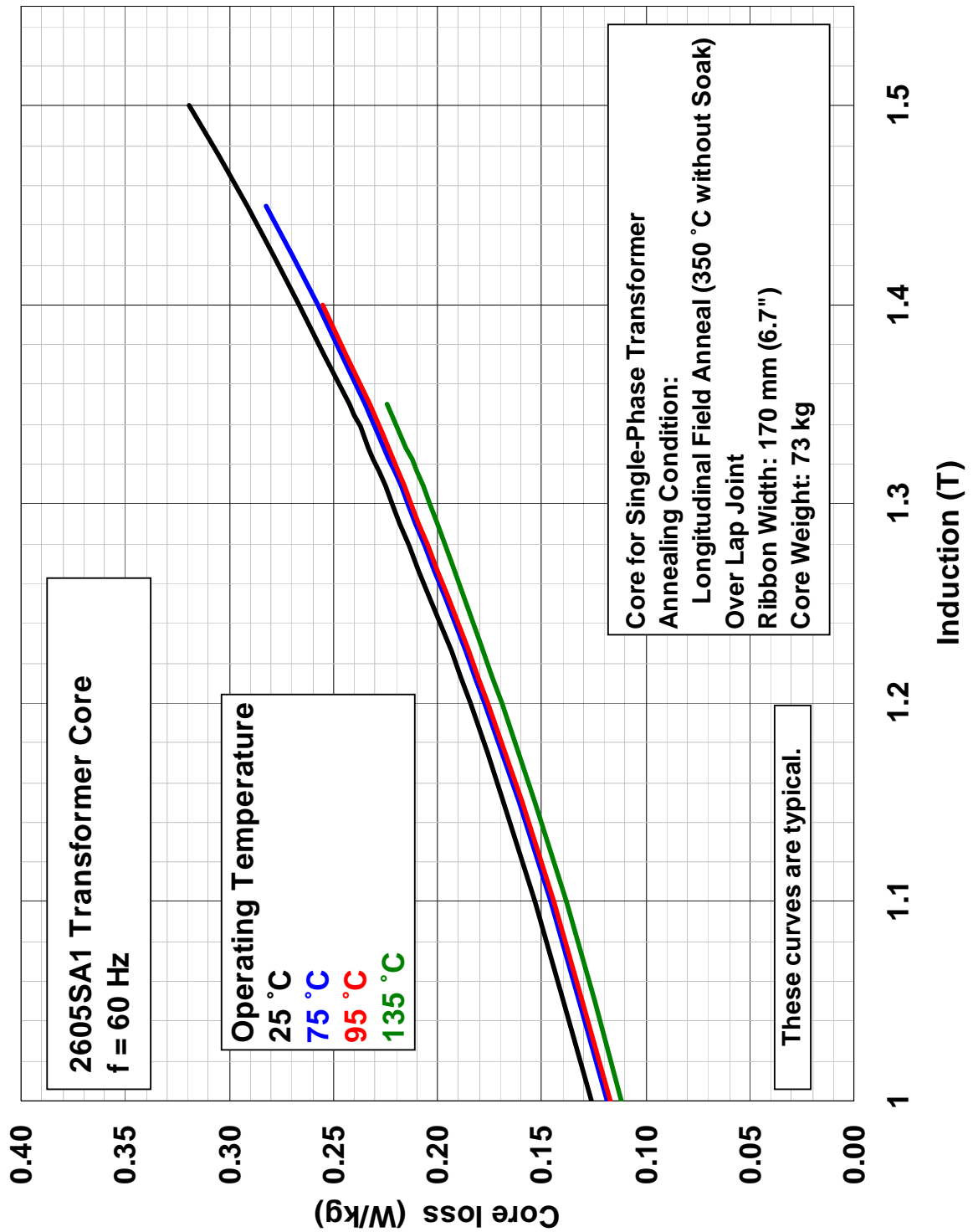
5. Typical Magnetic Properties of Transformer core

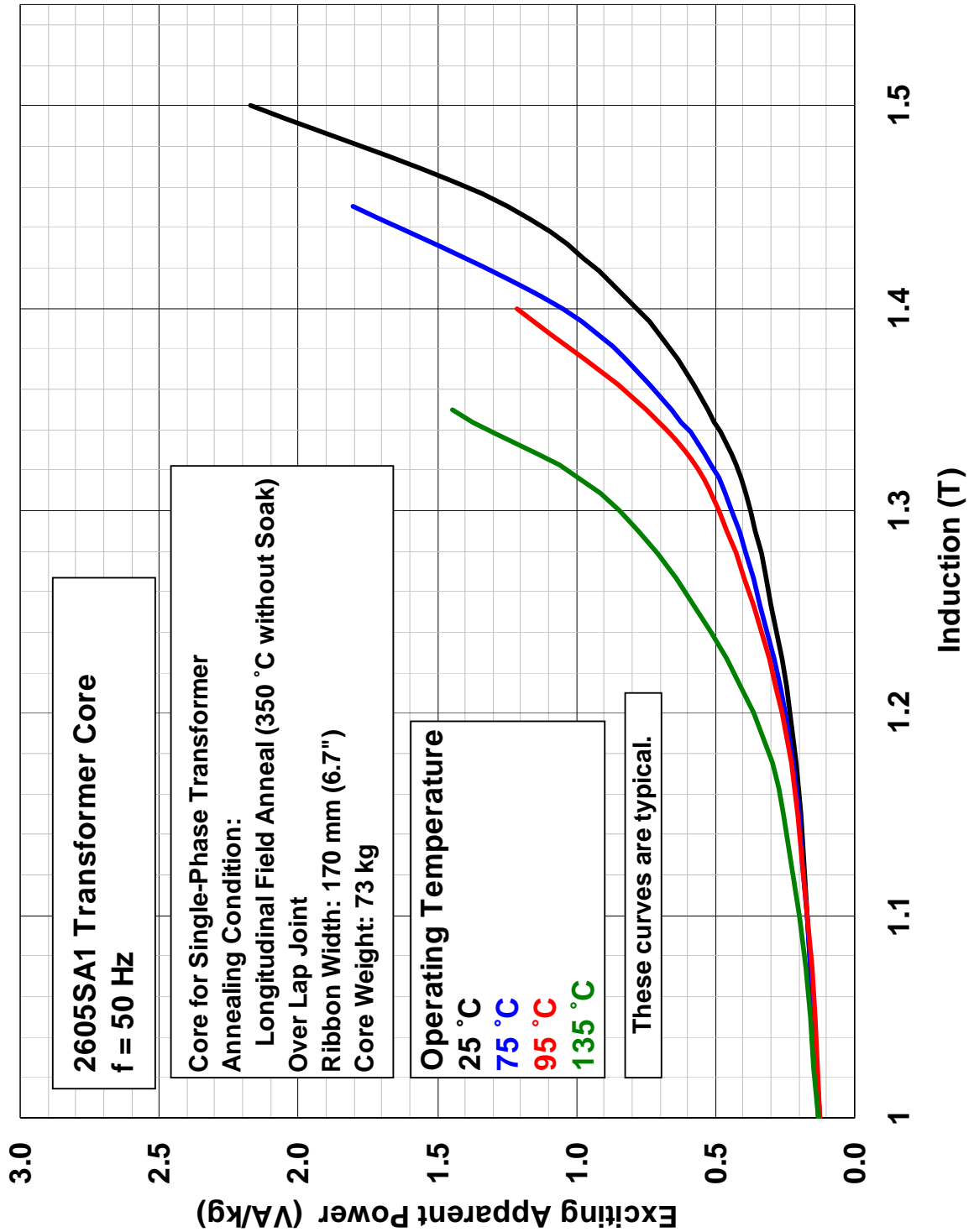
Some examples of the properties on 2605SA1 and 2605HB1M transformer cores are shown. They were annealed at 350°C for 1 hour for 2605SA1 core and at 320 °C for 1 hour for 2605HB1M core. These properties are not guaranteed.

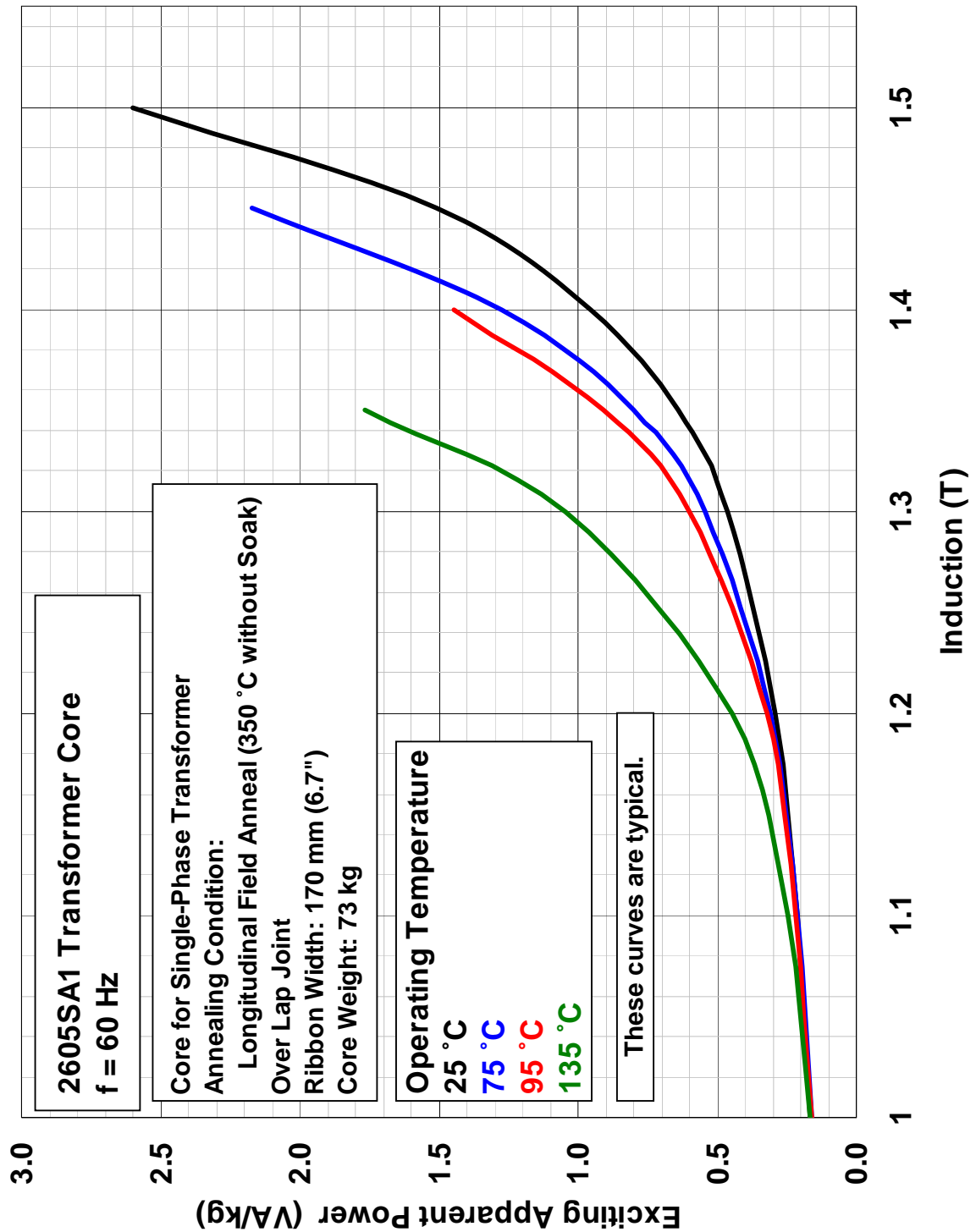


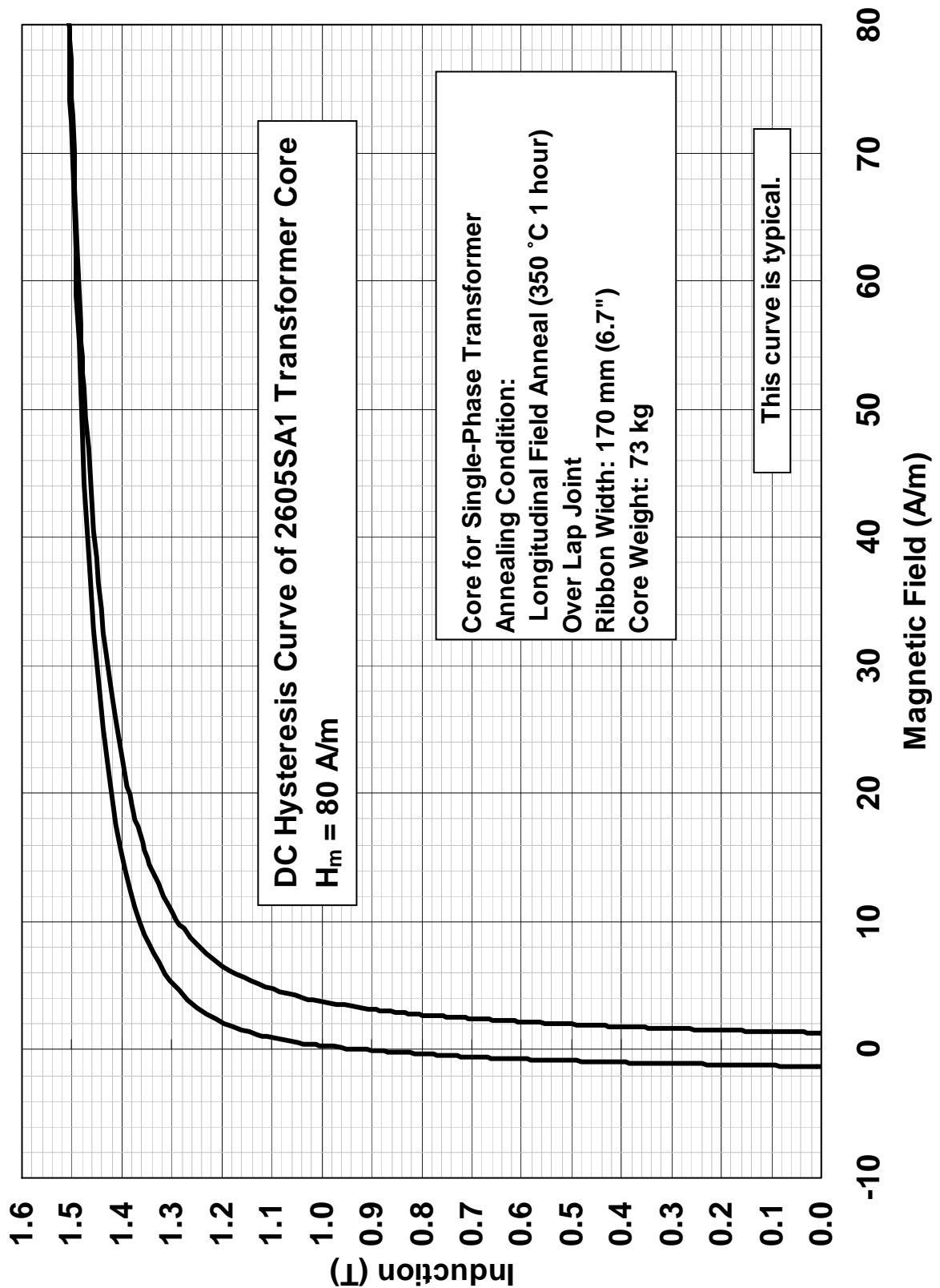


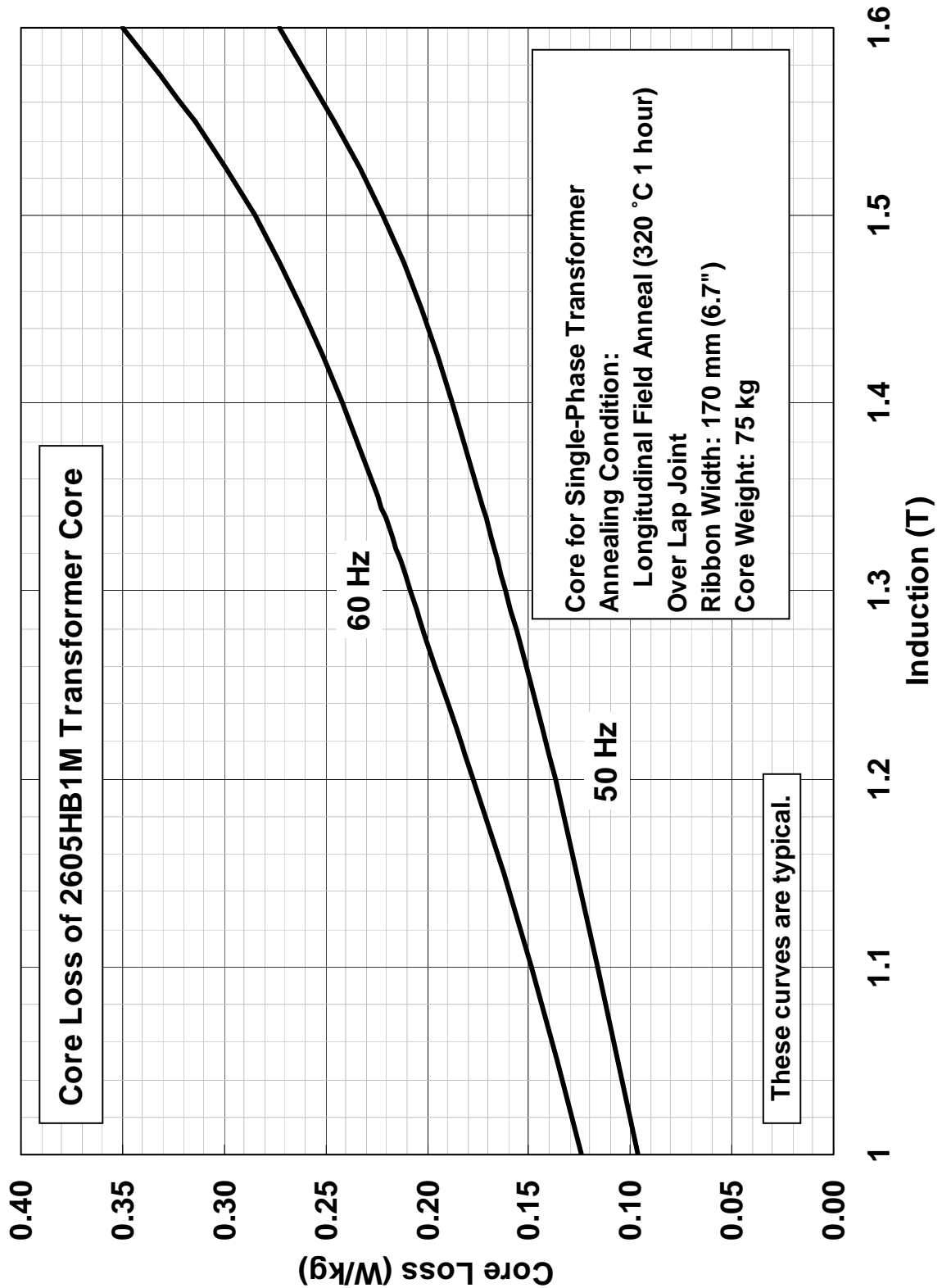


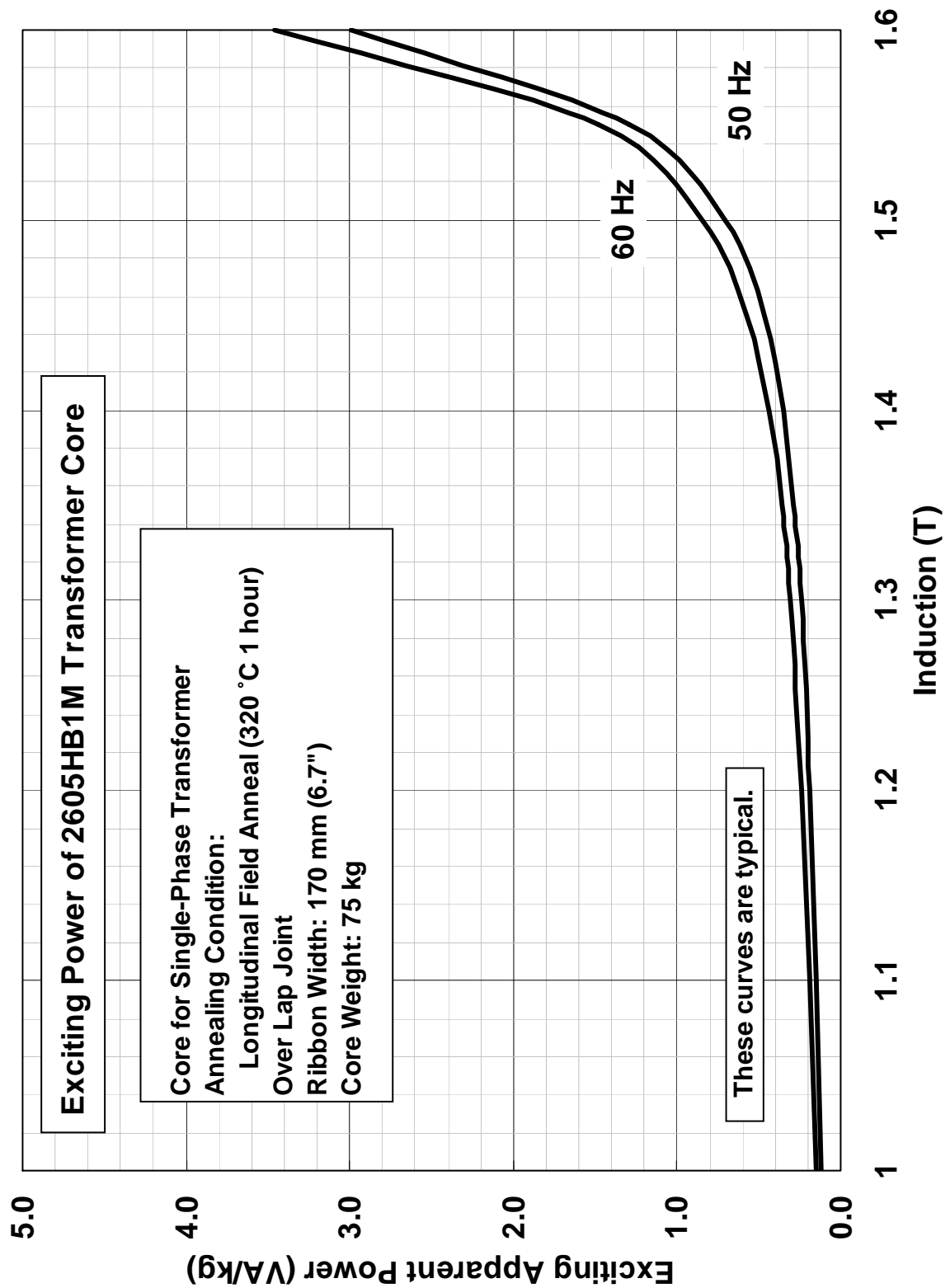


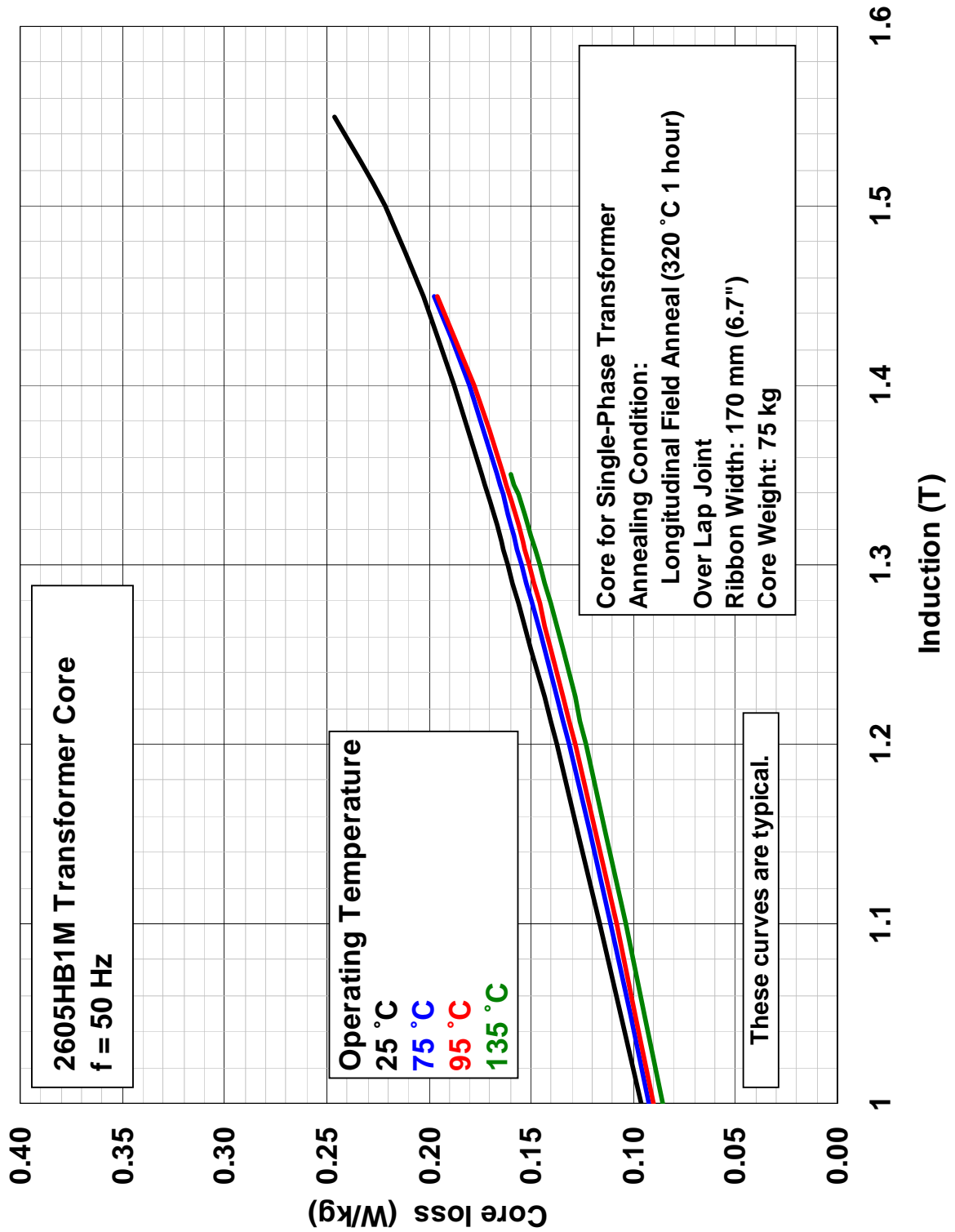


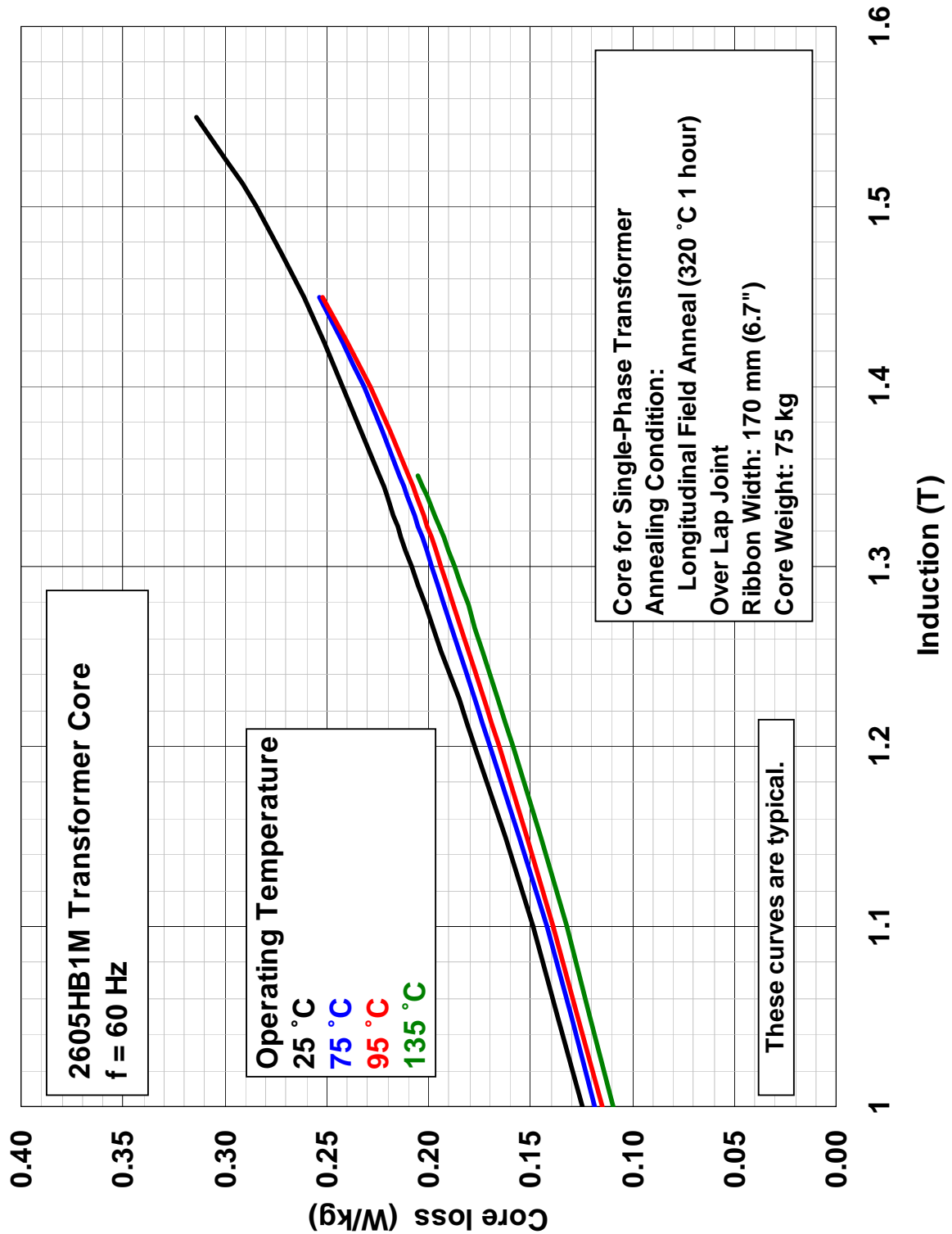


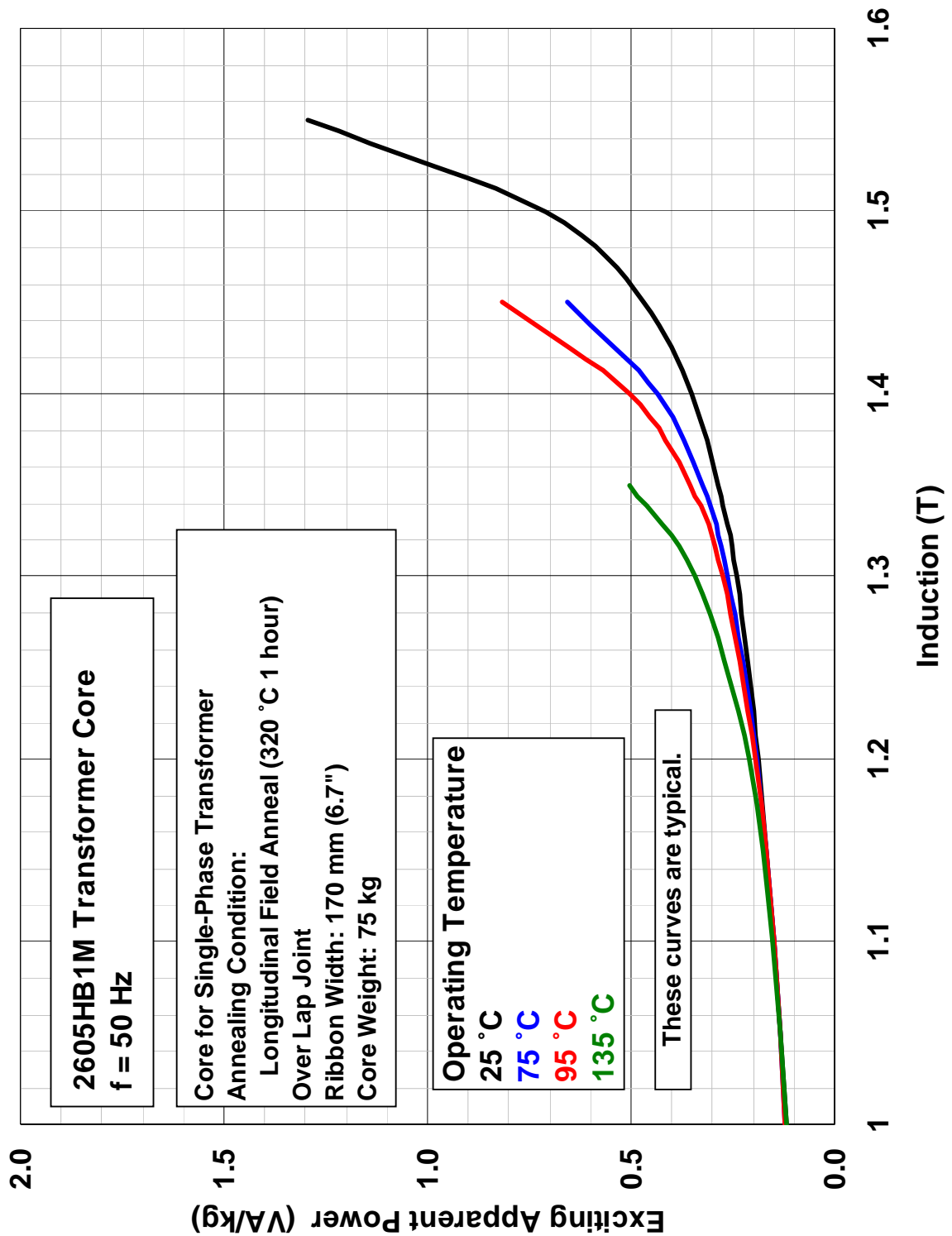


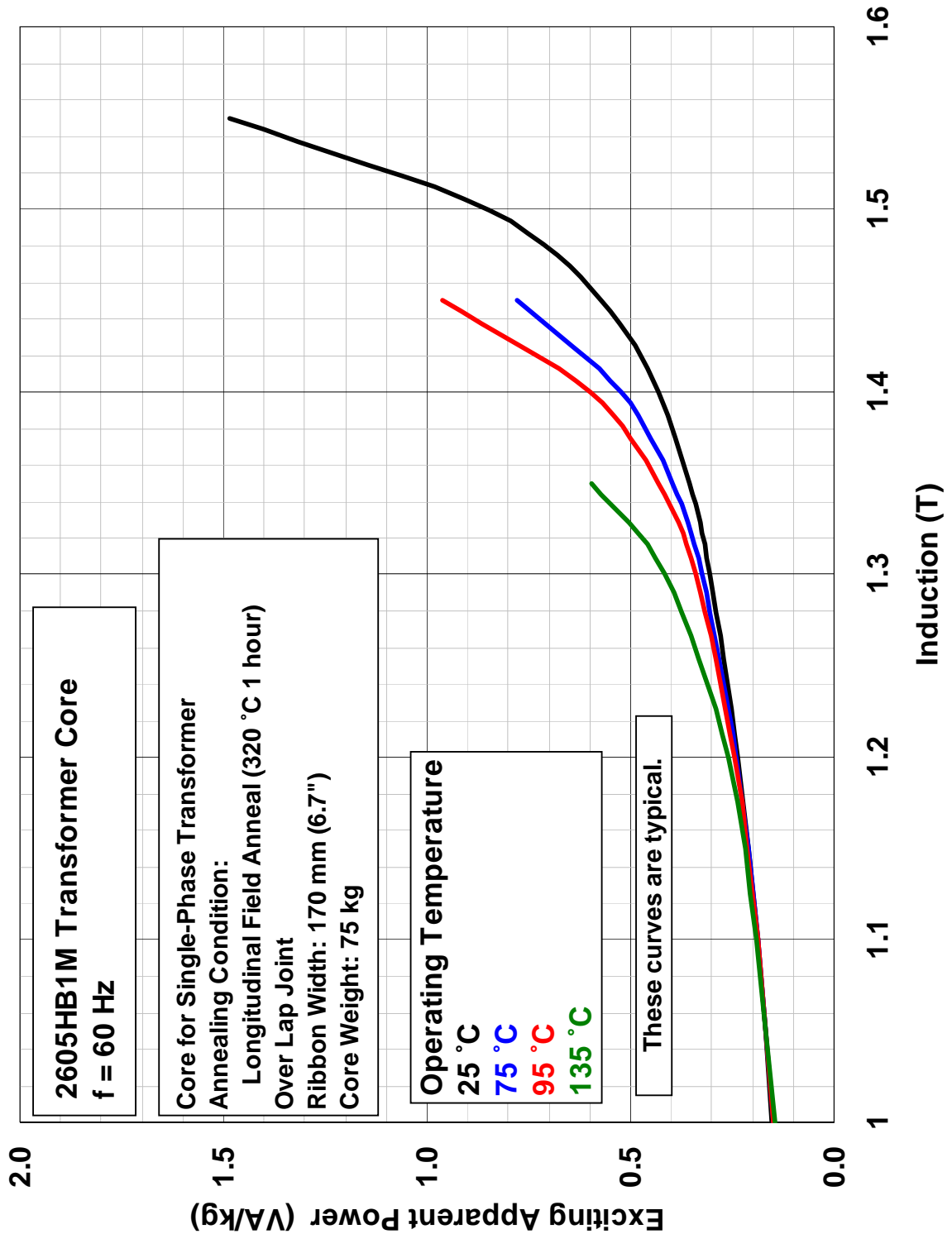


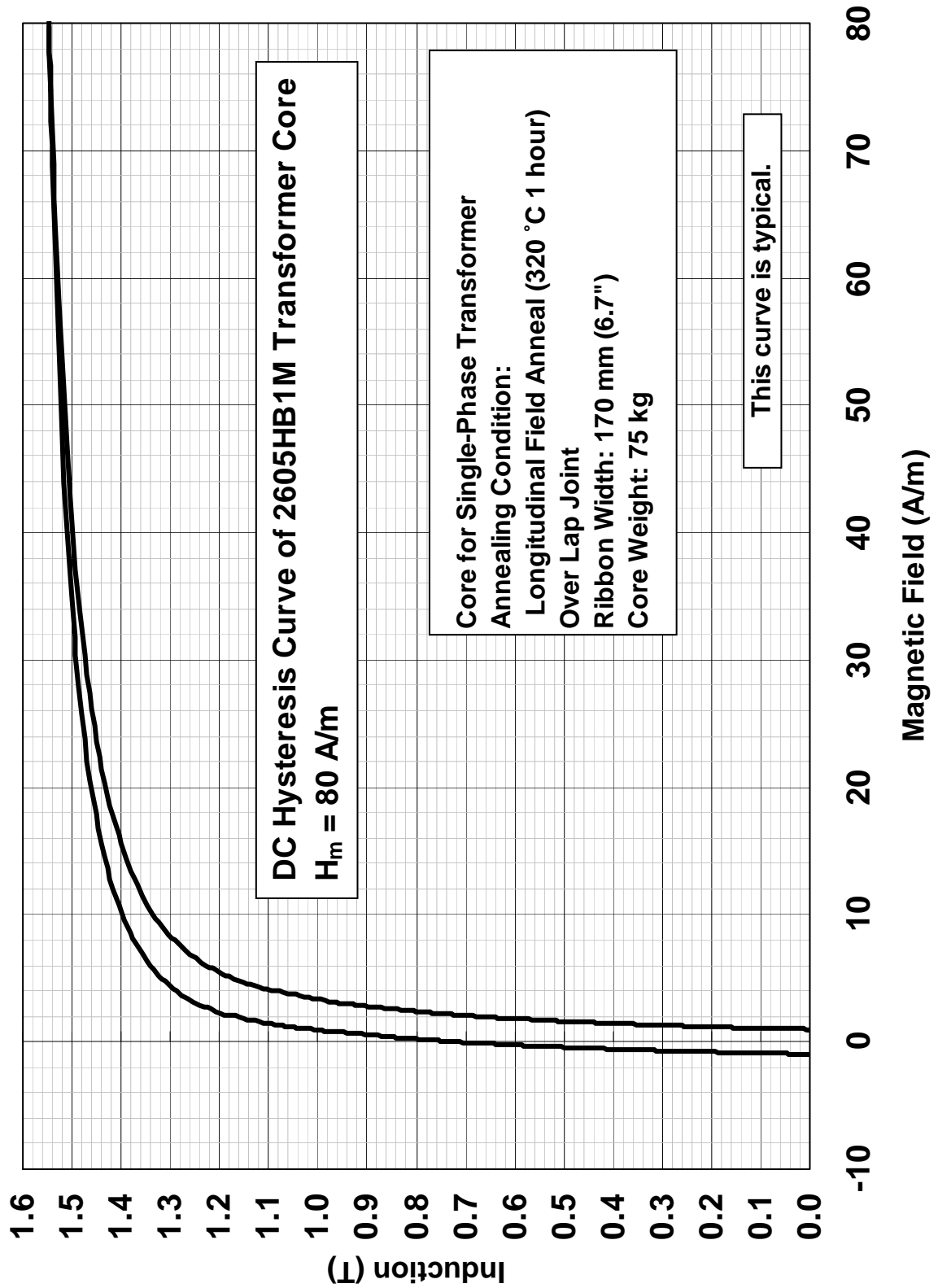












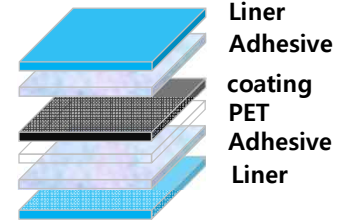


TECHNICAL DATA SHEET

1. Coverage : NFC Smartphone Cover sheet for ferrite antenna is used for Cover of the various parts can be used for mounting.

2. Product Specifications

- NAME : Black & Black Single Tape
- Model Name : KJ-0714BBS+RS50C



3. Product Configuration

NO	Division	Product Configuration Figure	Part Name	Facture	Thickness(μm)	Material & Uniqueness
1	COVER TAPE		PET	-	50	Clear
2			Adhesive	-	5	-
3	TAPE		Coating	-	3	Black
4			PET	-	1.5	Clear
5			Adhesive	-	3	-
6	LINER		PET	-	19	Clear
Tape Thickness					7.5	
Total Thickness					81.5	

4. Product Specifications

Properties		Standard	Measurements	Test Method
Adhesiveness		Since 300g (g/25mm) SUS#304	530g	KS T 1028
Tape Thickness		7.5μm ± 3μm	7.5μm	MG-500B PROTEC
RoHS Representation Hazardous substances	Cd	Under 5ppm	n.d	USEPA3050B , ICP-AES
	Pb	Under 100ppm	n.d	USEPA3050B , ICP-AES
	Hg	Under 800ppm	n.d	USEPA3050B , ICP-AES
	Cr 6+	Under 800ppm	n.d	USEPA3050B
	PBBs	Under 100ppm	n.d	GC-MS
	PBDEs	Under 100ppm	n.d	GC-MS
Halogen	Br	Under 900ppm	n.d	ASTM D 7359-8
	Cl	Under 900ppm	n.d	ASTM D 7359-8

*n.d – not detected

5. Prepare a document :2017.12.27. QC MOON EUNJUNG

126-81-40749

(주)국제라텍 홍광석
경기도 경주시 오포읍 오포안로 177
제 조 월반프라스틱팩토리

KOOKJE LA-TECH CEO

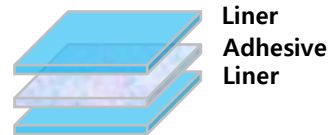


TECHNICAL DATA SHEET

1. Coverage : Thin in nature and excellent transparency, for mobile phones
Fixed and mounting of the various parts can be used as

2. Product Specifications

- NAME : Clear Double-Sided Tape
- Model Name : Non-pet double adhesive tape (3)



3. Product Configuration

NO	Division	Product Configuration Figure	Part Name	Facture	Thickness (μm)	Material & Uniqueness
1	LINER		PET	-	75	Clear
2	TAPE		Adhesive	-	3	-
3	LINER		PET	-	19	Clear
Tape Thickness					3	
Total Thickness					99	

4. Product Specifications

Properties		Standard	Measurements	Test Method
Adhesiveness		Since 300g (g/25mm) SUS#304	550g	KS T 1028
Tape Thickness		3μm -1,+2	3μm	MG-500B PROTEC
RoHS	Cd	Under 5ppm	n.d	USEPA3050B , ICP-AES
	Pb	Under 100ppm	n.d	USEPA3050B , ICP-AES
	Hg	Under 800ppm	n.d	USEPA3050B , ICP-AES
	Cr 6+	Under 800ppm	n.d	USEPA3050B
	PBBs	Under 100ppm	n.d	GC-MS
	PBDEs	Under 100ppm	n.d	GC-MS
Halogen	Br	Under 900ppm	n.d	ASTM D 7359-8
	Cl	Under 900ppm	n.d	ASTM D 7359-8

*n.d – not detected

5. Prepare a document :2014.06.20 QC Kim Jung Jae

KOOKJE LA-TECH CEO



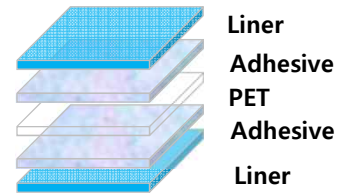
TECHNICAL DATA SHEET

1. Coverage : Thin in nature and excellent transparency, for mobile phones
Fixed and mounting of the various parts can be used as

2. Product Specifications

- NAME : Clear Double-Sided Tape
- Model Name : KJ-0701(F-F)

3. Product Configuration



NO	Division	Product Configuration Figure	Part Name	Facture	Thickness(μm)	Material & Uniqueness
1	LINER		PET	-	19	Clear
2	TAPE		Adhesive		3	-
3			PET	-	1.5	Clear
4			Adhesive	-	3	-
5	LINER		PET	-	75	Clear
Tape Thickness					7.5	-
Total Thickness					101.5	-

4. Product Specifications

Properties		Standard	Measurements	Test Method
Adhesiveness		Since 800g (g/25mm) SUS#304	1050g	KS T 1028
		Since 800g (g/25mm) SUS#304	1050g	KS T 1028
Tape Thickness		7.5μm ± 2μm	7.5μm	MG-500B PROTEC
RoHS Representation Hazardous substances	Cd	Under 5ppm	n.d	USEPA3050B , ICP-AES
	Pb	Under 100ppm	n.d	USEPA3050B , ICP-AES
	Hg	Under 800ppm	n.d	USEPA3050B , ICP-AES
	Cr 6+	Under 800ppm	n.d	USEPA3050B
	PBBs	Under 100ppm	n.d	GC-MS
	PBDEs	Under 100ppm	n.d	GC-MS
Halogen	Br	Under 900ppm	n.d	ASTM D 7359-8
	Cl	Under 900ppm	n.d	ASTM D 7359-8

*n.d – not detected

5. Prepare a document :2015.04.17 QC Kim Hyun

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경기도 평주시 오폭읍 오폭안로 177
제 조 평반프라스텍플
사

KOOKJE LA-TECH CEO



东莞胜禾电子材料有限公司

DONGGUAN SHENGHE ELECTRONIC MATERIALS CO.,LTD.

产品技术资料表（TDS）

产品名称：透明 PET 离型膜

产品结构：透明 PET+离型涂层

一般物理特性：

物理性质	指标		指标值	单位
	厚度		25~188（可按客户要求定制）	um
	抗张强度	MD	≥ 140	Mpa
		TD	≥ 140	
	断裂伸长率	MD	≥ 110	%
		TD	≥ 110	
	热收缩率 150℃*30min	MD	≤0. 6	%
		TD	≤0. 6	
	离型力		1~250 ，可根据客户要求制作（具体见代码表）	g/inch
	残余粘着率		≥80	%
耐热性		120℃下烘烤 30min 无离型剂脱落、膜脆化.	\	
毒副性和安全性		无毒、安全	\	

产品特性：透明离型膜以透明 PET 膜为基材，在其表面涂覆离型物质而成；薄膜表面平整光洁、无折皱、撕裂、颗粒、气泡、针孔等缺陷；该产品具有优良离型稳定性、离型层符着力好、厚度公差小、热收缩率低、柔韧性好等优点；

储存使用要求：

- 1，储存温度以在 21-28℃，相对湿度 50%-70%环境下为佳；
- 2，避免阳光直射及高温（40℃以上）及高湿（70%RH 以上）条件下储存；
- 3，建议用户从产品生产日起，尽量在六个月内使用完（保质期 6 个月）；
- 4，确保应用此产品前，被贴合物体的表面必须干燥，洁净，无任何油渍。

离型力测试方法：

- 1) 取 25.4mm 宽、200mm 长的 TESA 7475 胶带贴于膜的测试面（离型面），并用 2KG 标准碾压手辊碾压往复碾压 3 次。（注意：要一边贴全一边碾压，避免贴胶带时于离型膜之间有气泡；
- 2) 贴好胶带后静置 20 分钟，实验室的温湿度分别控制在 $25 \pm 3^{\circ}\text{C}$ 及 $50 \pm 10\%$ ；
- 3) 用双面胶贴于样片的非测试面并固定在标准钢板上，待测试；
- 4) 将材料安装上夹具，用拉力机以 180 度角拉伸测试胶带的方法测试，拉力机电脑显示的数据即为试片的离型力（g/in），取 5 个数值的平均值为测试结果。（备注：规格代码表后缀“S”为单面，“D”为双面，如后缀再加“AS”则为防静电，表面电阻为 10^6-10^{10} ）

备注：本资料为产品说明，所有信息和数据是经过测试所得，且我们认为可提供给用户作参考之唯一用途，不代表每个产品的实际值，每款产品不能适应所有胶粘材料的贴合，在实际应用本产品之前，建议先行测试。