Vehicle Certification Agency

THE UNITED KINGDOM VEHICLE APPROVAL AUTHORITY

COMMUNICATION CONCERNING THE ~~APPROVAL GRANTED~~ (1)/ ~~APPROVAL EXTENDED~~ (1)/ ~~APPROVAL REFUSED~~ (1)/ ~~APPROVAL WITHDRAWN~~ (1)/ ~~PRODUCTION DEFINITIVELY DISCONTINUED~~ (1) OF A REPLACEMENT BRAKE DISC OR A REPLACEMENT BRAKE DRUM PURSUANT TO REGULATION NO. 90.02

E11 Approval No: 90R-02C01203/25417

Extension No: 01

Reason for extension: To cover:

1) Addition of new code: 09.C249.1X– 09.C547.1X
2) Update of vehicle list for disc: 09.9464.2X
3) Removal of Assembly Plant to Argentina
4) Update of supplement level
5) Update of geometric specification

1. Applicant's name and address:

BREMBO S.p.A
via Brembo, 25
24035, Curno (BG)
Italy

2. Manufacturer's name and address:

BREMBO S.p.A Divisione Dischi Freno Via G.Maria Scotti, 66 24030 Mapello (BG) Italy	BREMBO POLAND SP. Z O.O. Ul.Rozdzienskiego, 13 Dąbrowa Górnicza, Poland, 41-308
Brembo do Brasil LTDA Av. Fausto Ribeiro Da Silva, 1265 Distrito Industrial De Bandeirinhas 5 32.654-805 Betim-MG Brazil	Brembo North America Inc. 29991 E M60, Homer, MI 49245
Brembo Mexico, SA de CV Platón 100, Parque Industrial Kalos Apodaca, Nuevo León, 66600 Mexico	Brembo (Nanjing) Brake System Co., Ltd.Site 1 No.28 Xijing Road, Jiangning Economic & Technology Zone Nanjing, P.R. China

UK Approval Authority Vehicle Certification Agency
16-Jun-21

3. Make and type of brake disc/drum:

Type of disc	Related codes	
BREMBO XTRA	**RACING**	**AP XTRA**
09.7196.1X	59.7196.1Z	24700 X
09.9464.2X	59.9464.2Z	24957 X
09.C249.1X	59.C249.1Z	25495 X
09.C547.1X	59.C547.1Z	25631 X

Interchangeable Disc Front and Rear (POT TYPE, VENTED, INTERNAL)
GL H 05

4. Vehicles/axles for which the replacement brake disc or a replacement brake drum is approved: See manufacturer's documentation

5. Submitted for approval on: As before (10 February 2017 and 13 February 2017) and 10 May 2021

6. Technical service responsible for approval tests: VCA Europe S.r.l.

6.1. Date of test report: As before (15 February 2016) and 17 May 2021

6.2. Number of test report: As before (MSR355545) and XSW001287

7. Approval ~~GRANTED~~/~~REFUSED~~/EXTENDED/~~WITHDRAWN~~ (1)

8. Place: BRISTOL

9. Date: 16 JUNE 2021

10. Signature: D LAWLOR
Chief Technical and Statutory Operations Officer

11. Annexed to this communication is a list of documents in the approval file deposited at the administrative services having delivered the approval and which can be obtained upon request.

Any remarks: Approval to Supplement 5

(1) Strike out what does not apply.

Application for Approval of a replacement brake Disc According to Reg 90.02 Consolidated to Supplement 5	
Existing approval number (if applicable)	E11 90R-02C01203/25417

VCA Job Number	XSW001287

Reasons for extension (if applicable)	1. Addition of new code: 09.C249.1X–09.C547.1X 2.Update of vehicle list for disc: 09.9464.2X 3.Removal of Assembly Plant to Argentina 4. Update of supplement level 5.Update of geometric specification

Attachments	Document reference	No of pages
Annex 1	Component Drawings	4
Annex 2	Control plan	30
Annex 3	Production specification	1
Annex 4	List of disc and application	4
Annex 5	Marking specification	2

Notes

Annex 1 Drawings must contain the following:

- Disc/drum diameter, including friction surface diameters (in the case of a disc brake with an integrated parking brake drum, both diameters have to be checked);
- Disc thickness (original dimensions and the minimum permissible wear indication) – mounting face to external friction surface;
- Mounting flange thickness;
- Pitch circle diameter of fixing holes / studs;
- Number of fixing holes / studs;
- Mounting flange diameter;
- Type of centering (e.g. central spigot or mounting bolts /studs);
- In the case of brake discs with integrated parking brake drums the width of the friction surface area and any heat compensation groove(s);
- Additionally, in the case of ventilated brake discs:
- The type of ventilation (internal/external);
- The number of ribs and pillars ;
- The dimensions of the ventilation duct.

Annex 3 production specification must contain:

- Chemical composition and its permitted range, or where appropriate, maximum value, for each element;
- Microstructure as per paragraph 2.2.;

- Mechanical properties as per paragraph 2.3. and their permitted range, or where appropriate, minimum value.

Applicant Name and address	BREMBO S.p.A. Via Brembo, 25 - 24035 Curno (BG) Italy
Manufacturer's name and address	BREMBO S.p.A. Divisione Dischi Freno Via G.Maria Scotti, 66 – 24030 Mapello (BG) – Italy BREMBO POLAND SP. Z O.O. Ul.Rozdzienskiego, 13 DĄBROWA GÓRNICZA, POLAND, 41-308 Brembo do Brasil LTDA Av. Fausto Ribeiro Da Silva, 1265 - Distrito Industrial De Bandeirinhas, 5 32.654-805 Betim-MG Brazil Brembo North America Inc. 29991 E M60, Homer, MI 49245 Brembo Mexico, SA de CV Platón 100, Parque Industrial Kalos, Apodaca, Nuevo León, 66600, Mexico Brembo (Nanjing) Brake System Co., Ltd. No.28 Xijing Road, Jiangning Economic & Technology Zone, Nanjing, P.R. China

Make of disc/~~drum~~	Type of disc/~~drum~~	Vehicle application
INTERCHANGEABLE_CAR_126_DIMPLED_Group_1 – Internal Vent Vanes Mat 2 No Drum Dimpled		
See Annex 4	See Annex 4	See Annex 4

Geometric Specifications (Attach drawings of all discs/drums as annex 1)

	OE Disc/~~Drum~~	Replacement Disc/~~Drum~~
Location and dimensions of statutory information • The approval number; • Part number • An indication which provides traceability of the production process (e.g. date, batch number, source code); • The minimum thickness of the brake disc or the maximum permissible inside diameter of the brake drum.	• See drawings • See drawings • See annex 5 • See drawings	• See drawings • See drawings • See annex 5 • See drawings
Material	GL H 05 (Sub Group 2)	GL H 05 (Sub Group 2)
Weight in grams	Range from 6300 gr to 7300 gr	Range from 6300 gr to 7300 gr
Disc/~~Drum~~ Diameter	Range from 276 mm to 280 mm	Range from 276 mm to 280 mm
Disc Thickness	Range from 22 mm to 25 mm	Range from 22 mm to 25 mm
Mounting Flange Thickness	See drawings	See drawings
Pitch Circle Diameter of fixing holes/studs	See drawings	See drawings
Number of fixing holes/studs	See drawings	See drawings
Mounting Flange Diameter	See drawings	See drawings
Type of centering (e.g. central spigot or mounting bolts /studs)	See drawings	See drawings
In the case of brake discs with integrated parking brake drums the width of the friction surface area and any heat compensation groove(s)	See drawings	See drawings

In the case of ventilated brake discs: (i) The type of ventilation (internal/external); (ii) The number of ribs and pillars ; (iii) The dimensions of the ventilation duct.	See drawings	See drawings

Component Description

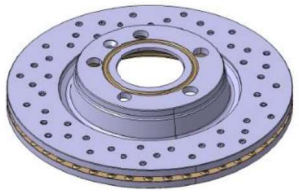
Manufacturer of the un-machined part	BREMBO S.p.A. Divisione Dischi Freno Via G.Maria Scotti, 66 – 24030 Mapello (BG) – Italy BREMBO POLAND SP. Z O.O. Ul.Rozdzienskiego, 13 DĄBROWA GÓRNICZA, POLAND, 41-308 Brembo North America Inc. 29991 E M60, Homer, MI 49245 Brembo Mexico, SA de CV Platón 100, Parque Industrial Kalos, Apodaca, Nuevo León, 66600, Mexico Brembo (Nanjing) Brake System Co., Ltd. No.28 Xijing Road, Jiangning Economic & Technology Zone, Nanjing, P.R. China
A description of the process of manufacture of the un-machined part;	Casting Production
Proof of the reliability of the process (e.g. freedom from cracks and cavities, dimensions) attach as annex 2	COP VCA Control Plan

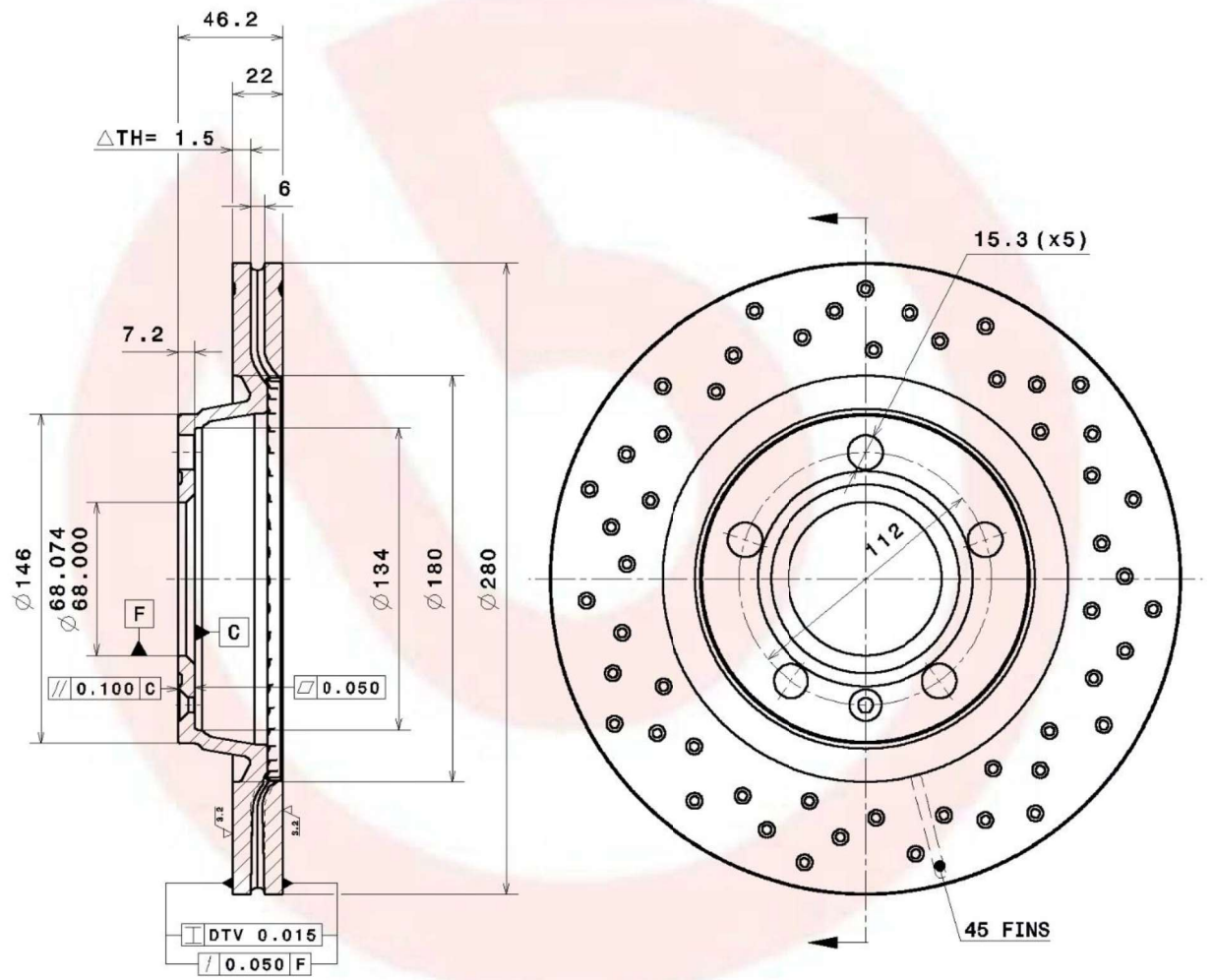
Material Composition	Chemical composition	See Annex 3
	Microstructure	See Annex 3
	Mechanical properties (brinel Hardness to ISO 6506-1:2005	See Annex 3
	Tensile strength to ISO 6892:1998	See Annex 3
Corrosion or surface protection	Oil or Painting	
Description of balancing methods (including maximum error)	See Drawings; The balance value is 20 Nmm and Brembo check disks with a machine and if the value is bigger to 20 the machine works discs	
Amount of wear allowed (minimum thickness in the case of brake discs or the maximum internal diameter in the case of brake drums).	See drawings	

brembo

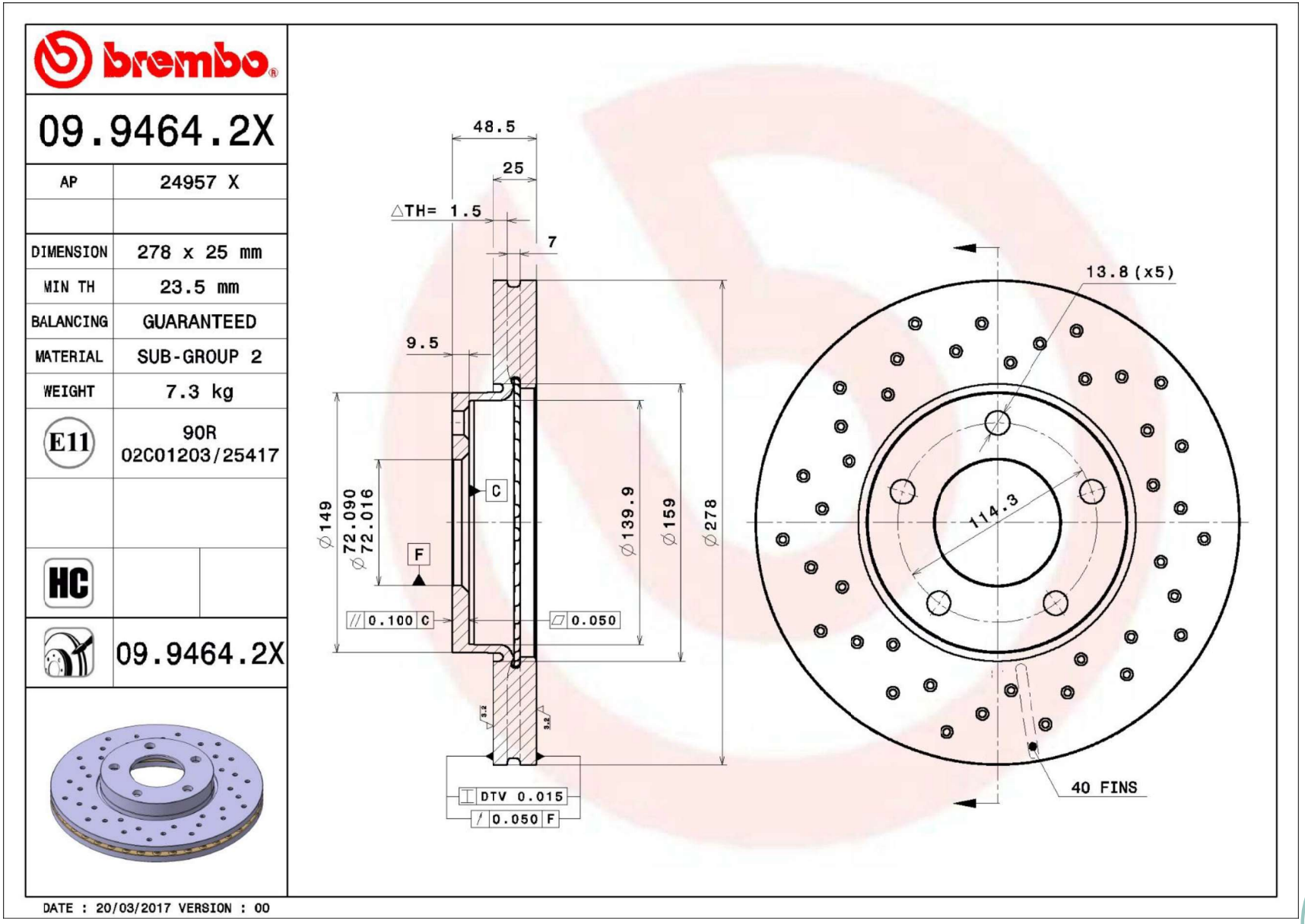
09.7196.1X

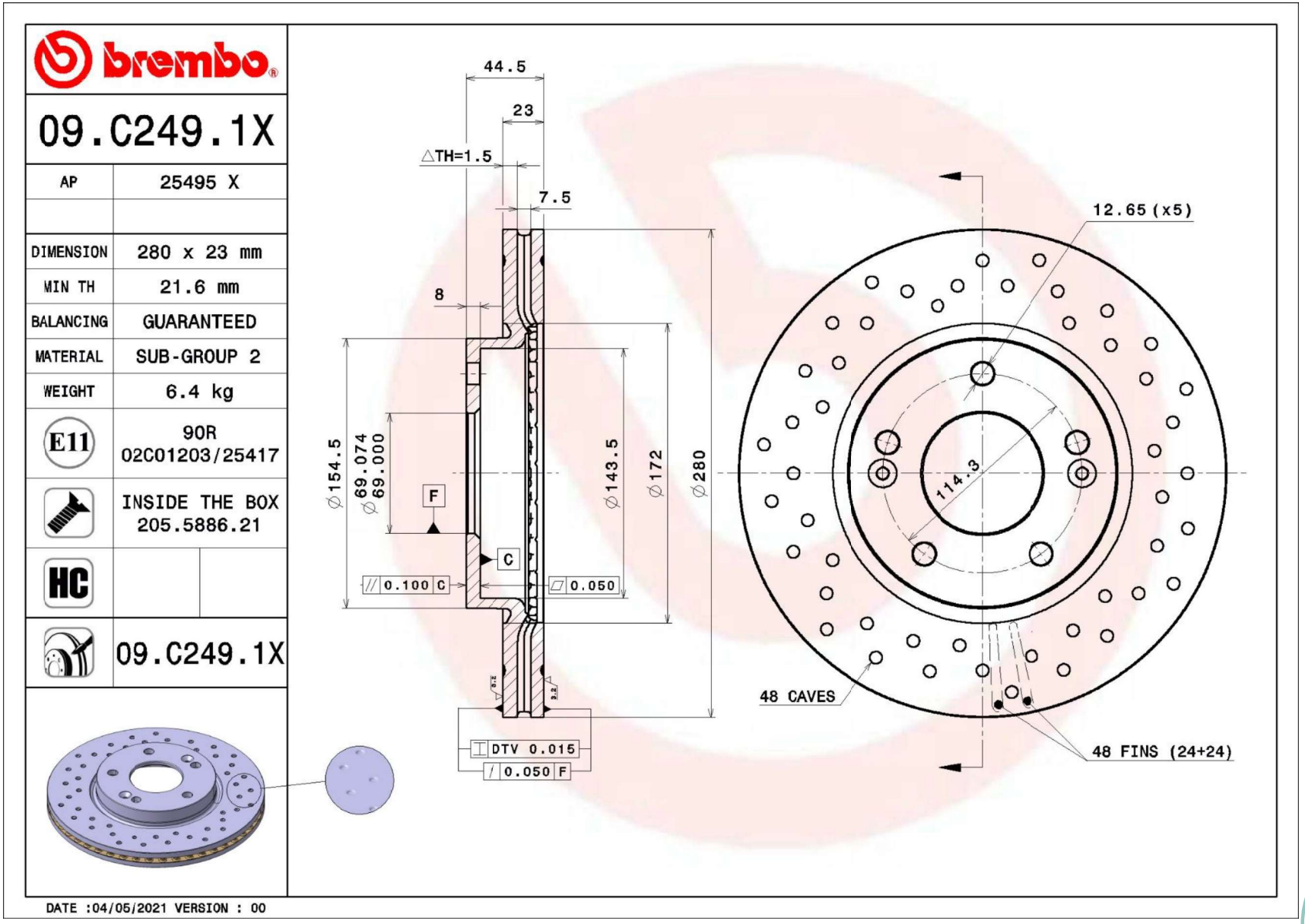
AP	24700 X
DIMENSION	280 x 22 mm
MIN TH	20.5 mm
BALANCING	GUARANTEED
MATERIAL	SUB-GROUP 2
WEIGHT	6.3 kg
E11	90R 02C01203/25417
HC	
	09.7196.1X

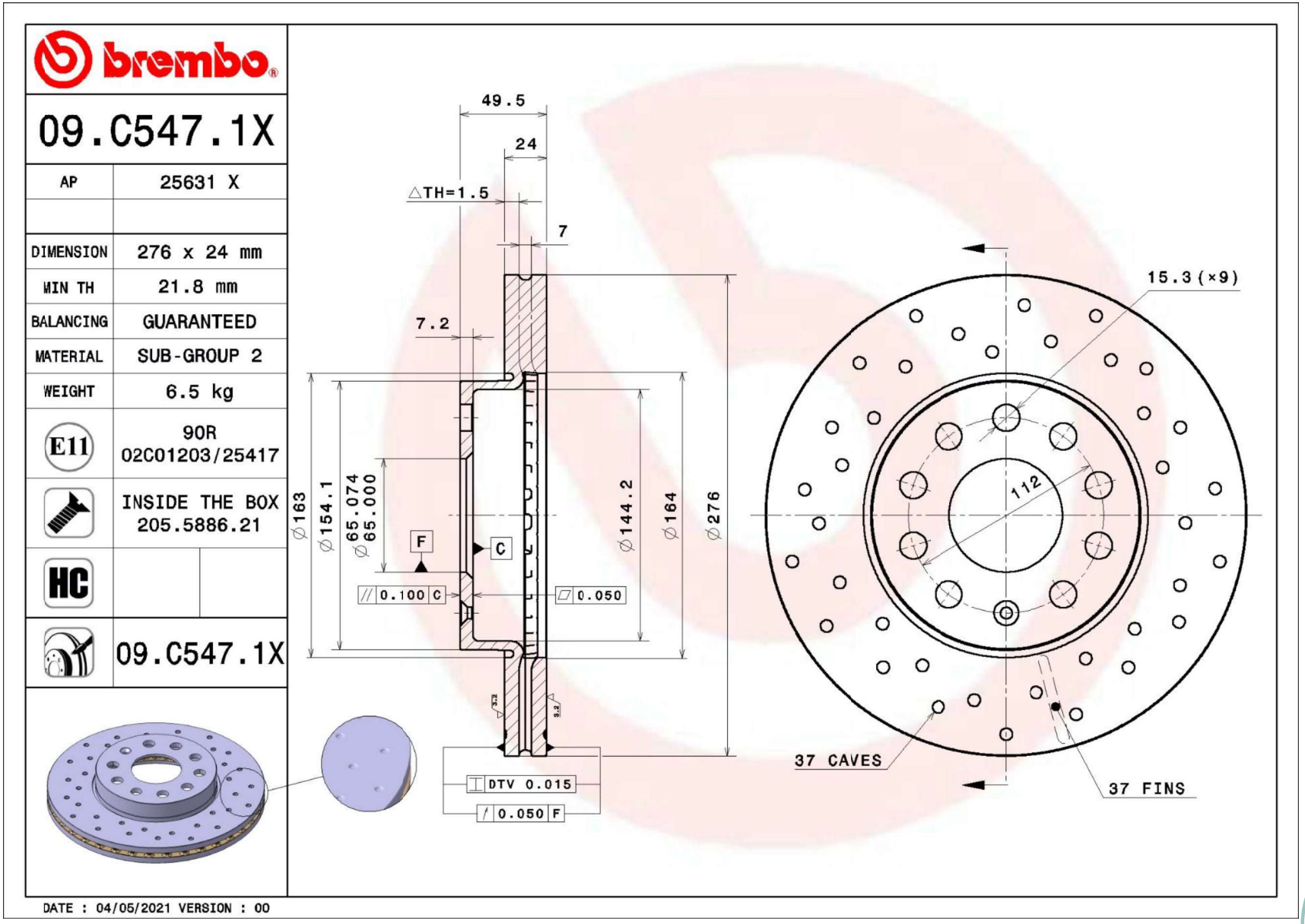




DATE : 20/03/2017 VERSION : 02







- Mechanical properties as per paragraph 2.3. and their permitted range, or where appropriate, minimum value.

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brembo

09.7196.1X

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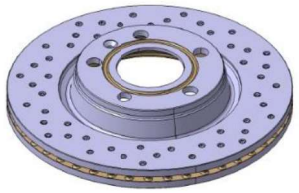

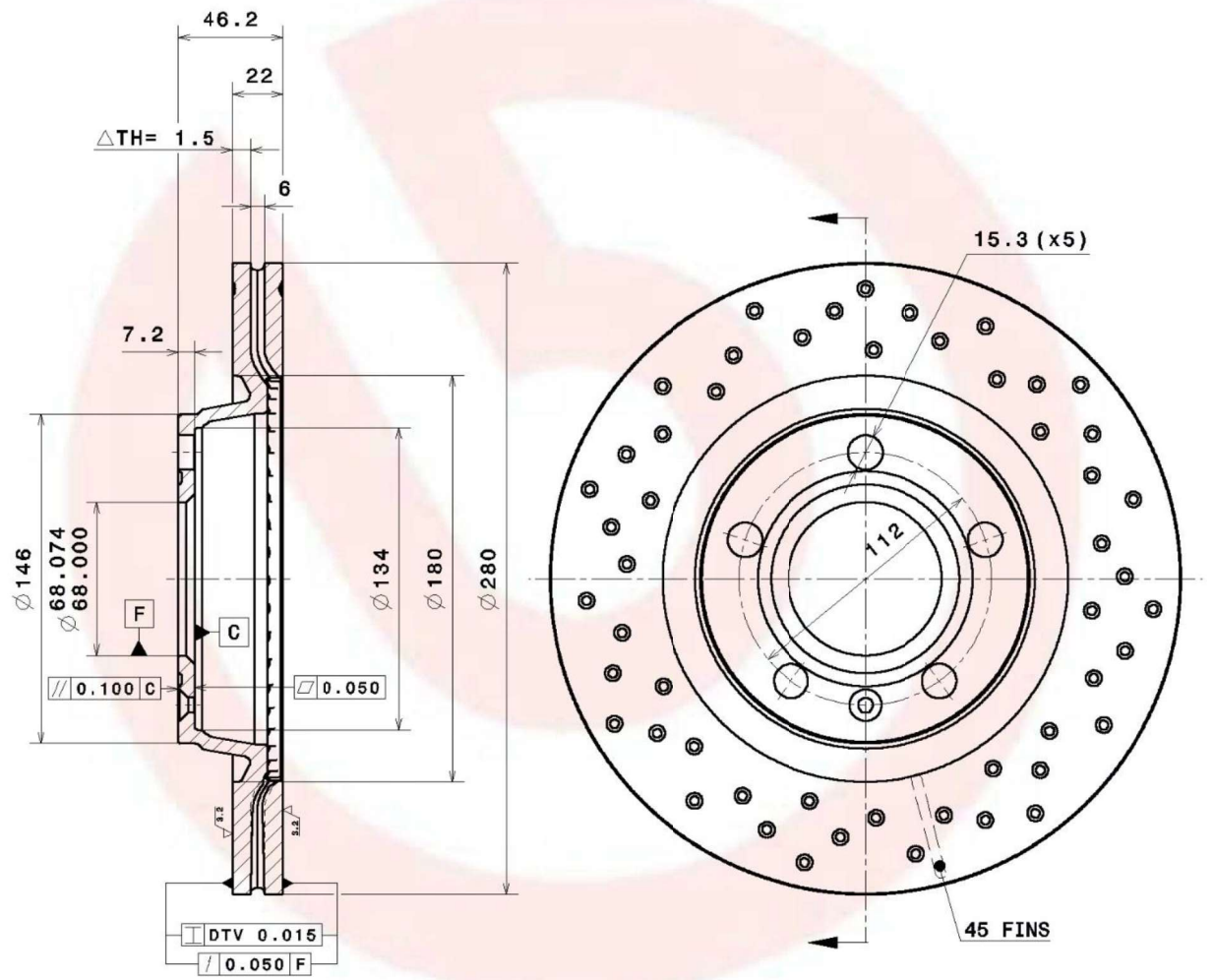

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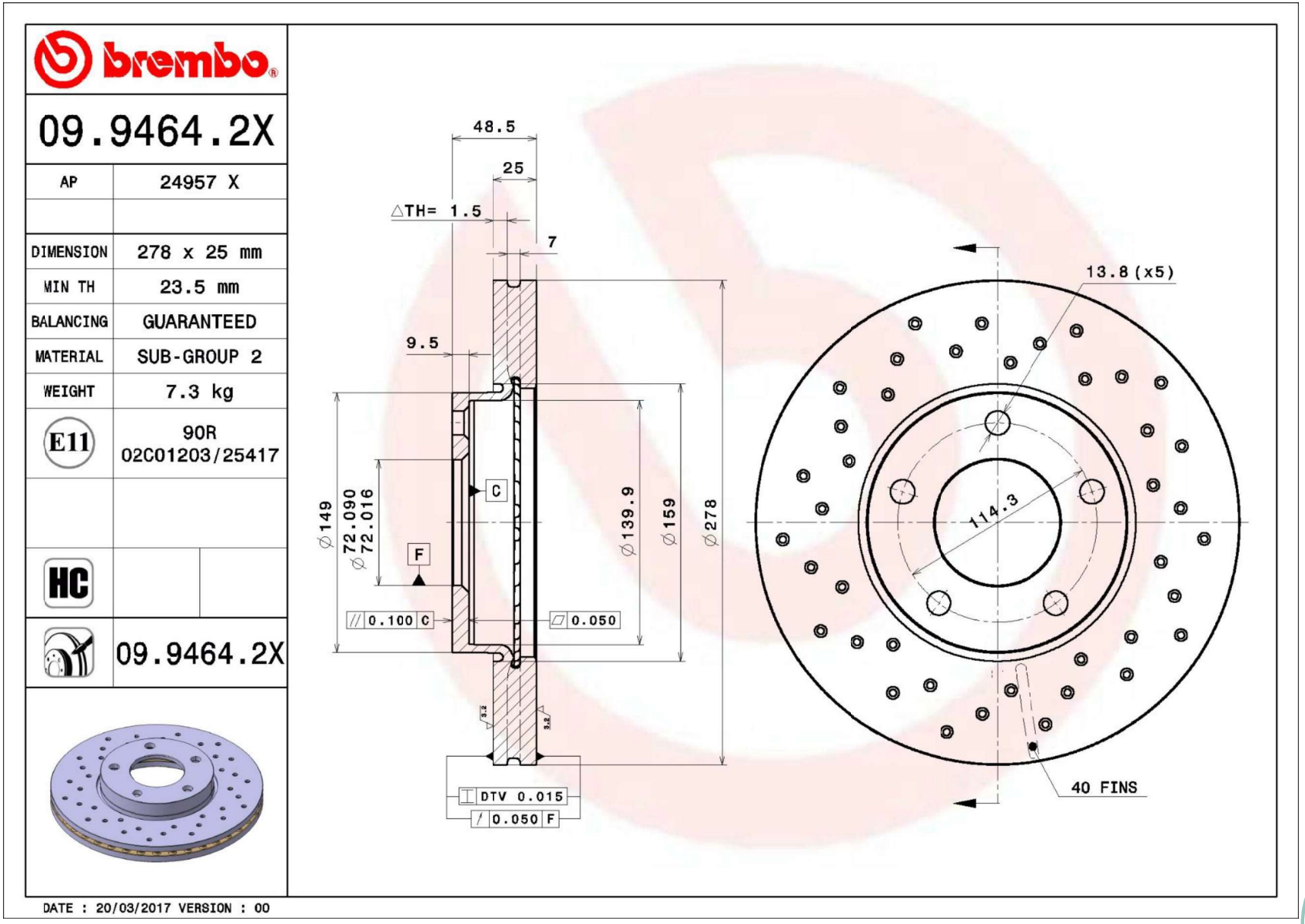

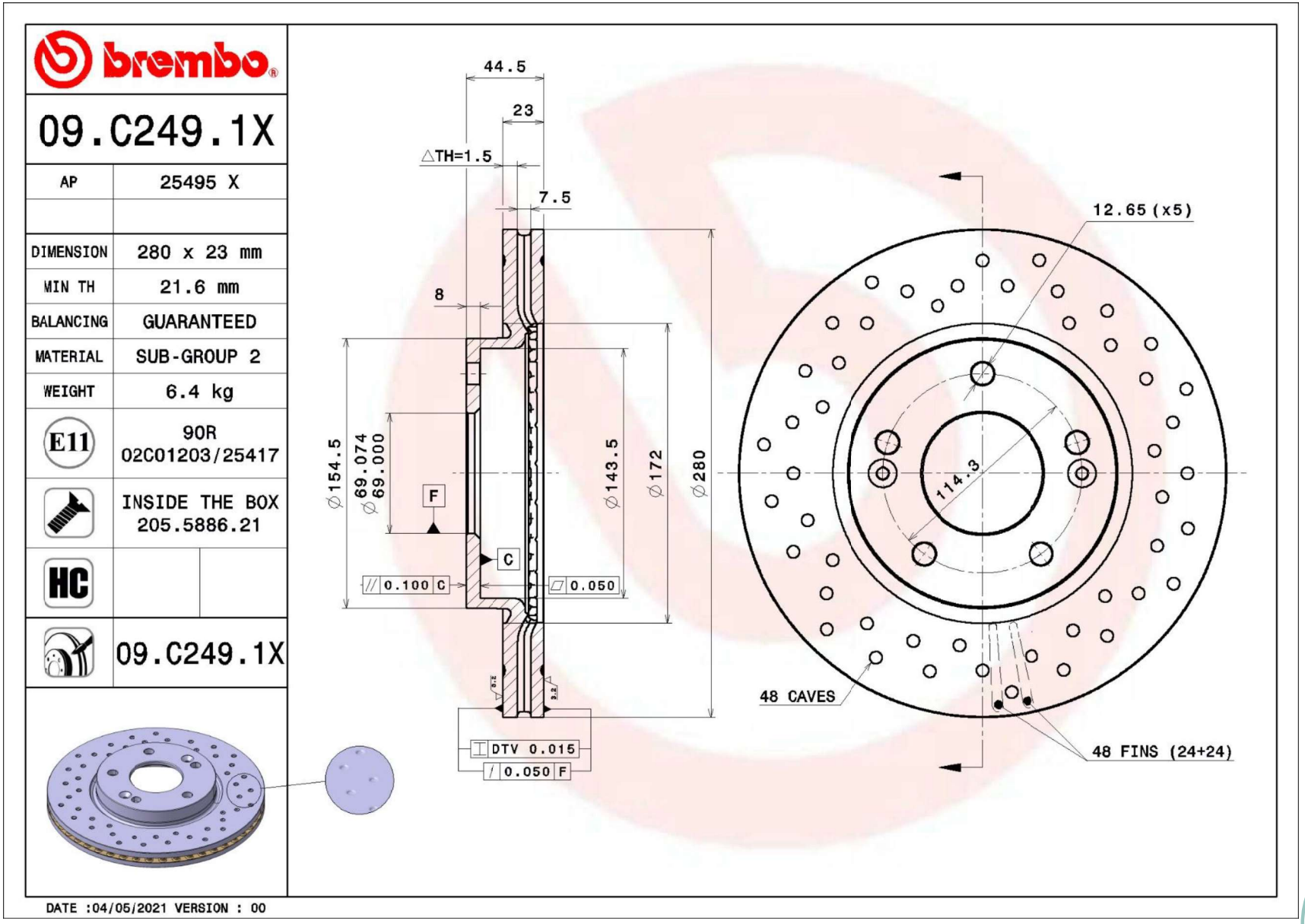

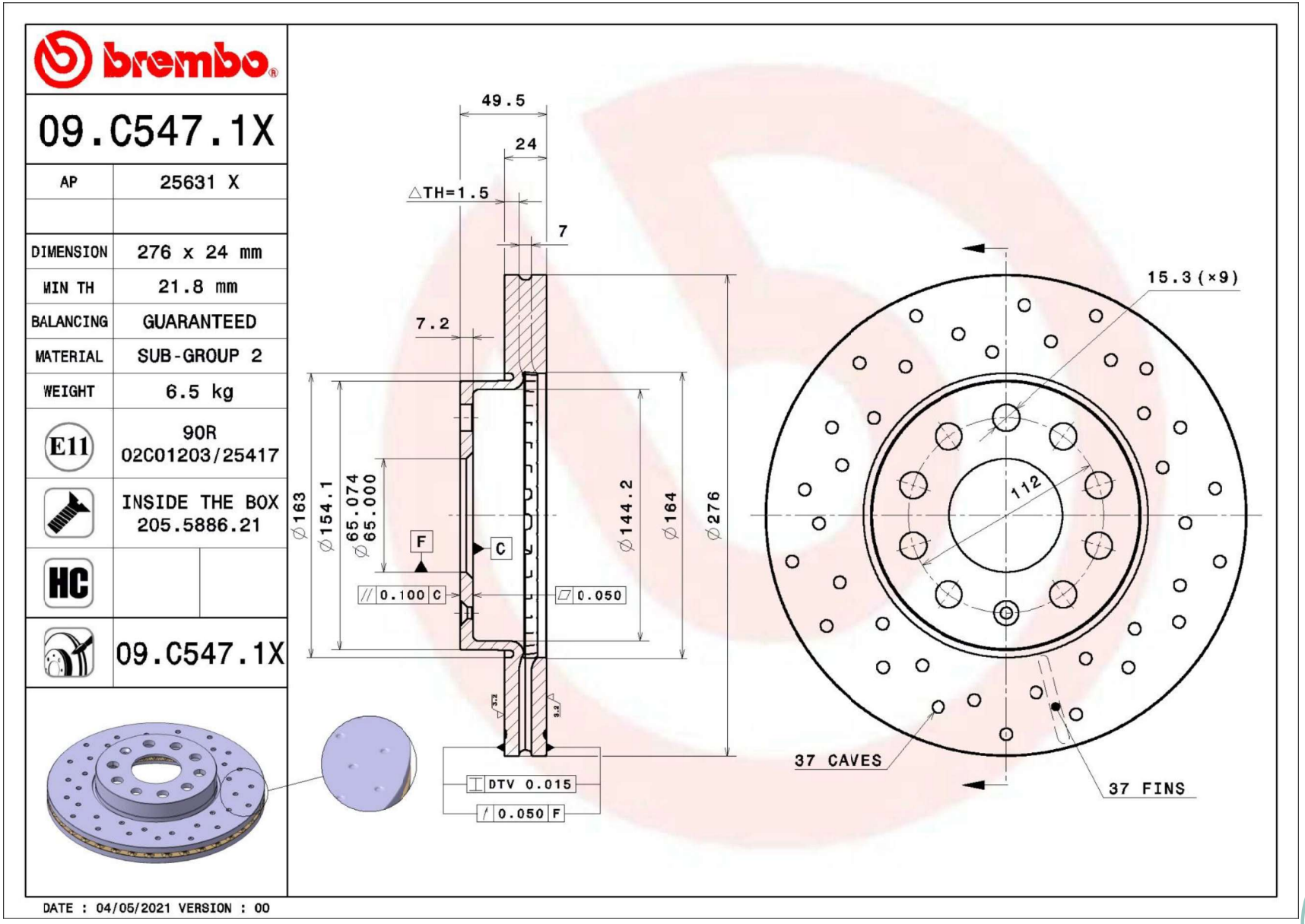

PROPOSED FORM

CONTROL PLAN

LANGUAGE	
ENGLISH	
CODE	REV.
M.W - 190	01
NUMBER	
01 BRAKE DISK	

[X] SERIES [ ] PRE-SERIES [ ] PROTOTYPES Page 1 of 5

SIGNIFICANT CHARACTERISTICS	PART NUMBER:	AFTER MARKET BRAKE DISK	PREPARED BY:	Technologies; Engineering; Production; Quality	
	TYPE:	DA XXX back			
	BREMBO DRAWING:	08/09.XXXX.XX	FILLED IN BY:	PLQLTY - C. Borsotti	
	VERSION:	\ MODIFICATION INDEX: -			
	CUSTOMER DRAWING:	**********	APPROVED BY:	BREMBO:	U. Gotti - Manager PLQLTY
	LAST CHANGE REF. (DATE, INDEX):	**********		CUSTOMER:	
	PLANTS:	MAPELLO BRAKE DISK DIVISION	DEPLOYMENT:	BREMBO:	DTEC, PLQLTY, PROD
	PFMEA: REF.	**********		CUSTOMER:	*********

PLAN EXTENSION VALIDITY

BREMBO DRAWING:									
CUSTOMER REFERENCE:									

PLAN EDITION

PLAN EDITION NUMBER AND DESCRIPTION OF CHANGES:	00 Control Plan review	01 Microsoft AX	02 Modified control frequency	03 New M.W.190							
PLAN DATE:	22/01/2007	22/01/2009	20/07/2010	12/02/2016							
NUMBER OF SHEETS:	5	5	5	5							

NOTES: The product characteristic value is indicated on the single component specific drawing.
The process parameters' values are indicated in the process documentation at the end of the line.
In the column reference document is indicated the specific control plan for each component, linked to the single part number.
REACTION PLAN: the reaction plan is specified in the detailed plans. For non conformities detected during the incoming phase see procedure PR.W.09.10 "Internal and customer nonconformities management".

REFERENCE TO PROCEDURES OR TO SPECIFIC PRESCRIPTIONS	ADDITIONAL REMARKS:	SYMBOLS	brembo	CUSTOMER
PR.W - 07.06		SAFETY		
		REGULATORY		
		FUNCTIONALITY AND MOUNTABILITY		
		IMPORTANT		
		PROCESS		

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CONTROL PLAN

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01 BRAKE DISK	
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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARAC T.		MACHINE / MEAN / CRITERIA	AUTOM ATED CONTR OL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
MA	08/09.XXXX.XX Raw brake disk	Acceptance	Package status			Visual containers / pallets		100%			I.LSTA.SG - 01	
			Piece Quantity			Weight check		100%				AX
			CDI suppl. / note code correspondence			Visual CDI suppl. / note		100%				AX
1.1	08/09.XXXX.XX Raw brake disk	QSTA Acceptance	Dimensional			Various instrument.				3 Pcs. yearly per foundry and per cast iron type	CC AGPO PR.D.SG - 09.01	Acceptance Control Card AX Form M.DD.SGGM - 01
			Aspect / Marking			Visual				3 Pcsyearly per foundry and per cast iron type		Acceptance Control Card AX Form M.DD.SGGM - 01
			HB hardness			Hardometer HB				3 Pcs yearly per foundry and per cast iron type		Acceptance Control Card AX Form M.DD.SGGM - 01
			Integrity			Visual / RX				3 Pcs. yearly per foundry and per cast iron type		Acceptance Control Card AX Form M.DD.SGGM - 01
			Mechanical Resistance			Wedge Test				1 Pc. yearly per foundry and per cast iron type		Form M.DD.SGGM - 01
			Chemical Composition			Spectrometer Analyser C - S				1 Pc. yearly per foundry and per cast iron type		Form M.DD.SGGM - 01
			Structure			Microscope				1 Pc. yearly per foundry and per cast iron type		Form M.DD.SGGM - 01
			Residual tensions test			belt saw + sliding gauge				1 Pc. yearly per foundry and per cast iron type		Acceptance Control Card AX Form M.DD.SGGM - 01

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01 BRAKE DISK	
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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
10	08/09.XXXX.XX Raw brake disk	Verify the presence oxidation	Rust			Visual		100 %			CC BG 02 CC BG 03 CC BG 07 CC BG 03	-----
	08/09.XXXX.XX Turned brake disk	Roughing and finishing turning	Process parameters (jaw pressure and insert time rating)			CNC					FAO I.PRDZ.SG - 11	Annex 1 I.QSTA.SG - 06
			Pilot Diameter F		1 pc.	Go-not-go plug In-process bench	100 %		1 pc. per day		I.QSTA.SG - 12 I.QSTA.SG - 24	Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Thickness brake bands		1 pc.	Micrometer In-process bench	100 %		1 pc. per day			Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Braking band reference height A and/or B compared to the support surface C		1 pc.	In-process bench Altimeter	100 %		1 pc. per day			Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Disc Thickness Variation (DTV)		1 pc.	Setup bench In-process bench	100 %		1 pc. per day			Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Brake Plate Lateral Runout (LRO)		1 pc.	Base with comparator In-process bench	100 %		1 pc. per day			Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Brake plate parallelism		1 pc.	Plan with comparator In-process bench	100 %		1 pc. per day			Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Support surface flatness C		1 pc.	Plan with comparator In-process bench	100 %		1 pc. per day			Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Circular linearity of braking bands		1 pc.	Setup bench Roundmeter In-process bench	100 %		1 pc. Set up			Annex 1 I.QSTA.SG - 06
			Rotor Flange Thickness		1 pc.	Micrometer In-process bench	100%		1 pc. per day			Allegato I.QSTA.SG - 06 Allegato I.QSTA.SG - 10
			Chamfer on the centering hole diameter F		1 pc.	Altimeter Outward gauge		1 pc / 40 pcs	1 pc. per day			Allegato I.QSTA.SG - 13 Allegato I.QSTA.SG - 06 Allegato I.QSTA.SG - 10

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CONTROL PLAN

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01 BRAKE DISK	
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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARAC T.		MACHINE / MEAN / CRITERIA	AUTOM ATED CONTR OL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
10	08/09.XXXX.XX Turned brake disk	Roughing and finishing turning	Rotor Outer Diameter		1 pc.	Outward gauge		1 pc / 40 pcs	1 pc. per day		CC BG 02 CC BG 03 CC BG 07 CC BG 08 FAO I.PRDZ.SG - 11 I.QSTA.SG - 12 I.QSTA.SG - 24	Annex I.QSTA.SG - 13 Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Thickness Bell		1 pc.	Digital gauge			1 pc. per day			Annex I.QSTA.SG - 13 Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Swan Neck Thickness		1 pc.	Digital gauge		1 pc / 40 pcs	1 pc. per day			Annex I.QSTA.SG - 13 Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Other dimensional values as per control cycle		1 pc.	Various tools as per control cycle		1 pc / 40 pcs	1 pc. per day			Annex I.QSTA.SG - 13 Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Other shape and position errors as per control cycle		1 pc.	Various tools as per control cycle		1 pc / 40 pcs	1 pc. per day			Annex I.QSTA.SG - 13 Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Brake surface roughness		1 pc.	Profilometer		1 pc / 40 pcs	1 pc. per day			Annex I.QSTA.SG - 13 Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
		Drilling	Dimensional diameter fixing holes and diameter positioning hole		1 pc.	Go-not-go plugs Outward gauge		2 pc. / 40 pc.	2 pc. per day			Annex I.QSTA.SG - 13 Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
			Localisation fixing holes and positioning hole		1 pc.	Drilling control jig		2 pc. / 40 pc.	2 pc. per day			Annex I.QSTA.SG - 13 Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10
		Balancing	Unbalance value		1 pc.	Balancer	100 %					Software Archive
			Dimensional milling			Gauge		1 pc. in set up	1 pc. per day			Annex I.QSTA.SG - 06 Annex I.QSTA.SG - 10

PROPOSED FORM

CONTROL PLAN

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARAC T.		MACHINE / MEAN / CRITERIA	AUTOM ATED CONTR OL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
10	08/09.XXXX.XX Turned brake disk	100 % check	Dimensional and shape errors		100 %	In-process control bench	100 %		Automatic check with master every 100 pz		CC BG 02 CC BG 03 CC BG 07 CC BG 08	Software Archive
		Surface protection (Protective)	Surface protecion type			Visual		100 %	1 check per day		I.QSTA.SG - 24 I.QSTA.SG - 21	Annex 1 I.QSTA.SG - 10
		Visual check	Aspect and intactness (cracks, blowholes, porosity, turning cropping)			Visual		100 %			I.PRDZ.SG - 31 Standard package sheet	Operator registration no. Stamp
		Intermediate or final package	Arrangement of cisks in the containers			Visual		100 %	1 check per day			Annex 1 I.QSTA.SG - 10
C.F.	08/09.XXXX.XX Finished brake disk	OUTGOING QUALITY				Sundry					I.QSTA.SG - 18	Annex 1 I.QSTA.SG - 18
		PRODUCT AUDIT				Dimensional				Yearly per customer and per cast iron type	PR.D.SG - 09.05	Form M.DD.SGGM- 01
						Material						

PLAN KONTROLI
CONTROL PLAN

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SIGNIFICANT CHARACTERISTICS	PART NUMBER:	08.XXXX.YY / 09.XXXX.YY	PREPARED BY:	Produkcja, Technologia, Kontrola Jakości	
	TYPE:	solid and vented brake discs			
	BREMBO DRAWING:	08.XXXX.YY / 09.XXXX.YY	FILLED IN BY:	Marcin LISZKA	
	VERSION:	ND / MODIFICATION INDEX: ND			
	CUSTOMER DRAWING:	ND	APPROVED BY:	BREMBO:	Andrzej RADOSZ
	LAST CHANGE REF. (DATE, INDEX):	ND		CUSTOMER:	ND
	PLANTS:	DĄBROWA GÓRNICZA	DEPLOYMENT:	BREMBO:	ND
	PFMEA: REF.	ND		CUSTOMER:	ND Signature:

PLAN EXTENSION VALIDITY

BREMBO DRAWING:	ND									
CUSTOMER REFERENCE:	ND									

PLAN EDITION

PLAN EDITION NUMBER AND DESCRIPTION OF CHANGES:	00	01									
PLAN DATE:	15.04.2003	Feb 2016									
NUMBER OF SHEETS:	3	5									

NOTES:
The product characteristic value is indicated on the single component specific drawing.
The process parameters' values are indicated in the process documentation at the end of the line.
In the column reference document is indicated the specific control plan for each component, linked to the single part number.
For designated S and/or R characteristics, quality records are kept for 15 years. For a purpose of repeated product qualification, samples of products are stored for 1 one year.
REACTION PLAN: the reaction plan is specified in the detailed plans. For non conformities detected during the incoming phase see procedure PR.W.09.10 "Internal and customer nonconformities management".

REFERENCE TO PROCEDURES OR TO SPECIFIC PRESCRIPTIONS	ADDITIONAL REMARKS:	SYMBOLS	brembo	

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CYKL PRODUKCYJNY (PRODUCTION CYCLE)							SIATKA KONTROLI (GRID CONTROL)							
Phase N° FLOW CHART/ PFMEA	Kod (CODE) / Opis produktu (PRODUCT DESCRIPTION)	Faza produkcyjna (PRODUCTION PHASE)	Charakterystyka wyrobu (PRODUCT FEATURE) / Charakterystyka procesu (PROCESS FEATURE)	Tolerancja / Specyfikacja (TOLERANCE / SPECIFICATION)	Klasyfikacja (CLASSIFICATION)	Uruchomienie produkcji (START OF PRODUCTION)	Środek pomiarowy (MEASURING DEVICE)	Kontrola automatyczna (AUTOMATIC CONTROL)	Plan częstotliwości kontroli (PLAN AND FREQUENCY CONTROL): 1-Autokontrola (SELFCONTROL)	2- Kontrola inspekcyjna (CONTROL INSPECTION)	3-Audit wyrobu (PRODUCT AUDIT)	Dokument odniesienia (REFERENCE DOC.)	Rejestracja kontroli (REGISTRATION CONTRCL)	Plan reakcji na niezgodność (REACTION PLAN FOR NONCONFORMITY)
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Pre, and final turning	Run-out AC-BC	Acc to drawing spec.		1 pc	Automatic or manual SPC bench		3/40 pcs	1/day		CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report SPC data Insection control repor:	I.DZJ.PD.01
			Disc Thickness Variation A/B (DTV)	Acc to drawing spec.		1 pc	Automatic or manual SPC bench		3/40 pcs	1/day				
			Thickness of hub	Acc to drawing spec.		1 pc	Caliper or slide caliper		1/40 pcs	1/day			Inspection control report Control confirmation report Process control report	
			Thickness of braking surface A-B	Acc to drawing spec.		1 pc	Automatic/manual SPC bench, micrometer		1/40 pcs	1/day			Production start report SPC data Insection control repor:	
			B-C Height (Off set)	Acc to drawing spec.		1 pc	Automatic/manual SPC bench, height gauge		1/40 pcs	1/day				
			Flatness of C surfaoe	Acc to drawing spec.		1 pc	Automatic bench or height gauge		1/40 pcs	1/day				
			Chamfer height on centreing hole	Acc to drawing spec.		1 pc	Height gauge or profile measurement gauge		1/40 pcs	1/day			Inspection control report Control confirmation report Process control report	
			Thck of signle braking plate (vented discs only)	Acc to drawing spec.		1 pc	Slide caliper		1/40 pcs	1/day				
			Centering hole diameter	Acc to drawing spec.		1 pc	Automatic bench or Go-Ngo gauge		1/40 pcs	1/day				
			Outer diameter of disc	Acc to drawing spec.		1 pc	Slide caliper		1/40 pcs	1/day				
			C-D thickness	Acc to drawing spec.		1 pc	Micrometer or height gauge		1/40 pcs	1/day				
			Swan neck thickness (if appicable)	Acc to drawing spec.		1 pc	Height gauge		1/40 pcs	1/day				

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CYKL PRODUKCYJNY (PRODUCTION CYCLE)							SIATKA KONTROLI (GRID CONTROL)							
Phase N° FLOW CHART/ PFMEA	Kod (CODE) / Opis produktu (PRODUCT DESCRIPTION)	Faza produkcyjna (PRODUCTION PHASE)	Charakterystyka wyrobu (PRODUCT FEATURE) / Charakterystyka procesu (PROCESS FEATURE)	Tolerancja / Specyfikacja (TOLERANCE / SPECIFICATION)	Klasyfikacja (CLASSIFICATION)	Uruchomienie produkcji (START OF PRODUCTION)	Środek pomiarowy (MEASURING DEVICE)	Kontrola automatyczna (AUTOMATIC CONTROL)	Plan częstotliwości kontroli (PLAN AND FREQUENCY CONTROL): 1-Autokontrola (SELFCONTROL)	2- Kontrola inspekcyjna (CONTROL INSPECTION)	3-Audit wyrobu (PRODUCT AUDIT)	Dokument odniesienia (REFERENCE DOC.)	Rejestracja kontroli (REGISTRATION CONTROL)	Plan reakcji na niezgodność (REACTION PLAN FOR NONCONFORMITY)
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Pre, and final turning	Roughness	Acc to drawing spec.		1 pc	Roughness gauge		1/40 pcs	1/day		CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report	I.DZ..PD.01
			Rest of features acc to control cycle	Acc to drawing spec.		1 pc	Variuos gauges		1/40 pcs	1/day				
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Drilling	Diameter of mounting and fixing holes	Acc to drawing spec.		1 pc	Go-Ngo gauge		1/40 pcs	1/day		CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report Control confirmation Report Process control report	I.DZ..PD.01
			Position of holes	Acc to drawing spec.		2/40 pc	Holes possition Go-Ngo gauge		2/40 pcs	1/day				
			Chamfer/burrs presence	Acc to drawing spec.		1 pc	Height gauge, visualy		1/40 pcs	1/day				
NA	09.XXXX.YY Machined brake disc	Balancing	Unbalance error	Acc to drawing spec.		1 pc	Balancing machine	100%		1/day		CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report Control confirmation report Process control report	I.DZ..PD.01
			Dimension of milling	Acc to drawing spec.		1 pc	Visual check		1/batch	1/day				
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Grinding	Run-out AC-BC	Acc to drawing spec.		1 pc	Automatic or manual SPC bench		3/40 pcs	1/day		CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report SPC data Control confirmation report Process control report	I.DZ..PD.01
			Disc Thickness Variation A//B (DTV)	Acc to drawing spec.		1 pc	Automatic or manual SPC bench		3/40 pcs	1/day				
			B-C Height (Off set)	Acc to drawing spec.		1 pc	Automatic/manual SPC bench, height gauge		1/40 pcs	1/day				
			Thickness of braking plate A-B	Acc to drawing spec.		1 pc	Automatic or manual SPC bench, micrometer		1/40 pcs	1/day				
			Roughness	Acc to drawing spec.		1 pc	Roughness gauge		1/40 pcs	1/day				

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CYKL PRODUKCYJNY (PRODUCTION CYCLE)							SIATKA KONTROLI (GRID CONTROL)							
Phase N° FLOW CHART/ PFMEA	Kod (CODE) / Opis produktu (PRODUCT DESCRIPTION)	Faza produkcyjna (PRODUCTION PHASE)	Charakterystyka wyrobu (PRODUCT FEATURE) / Charakterystyka procesu (PROCESS FEATURE)	Tolerancja / Specyfikacja (TOLERANCE / SPECIFICATION)	Klasyfikacja (CLASSIFICATION)	Uruchomienie produkcji (START OF PRODUCTION)	Środek pomiarowy (MEASURING DEVICE)	Kontrola automatyczna (AUTOMATIC CONTROL)	Plan częstotliwości kontroli (PLAN AND FREQUENCY CONTROL): 1-Autokontrola (SELFCONTROL)	2- Kontrola inspekcyjna (CONTROL INSPECTION)	3-Audit wyrobu (PRODUCT AUDIT)	Dokument odniesienia (REFERENCE DOC.)	Rejestracja kontroli (REGISTRATION CONTROL)	Plan reakcji na niezgodność (REACTION PLAN FOR NONCONFORMITY)
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Oil protection	Type of oiling	Acc to BREMBO standard shown on drawing		1 pc	Visual check		100%	1/day		CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report Process control report	I.DZJ.PD.01
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Marking	Completeness, presence, readability	Acc to drawing requirements		1 pc	Visual check		100%	1/day		CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report Process control report	I.DZJ.PD.01
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Visual inspection	Visual condition (material and turning defects)	BDS 18.01		1 pc	Visual check		100%	1/day		CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report Process control report	I.DZJ.PD.01
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Packing	Acc to packing instruction	Acc to packing instruction		1 box	Visual check		100%			CK025 / I.WPT.DG-11/ I.DZJ.PD-03 / I.DZJ.PD-09	Production start report	I.DZJ.PD.01
NA	08.XXXX.YY 09.XXXX.YY Machined brake disc	Quality inspection	Various features	Acc to drawing spec.			Variuos gauges				Randomly	I.DZJ.PD.06	Audit report	I.DZJ.PD.01

	PLAN KONTROLI n° - PK-AM-001 (Control Plan n° - PK-AM-001)	LANGUAGE ENGLISH CODE: M.DD.PD - 01 REV.: 01 Number PK-AM-001

NUMER KOREKTY
(Number revision)

NUMER KOREKTY (Number revision)	Opis korekty (Revision Description)	Data (Date)	Podpis (Signature)
00	First release	Apr 2003	A.Radosz
01	New form, more detailed description of feature to control	Febr 2016	M.Liszka

PROPOSED FORM

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SIGNIFICANT CHARACTERISTICS						
	PART NUMBER:	AFTER MARKET BRAKE DISC		PREPARED BY:	Quality, Production, Indu.	
	TYPE:	DA XXX back				
	BREMBO DRAWING:	08/09.XXX.XX		FILLED IN BY:	PLQLTY - H. Martins	
	VERSION:	\	MODIFICATION INDEX: -			
	CUSTOMER DRAWING:	**********		APPROVED BY:	BREMBO:	M. Canaan - Manager PLQLTY
	LAST CHANGE REF. (DATE, INDEX):	**********			CUSTOMER:	
	PLANTS:	Brembo Betim - Brake Disc Division		DEPLOYMENT:	BREMBO:	PLQLTY - INDU. - PROD.
	PFMEA: REF.	**********			CUSTOMER:	**********

PLAN EXTENSION VALIDITY									
BREMBO DRAWING:									
CUSTOMER REFERENCE:									

PLAN EDITION											
PLAN EDITION NUMBER AND DESCRIPTION OF CHANGES:	00 Control plan review										
PLAN DATE:	03/05/2016										
NUMBER OF SHEETS:	5										

NOTES: The product characteristic value is indicated on the single component specific drawing.
The process parameters' values are indicated in the process documentation at the end of the line.
In the column reference document is indicated the specific control plan for each component, linked to the single part number.
REACTION PLAN: the reaction plan is specified in the detailed plans. For non conformities detected during the incoming phase see procedure PR.W.09.10 "Internal and customer nonconformities management".

REFERENCE TO PROCEDURES OR TO SPECIFIC PRESCRIPTIONS	ADDITIONAL REMARKS:	SYMBOLS	brembo	CUSTOMER
PR.W - 07.06		SAFETY	S	
		REGULATORY	R	
		FUNCTIONALITY AND MOUNTABILITY	M	
		IMPORTANT	I	
		PROCESS	P	

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
MA	08/09/xxxx.XX Raw brake disc	Acceptance	Package status			Visual Containers / pallets		100%			Standard package sheet	
			Piece Quantity			Weight check		100%				AX
			CDI suppl. / note code correspondence			Visual CDI suppl. / note		100%				AX
1.1	08/09/xxxx.XX Raw brake disc	QSTA Acceptance	Dimensional			Various instrument.				3 Pcs. Yerly per foundry and per cast iron type CQC	PR.DD.BB.BS - 10.03 PR.DD.BB.BS - 09.02	Acceptance Control Card AX Annex 4. PR.DD.BB.BS - 09.02
			Aspect / Marking			Visual				3 Pcs. Yerly per foundry and per cast iron type CQC		Acceptance Control Card AX Annex 4. PR.DD.BB.BS - 09.02
			HB hardness	(S)		Hardness Test Machine HB				3 Pcs. Yerly per foundry and per cast iron type CQC		Acceptance Control Card AX Annex 4. PR.DD.BB.BS - 09.02
			Integrity	(S)		Visual / RX				3 Pcs. Yerly per foundry and per cast iron type CQC		Acceptance Control Card AX Annex 4. PR.DD.BB.BS - 09.02
			Mechanical Resistance	(S)		Wedge Test				3 Pcs. Yerly per foundry and per cast iron type CQC		Acceptance Control Card AX Annex 4. PR.DD.BB.BS - 09.02
			Chemical Composition			Spectrometer Analyser C - S				3 Pcs. Yerly per foundry and per cast iron type CQC		Acceptance Control Card AX Annex 4. PR.DD.BB.BS - 09.02
			Structure			Microscope				3 Pcs. Yerly per foundry and per cast iron type CQC		Acceptance Control Card AX Annex 4. PR.DD.BB.BS - 09.02
			Residual tensions test			bell saw + Sliding gauge				3 Pcs. Yerly per foundry and per cast iron type CQC		Acceptance Control Card AX Annex 4. PR.DD.BB.BS - 09.02

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
10	08/09/XXXX.XX Raw brake disc	Verify the presence oxidation	Rust			Visual		100%			I.IQ.BB - 05	
	08/09/XXXX.XX Turned brake disc	Roughing and finishing turning	Process parameters (jaw pressure and insert time rating)			CNC					FAO M.DD.BB.BS.INDU-04	Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Pilot Diameter F		1pc.	Go-not-go plug In-process prench	100%		1 pc. per day		PR.DD.BB.BS - 09.02 PR.DD.BB.BS - 08.05 I.IQ.BB - 33	Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Trickness brake bands		1pc.	Micrometer In-process bench	100%		1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Braking band reference height A and/or B compared to the support surface C		1pc.	In process bench Altimeter	100%		1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Disc Thickiness Variation (DTV)		1pc.	Setup bench In-process bench	100%		1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Brake Plate Lateral Runout (LRO)		1pc.	Base with comparater In-process bench	100%		1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Brake plate parallelism		1pc.	Plan with comparater In-process bench	100%		1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Support surface flatness C		1pc.	Plan with comparater In-process bench	100%		1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Circular linearity of braking bands		1pc.	Setup bench Roudmeter In-process bench	100%		1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Rotor Flange Thickiness		1pc.	Micrometer In-process bench	100%		1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Chamfer on the centering hole diameter F		1pc.	Altimeter Outward gauge		1 pc / 40 pcs	1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
10	06/09/XXXX.XX Turned brake disc	Roughing and finishing turning	Rotor Outer Diameter		1pc.	Outward gauge		1 pc / 40 pcs	1 pc. per day		PR.DD.BB.BS - 09.02 PR.DD.BB.BS - 08.05 I.IQ.BB - 33	Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Thickness Bell		1pc.	Digital gauge			1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Swan Neck Thickness		1pc.	Digital gauge		1 pc / 40 pcs	1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Other dimensional values as per control cycle		1pc.	Various tools as per control cycle		1 pc / 40 pcs	1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Other shape and position errors as per control cycle		1pc.	Various tools as per control cycle		1 pc / 40 pcs	1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Brake surface roughness		1pc.	Profilometer		1 pc / 40 pcs	1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
		Drilling	Dimensional diameter fixing holes and diameter positioning hole		1pc.	Go-not-go plugs Outward gauge		2 pc / 40 pcs	2 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
			Localisation fixing holes and positioning hole		1pc.	Drilling control jig		100%	2 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
		Balancing	Unbalance value		1pc.	Balancer	100%					Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33 Software Archive
			Dimensional miling		1pc.	Gauge		1 pc. in setup	1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
		100% check	Dimensional and shape errors		100%	In process control bench	100%		Automatic check with master every 100 pz.		I IQ.BB - 05 I IQ.BB - 12 I.IQ.BB - 33 PR.DD.BB.BS - 08.05 PR.DD.BB.BS - 09.02 M.BB.BS.INDU-41 M.BB.BS.INDU-03	Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
		Surface protection (Protective)	Surface protection type			Visual		100%	1 pc. per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
		Visual check	Aspect and intactness (cracks, blowholes, porosity, turning, cropping)			Visual		100%				Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33
		Intermediate or final package	Arrangement of disks in the containers			Visual		100%	1 check per day			Annex 2. PR.DD.BB.BS - 08.05 Annex 7. PR.DD.BB.BS - 08.05 Annex 2. I.IQ.BB - 33

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
C.F.	08/09/xxxx.xx Finished brake disc	OUTGOING QUALITY		I M R S		Visual Containers / pallets					PR.DD.BB.BS - 09.02	M.DD.BB.DS. QSTA - 03
		PRODUCT AUDIT		I M R S		Dimensional / Material				Yearly per customer and per cast iron type	PR.DD.BB.BS - 09.02	Annex 4. PR.DD.BB.BS - 09.02

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SIGNIFICANT CHARACTERISTICS	PART NUMBER:	08.5085.10	PREPARED BY:	M. Radzi	
	TYPE:	Machined brake Disc DP240			
	BREMBO DRAWING:		FILLED IN BY:	M. Radzi	
	VERSION:	MODIFICATION INDEX: F			
	CUSTOMER DRAWING:	N/A	APPROVED BY:	BREMBO:	
	LAST CHANGE REF. (DATE, INDEX):	25.01.06, F5		CUSTOMER:	
	PLANTS:		DEPLOYMENT:	BREMBO:	
	PFMEA: REF.			CUSTOMER:	

PLAN EXTENSION VALIDITY

BREMBO DRAWING:									
CUSTOMER REFERENCE:									

PLAN EDITION

PLAN EDITION NUMBER AND DESCRIPTION OF CHANGES:	0										
PLAN DATE:	13/06/2016										
NUMBER OF SHEETS:											

NOTES: The product characteristic value is indicated on the single component specific drawing.
The process parameters' values are indicated in the process documentation at the end of the line.
In the column reference document is indicated the specific control plan for each component, linked to the single part number.
REACTION PLAN: the reaction plan is specified in the detailed plans. For non conformities detected during the incoming phase see procedure PR.W.09.10 "Internal and customer nonconformities management".

REFERENCE TO PROCEDURES OR TO SPECIFIC PRESCRIPTIONS	ADDITIONAL REMARKS:	SYMBOLS	brembo	CUSTOMER
		SAFETY	S	0
		REGULATORY	R	0
		FUNCTIONALITY AND MOUNTABILITY	M	0
		IMPORTANT	I	0
		PROCESS	P	0

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS / PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL			REFERENCE DOCS.	CONTROL RECORDING
								1 - SELF-MON.	2 - INSPEC.	3 - AUDIT		
	08.5085.10	20	Pilot diameter			Plug gage	No		100%			
	08.5085.10	20	Hat OD			Snap gage	No	2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Hat ID			Dial bore	No	2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Water groove diameter			Caliper		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Brake plate OD			Snap gage		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Groove thickness			Dial indicator		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Hat OD Depth			Caliper		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Pilot OB Chamfer			Chamfer gage		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Pilot IB Chamfer			Chamfer gage		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Hat ID chamfer			Caliper		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Hat OD Chamfer			Chamfer gage		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	IB Brakeplate Step			Caliper		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Hat OD step			Caliper		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	IBMF Flatness			Flatness gage		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Brake plate OD Chamfer			Chamfer gage		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Brake plate microfinish			Profilator		2 pc/hr. and/or TC				Check sheet
	08.5085.10	20	Mounting face thickness			Moore gage			100%			
	08.5085.10	20	MF parallelism			Moore gage			100%			
	08.5085.10	20	OBMF Flatness			Moore gage			100%			
	08.5085.10	20	IBMF Flatness			Moore gage			100%			
	08.5085.10	20	Mounting face concavity			Moore gage			100%			
	08.5085.10	20	Lateral Location			Moore gage			100%			

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
	08.5085.10	20	Pilot diameter			Plug gage	No		100%			
	08.5085.10	20	Inner BP thickness			Moore gage			100%			
	08.5085.10	20	Outer BP thickness			Moore gage			100%			
	08.5085.10	20	Brake plate Parallelism			Moore gage			100%			
	08.5085.10	20	OBBP straightness			Moore gage			100%			
	08.5085.10	20	IBBP straightness			Moore gage			100%			
	08.5085.10	20	TV inner			Moore gage			100%			
	08.5085.10	20	TV outer			Moore gage			100%			
	08.5085.10	20	IBBP Inner LRO			Moore gage			100%			
	08.5085.10	20	IBBP Outer LRO			Moore gage			100%			
	08.5085.10	20	OBBP inner LRO			Moore gage			100%			
	08.5085.10	20	OBBP outer LRO			Moore gage			100%			
	08.5085.10	30	Hole location			Hole location fixture			100%			
	08.5085.10	40	Balance			Balancer			100%			
	08.5085.10	50	Pin stamp			Visual			100%			

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SIGNIFICANT CHARACTERISTICS					
	PART NUMBER:	AFTER MARKET BRAKE DISC	PREPARED BY:	Quality	
	TYPE:	Brake disc			
	BREMBO DRAWING:	08.9502.10	FILLED IN BY:	PLQLTY - D. Davila	
	VERSION:	00 MODIFICATION INDEX:			
	CUSTOMER DRAWING:	**********	APPROVED BY:	BREMBO:	J. Rojas - Manager PLQLTY
	LAST CHANGE REF. (DATE, INDEX):	**********		CUSTOMER:	
	PLANTS:	Brembo Mexico Apodaca	DEPLOYMENT:	BREMBO:	PLQLTY - INDU - PROD.
	PFMEA: REF.	**********		CUSTOMER:	**********

PLAN EXTENSION VALIDITY									
BREMBO DRAWING:									
CUSTOMER REFERENCE:									

PLAN EDITION											
PLAN EDITION NUMBER AND DESCRIPTION OF CHANGES:	00 Control plan review										
PLAN DATE:	01/06/2016										
NUMBER OF SHEETS:	4										

NOTES: The product characteristic value is indicated on the single component specific drawing.
The process parameters' values are indicated in the process documentation at the end of the line.
In the column reference document is indicated the specific control plan for each component, linked to the single part number.
REACTION PLAN: the reaction plan is specified in the detailed plans. For non conformities detected during the incoming phase see procedure PR.W.09.10 "Internal and customer nonconformities management".

REFERENCE TO PROCEDURES OR TO SPECIFIC PRESCRIPTIONS	ADDITIONAL REMARKS:	SYMBOLS	brembo	CUSTOMER
		SAFETY	S	
		REGULATORY	R	
		FUNCTIONALITY AND MOUNTABILITY	M	
		IMPORTANT	I	
		PROCESS	P	

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PRODUCTION CYLCE						CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.	PROD. START UP	MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
MA	18.N289.00 Raw brake disc	Acceptance	Package status			Visual Containers / pallets		100%			18.N289_MP_Casting	
			Piece Quantity			Weight check		100%				AX
			CDI suppl. / note code correspondence			Visual CDI suppl. / note		100%				AX
1.1	18.N289.00 Raw brake disc	QSTA Acceptance	Dimensional			Various instrument.				3 Pcs. Yerly per foundry and per cast iron type	18. N289_HP_L7,L15	Acceptance AX Form. FO.LAB.AP-17
			Aspect / Marking			Visual				3 Pcs. Yerly per foundry and per cast iron type		Acceptance AX Form. FO.LAB.AP-17
			HB hardness	S		Hardometer HB				3 Pcs. Yerly per foundry and per cast iron type		Acceptance AX Form. FO.LAB.AP-17
			Integrity	S		Visual / RX				3 Pcs. Yerly per foundry and per cast iron type		Acceptance AX Form. FO.LAB.AP-17
			Mechanical Resistance	S		Wedge Test				3 Pcs. Yerly per foundry and per cast iron type		Acceptance AX Form. FO.LAB.AP-17
			Chemical Composition			Spectrometer Analyser C - S				3 Pcs. Yerly per foundry and per cast iron type		Acceptance AX Form. FO.LAB.AP-17
			Structure			Microscope				3 Pcs. Yerly per foundry and per cast iron type		Acceptance AX Form. FO.LAB.AP-17
			Residual tensions test			bell saw + Sliding gauge				3 Pcs. Yerly per foundry and per cast iron type		Acceptance AX Form. FO.LAB.AP-17
	18.N289.00 Raw brake disc	Verify the presence oxidation	Rust			Visual		100%				Form FO.CCAL.AP-173
			Process parameters (jaw pressure and insert time rating)			CNC						Form FO.CCAL.AP-169 FO.CCAL.AP-175
			Pilot Diameter F		1pc.	Go-not-go plug In-process prench	100%		1 pc. per day			Form FO.CCAL.AP-173
			Trickness brake bands		1pc.	Micrometer In-process bench	100%		1 pc. per day			Form FO.CCAL.AP-173
			Braking band reference height A and/or B compared to the support surface C		1pc.	In process bench Altimeter	100%		1 pc. per day			Form FO.CCAL.AP-173
			Disc Thickiness Variation (DTV)		1pc.	Setup bench In-process bench	100%		1 pc. per day			Form FO.CCAL.AP-173
			Brake Plate Lateral Runout (LRO)		1pc.	Base with comparater In-process bench	100%		1 pc. per day			Form FO.CCAL.AP-173
			Brake plate parallelism		1pc.	Plan with comparater In-process bench	100%		1 pc. per day			Form FO.CCAL.AP-173

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PRODUCTION CYLCE						CONTROL CYCLE							
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.	PROD. START UP	MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
10	08950210 Turned brake disc	Roughing and finishing turning	Package status			Visual Containers / pallets		100%			18. N289_HP_L7,L15 18. N289_HS_L15 18.N289_HS_L7	
			Support surface flatness C		1pc.	Plan with comparater In-process bench	100%		1 pc. per day			Form FO.CCAL.AP-173
			Circular linearity of braking bands		1pc.	Setup bench Roudmeter In-process bench	100%		1 pc. per day			Form FO.CCAL.AP-173
			Rotor Flange Thickiness		1pc.	Micrometer In-process bench	100%		1 pc. per day			Form FO.CCAL.AP-173
			Chamfer on the centering hole diameter F		1pc.	Altimeter Outward gauge		1 pc / 40 pcs	1 pc. per day			Form FO.CCAL.AP-173
			Rotor Outer Diameter		1pc.	Outward gauge			1 pc. per day			Form FO.CCAL.AP-173
			Thickness Bell		1pc.	Digital gauge		1 pc / 40 pcs	1 pc. per day			Form FO.CCAL.AP-173
			Swan Neck Thickness		1pc.	Digital gauge		1 pc / 40 pcs	1 pc. per day			Form FO.CCAL.AP-173
			Other dimensional values as per control cycle		1pc.	Various tools as per control cycle		1 pc / 40 pcs	1 pc. per day			Form FO.CCAL.AP-173
			Other shape and position errors as per control cycle		1pc.	Various tools as per control cycle		1 pc / 40 pcs	1 pc. per day			Form FO.CCAL.AP-173
			Brake surface roughness		1pc.	Profilometer		1 pc / 40 pcs	1 pc. per day			Form FO.CCAL.AP-173
		Drilling	Dimensional diameter fixing holes and diameter positioning hole		1pc.	Go-not-go plugs Outward gauge		2 pc / 40 pcs	2 pc. per day			Form FO.CCAL.AP-173
			Localisation fixing holes and positioning hole		1pc.	Drilling control jig		2 pc / 40 pcs	2 pc. per day			Form FO.CCAL.AP-173
		Balancing	Unbalance value		1pc.	Balancer	100%					Form FO.CCAL.AP-173
			Dimensional miling		1pc.	Gauge		1 pc. in setup	1 pc. per day			Form FO.CCAL.AP-173
		100% check	Dimensional and shape errors		100%	In process control bench	100%		Automatic check with master every 100 pz			Form FO.CCAL.AP-173

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS ---------- PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL ---------- 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
			Package status			Visual Containers / pallets		100%			18. N289_HP_L7.L15 18.N289_MP_VW MEX	
		Surface protection (Protective)	Surface protection type			Visual			1 check per day			Form FO.CCAL.AP-168
		Visual check	Aspect and intactness (cracks, blowholes, porosity, turning, cropping)			Visual		100%				Form FO.CCAL.AP-173
		Intermediate or final package	Arrangement of disks in the containers			Visual		100%	1 check per day			Not applicable
C.F.	08950210 Finished brake disc	OUTGOING QUALITY		Ⓘ Ⓜ Ⓡ Ⓢ		Sundry		100%			18. N289_HP_L7.L15	Acceptance AX FO.CCAL.AP-290
		PRODUCT AUDIT		Ⓘ Ⓜ Ⓡ Ⓢ		Dimensional				Yearly per customer and per cast iron type	According to drawing	Form M.DD.SGGM - 01
						Material						

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SIGNIFICANT CHARACTERISTICS						
	PART NUMBER:	After market brake disc		PREPARED BY:	Plant quality,Process technology,Production,Logistic	
	TYPE:					
	BREMBO DRAWING:	08/09.*****		FILLED IN BY:	PLQUALITY_Du	
	VERSION:	**	MODIFICATION INDEX: **			
	CUSTOMER DRAWING:	**********		APPROVED BY:	BREMBO:	PLQLTY_Li
	LAST CHANGE REF. (DATE, INDEX):	**********			CUSTOMER:	
	PLANTS:	Brembo Nanjing Brake System		DEPLOYMENT:	BREMBO:	
	PFMEA: REF.	**********			CUSTOMER:	

PLAN EXTENSION VALIDITY									
BREMBO DRAWING:									
CUSTOMER REFERENCE:									

PLAN EDITION											
PLAN EDITION NUMBER AND DESCRIPTION OF CHANGES:	00	01(Add control item)	02(Modify control item)	03(new form)							
PLAN DATE:	2013.10.28	2014.9.26	2015.8.20	2016.2.26							
NUMBER OF SHEETS:	6	6	6	7							

NOTES: The product characteristic value is indicated on the single component specific drawing.
The process parameters' values are indicated in the process documentation at the end of the line.
In the column reference document is indicated the specific control plan for each component, linked to the single part number.
REACTION PLAN: the reaction plan is specified in the detailed plans. For non conformities detected during the incoming phase see procedure PR.W.09.10 "Internal and customer nonconformities management".

REFERENCE TO PROCEDURES OR TO SPECIFIC PRESCRIPTIONS	ADDITIONAL REMARKS:	SYMBOLS	brembo	CUSTOMER
PR.W-07.06		SAFETY	S	
		REGULATORY	R	
		FUNCTIONALITY AND MOUNTABILITY	M	
		IMPORTANT	I	
		PROCESS	P	

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE							
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS / PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
	08/09.***** Raw brake disc制动盘毛坯	Incoming goods warehouse acceptance仓库进货检查	Package status 包装状态检查			Visual containers/pallets 目测货箱/托盘		100%			CDI	
			Quantity数量			Visual目视检查&ERP 核对checking		100%				AX
			CDI suppl. / note code correspondence 铸造厂代号/发货单一致性			Visual CDI suppl. / note目测 铸造厂代号/发货单		100%				
			Aspect / Marking通风道内毛刺/外观/标记			Visual目视检查			acc toincoming cheking card	1pc/year 1件/年		
			HB hardness布氏硬度	(S)		Hardometer HBW布氏硬度计						CQC by supplier供应商CQC报告 CQC by supplier供应商CQC报告 Material report实验室出具的
			Mechanical Resistance 楔压强度	(S)		Wedge Test 楔压强度试验机						CQC by supplier供应商CQC报告 Material report实验室出具的
			Chemical Composition化学成分 参见BDS-05.10			Spectrometer Analyser C - S 光谱仪，碳硫分析仪						CQC by supplier供应商CQC报告 Material report实验室出具的

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FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS / PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
			金相 metallographic structure			metallurgical microscope金相显微镜						CQC by supplier供应商CQC报告 Material report实验室出具的
			内部结构internal struction			X-RAY						CQC by supplier供应商CQC报告 Material report实验室出具的
			残余应力 residual stress			Wedge Test 楔压强度试验机						CQC by supplier供应商CQC报告 Material report实验室出具的
OP05	08/09.***** Raw brake	OP10操作者Oprator	correct casting or not/set up ok or			Visual目视检查&POKA YOKE		100%			CDI	
OP10	08/09.***** Turned brake disc机加工后的制动盘	1.粗加工制动面A + 反面/Rough machining brake face A+opposite face; 2.精车车毂外圆 /finish machining external hub 3.粗加工A面沟槽/Rough machining groove of surface A，4.粗加工中心孔Rough machining center hole	D面到A面距离distance from surface C to A 41.85±0.1mm			Depth gauge深度尺		1pc/change insert 1件/刀片更换			FAO	
			毂外圆直径External hub diameter(Φ183±0.5mm)		1pcs	游标卡尺vernier caplier&Marposs	100% control in marposs bench	1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pcs/shift	1pc/year1件/年	control cycle检验工艺 I.QSTA.CF-	Registration table自检单 Brake disc start of production
			D面到A面沟槽距离distance from surface C to groove of surface A 44.8±0.1mm			高度尺heigh gauge		1pc/change insert 1件/刀片更换			FAO	
			中心孔的直径(Φ74.5±0.2mm)Center hole diameter			游标卡尺vernier caplier		1pc/change insert 1件/刀片更换				

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE							
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS / PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
OP20		1.粗加工外径Ø + 粗加工制动面 B /Rough machining external diameter Ø + brake surface B 2.粗加工制动面B的小台阶+制动道+毂内圆 + 支承面 + 中心孔倒角/ rough maching the small step of brake face B+hole of surface B+internal hub+ positioning face C+chamfer of center hole；	粗加工大外圆Rough machining external diameter 335±0.2			vernier caliper游标卡尺		1pc/change insert 1件/刀片更换				
			粗加工制动面B rough machining brake surface B 25.1±0.1mm			外径千分尺 micrometer		1pc/change insert 1件/刀片更换				
			粗加工轮毂安装面C面 rough machining assembly surface C（59.2±0.1mm）			height gauge深度尺		1pc/change insert 1件/刀片更换				
			粗加工毂内圆直径Internal diameter of hub(Φ171.3±0.2mm)			vernier caliper内径游标卡尺		1pc/change insert 1件/刀片更换				
			制动面B内径diameter of surface BΦ180~180.5mm		1pcs	vernier caliper内径游标卡尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年	control cycle检验工艺 I.QSTA.CF-06Instruction指导书	Brake disc start of production Registration table自检单
OP30		1.精加工外径Ø +车加工倒角fine machining external diameterØ +turning chamfer 2.粗加工双制动面/rough machining on two face at the same time 3.精加工制动面B的小	精加工大外圆finish machining outer diameter (Φ329.8~330mm)	Ⓘ Ⓦ	1pc	Vernier gauge 游标卡尺		1pc/change insert 1件/刀片更换 5pcs/shift 5件/班	1pc/shift 1件/班	1pc/year1件/年		Registration table自检单X-bar Brake disc start of production
			粗加工双制动面finish machining brake			micro meter外径千分尺		1pc/change insert 1件/刀片更换			FAO	
			毂内圆直径 internal hub（Φ171.8-Φ172.0mm）		1pcs	塞规P/NP gague/marposs	100% control in marposs bench	1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年	control cycle检验工艺 I.QSTA.CF - 24 instruction指导书 I.QSTA.CF-06Instruction指导书	Brake disc start of production Registration table自检单
OP40		1.精加工中心孔 + 支承面fine machining center hole+C 2.精加工制动面A沟槽 +反面fine machining groove of surface A+C 3.精加工双制动面fine machining brake surface	制动面单边厚度signal thickness of surface A 7~8mm		1pcs	Vernier gauge 游标卡尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单
			制动面单边平行parallelism of of signal surface 0.8		1pcs	Vernier gauge 游标卡尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单
			C面部分直径section diameter of surface C 147~149mm		1pcs	Vernier gauge 游标卡尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单

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PRODUCTION CYLCE					PROD. START UP	CONTROL CYCLE						
FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS / PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
			B面沟槽深度 depth of groove B0.2~0.6mm		1pc	Depth gauge深度尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单
OP40	08/09.***** Turned brake disc机加工后的制动盘	1.精加工中心孔 + 支承面fine machining center hole+C 2.精加工制动面A沟槽+反面fine machining groove of surface A+C 3.精加工双制动面fine machining brake surface	制动面B面到反面(C面)的高度Distance from surface B to surface C（58.8mm~59mm）	◈	1pc	MARPOSS/heigh gauge高度尺、	100% control in marposs bench	1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年	control cycle检验工艺 I.QSTA.CF-06Instruction指导书	Brake disc start of production Registration table自检单
			D面部分直径section diameter of surface D 163mm		1pcs	Vernier gauge 游标卡尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单
			A面沟槽深度 depth of groove A 3.3~3.6mm		1pc	Depth gauge深度尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单
			AB面沟槽直径 diameter of groove AB 209±0.5mm		1pc	Vernier gauge 游标卡尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单
			毂内圆直径上 internal hub upper（Φ169.9-Φ170.2mm）		1pcs	Vernier gauge 游标卡尺		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单
			制动面对C面平行度parallelism of brake surface to surface C 0.1mm		1pcs	MARPOS	100% control in marposs bench	100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production approval首件批准表
			安装面平行度parallelism of mounting surface 0.08mm		1pcs	MARPOS	100% control in marposs bench	100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production approval首件批准表
			安装面厚度thickness of mounting surface7~7.3mm		1pcs	MARPOSS/micro meter 千分尺	100% control in marposs bench	1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production Registration table自检单
			制动面周向平行度circular parallelism of brake surface0.01mm	◈	1pcs	MARPOS	100% control in marposs bench	100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production approval首件批准表

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FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS / PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
			制动面与C面跳动 runout B/brake surface 0.035mm	◊	1pcs	MARPOS	100% control in marposs bench	100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production approval首件批准表
			制动面直线度straightness 0.015mm	◊	1pcs	MARPOS	100% control in marposs bench	100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production approval首件批准表
			精加工中心孔/fine machining center hole(Φ75~75.046mm)	M	1pcs	MARPOSS/stop-pass gauge塞规	100% control in marposs bench	1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Registration table自检单 Brake disc start of production
			制动面厚度thickness of brake surface23.8~24mm	◊ W	1pcs	MARPOSS/micro meter 千分尺	100% control in marposs bench	1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Registration table自检单 Brake disc start of production
			C面平面度 flatness of surface C0.04mm		1pcs	MARPOS	100% control in marposs bench	100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production approval首件批准表
			制动面径向平行度 radius parallelism of brake surface 0.03mm		1pcs	MARPOS	100% control in marposs bench	100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production approval首件批准表
			中心孔倒角chamfer of center hole4.3~4.8mm	◊	1pcs	游标卡尺Caliper		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Registration table自检单 Brake disc start of production
			中心孔倒角chamfer of center hole44~46°	◊	1pcs	轮廓仪profile			1pc/week 每周一件	1pc/year1件/年		Brake disc start of production
			制动面粗糙度roughness of brake surface Ra0.5~3.5		1pcs	粗糙度仪roughness device		Last ps of insert 换刀前末件 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Registration table自检单 Brake disc start of production

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FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS / PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
OP50	08/09.***** Tumed brake disc机加工后的制动盘	钻孔drill hole（本道工序检查设在最终的目视检查工序进行the checking task should be performed at the end of the line with visual checking)	孔径diameter Φ12.6~12.78mm Φ17~17.3mm Φ16.5~16.8mm		1pcs	通止规C05/12.6-12.78,C05/16.5-16.8,C04/17.00-17.30		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年	control cycle检验工艺 I.QSTA.CF - 24 instruction指导书 I.QSTA.CF-06Instruction指导书	Registration table自检单 Brake disc start of production
			孔深度hole depth4~4.3mm		1pcs	高度尺height gauge		1pc/change insert 1件/刀片更换 1pc/h 1件/小时	1pc/shift 1件/班	1pc/year1件/年		Registration table自检单 Brake disc start of production
			孔的位置度location of hole	Ⓘ	1pcs	位置度检具MASK M.CF.C02.2309.00 3D		1pc/change insert 1件/刀片更换 100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production
OP60	08/09.***** Tumed brake disc机加工后的制动盘	Balancing平衡	不平衡量Unbalance value 2Nmm MAX		1pc	平衡机	yes	100%	set up换型	1pc/year1件/年		Brake disc start of production
			最多允许2次铣削NR of admitted millings 2MAX		1pc	Visual目测	yes	100%	set up换型	1pc/year 1件/年		Brake disc start of production
			Dimension of milling铣削宽度（14±.1 mm)铣削深度（3.7mm MAX)，对称度0.5，R3 min		1pc	Vernial caliper游标卡尺		1pc/change insert 1件/刀片更换	set up换型	1pc/year1件/年		Brake disc start of production
OP70		Marking打标记	Marking标记	Ⓜ	1pc	Visual目测		100%	1pc/shift 1件/班	1pc/year1件/年		Brake disc start of production

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FLOW CHART REF.	PART NUMBER / PRODUCT DESCRIPTION	OPERATION PHASE	PRODUCT CHARACTERISTICS / PROCESS PARAMETER	CRITIC. CHARACT.		MACHINE / MEAN / CRITERIA	AUTOMATED CONTROL	CONTROL PLAN AND FREQUENCY FOR EACH LEVEL 1 - SELF-MON.	2 - INSPEC.	3 - AUDIT	REFERENCE DOCS.	CONTROL RECORDING
			Dimension尺寸	Ⓦ	1pc	Vernial caliper游标卡尺		1pc/change insert 1件/针头更换				
									set up换型	1pc/year1件/年		Brake disc start of production
OP80	08/09.***** Turned brake disc机加工后的制动盘	100% inspection检查	Marposs measurement马波斯检查	Ⓘ Ⓜ Ⓦ	1pc	MARPOSS	yes				图纸 Drawing	
								100 %				
										1pc/year1件/年		Brake disc start of production
OP90		Surface protection表面保护	Concentration of the antirust liquid 防锈液浓度		1pc	concentration meter浓度计					布雷博标准Brembo standard BDS-11.13	
									1st shift/day 每日首班			concentration record of antirusty liquid
OP100		Visual checking 目视检查+location of hole位置度检查	机加工后可接受铸造缺陷标准 Casting Defects Acceptability Limits of finished discs	Ⓢ	1pc	目测visual+位置度检具MASK		100%			QSTA.CF-38机加工后可接受铸造缺陷标准 Casting Defects Acceptability Limits of finished discs	
									1pc/shift 1件/班			defect statistics report缺陷统计表
										1pc/year1件/年		
		RF test 固有频率测试	1' mode第一模态			TQM bench固有频率测			1、每毛坯批次20件 2、当毛坯批次数量大于	1pc/year1件/年		RF test record 固有频率测试记录表
OP110		packaging包装	Packaging materia制动盘包装箱及其附属材料			目测visual		100%			包装工艺 packaging instruction	
									1carton/shift 1箱/班			
		Final packaging最终包装	Packaging materia制动盘包装箱及其附属材料			Visual目测		100%			包装工艺 packaging instruction	
									1箱/批 1carton/batch			

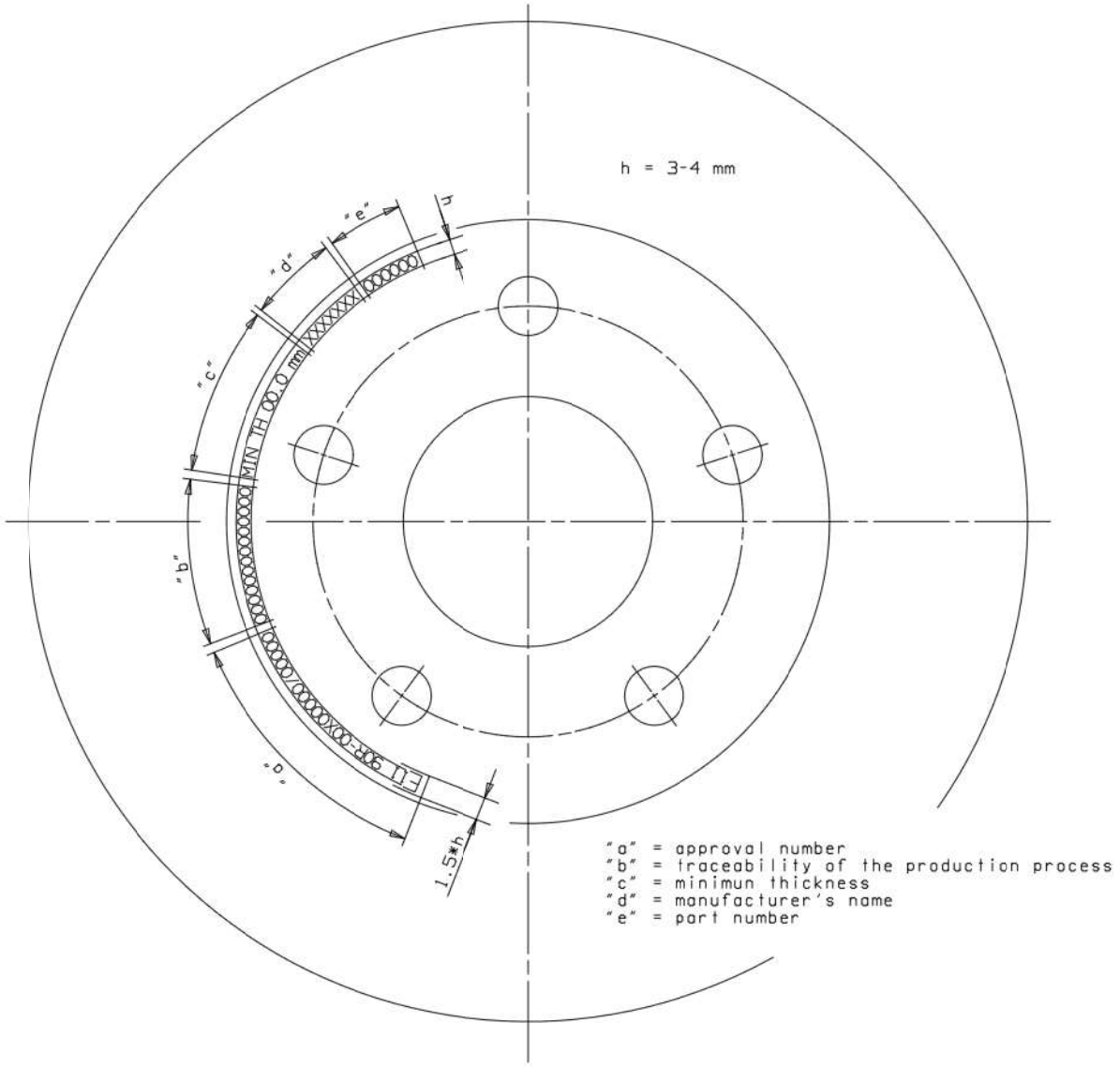
GL H 05 (Sub Group 2)		
Chemical composition	% Carbon contenent	3.60 ÷ 3.90
	% Silicon contenent	1.60 ÷ 2.20
	% Manganese contenent	0.40 MIN
	% Chromium contenent	0.35 MAX
	% Copper contenent	0.30 ÷ 0.70
Microstructure	Matrix	Pearlitic; fine lamellar
Mechanical proprieties	Hardeness ISO 6506-1:2005 HBW	160 – 210
	Tensile strength to ISO 6892:1998 N/mm²	160 MIN

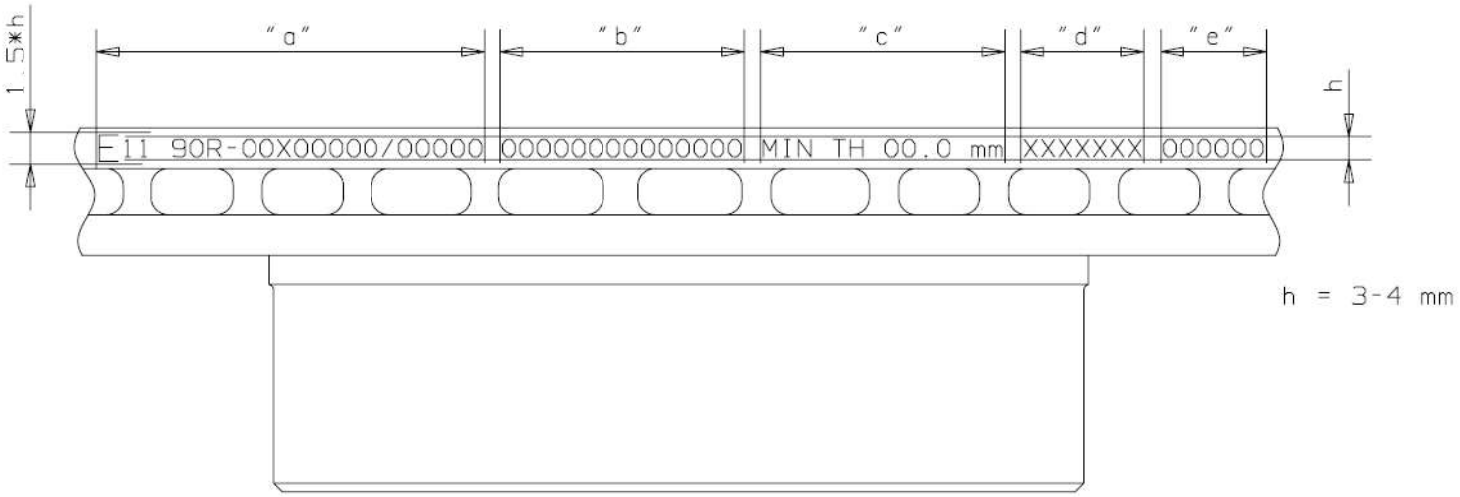
BREMBO XTRA	RACING	AP XTRA	OE REFERENCE	WEIGHT DISC [kg]	APPLICATION	MODEL	YEAR FROM	YEAR TO	FRONT - REAR	VEHICLE MAX SPEED [km/h]	PAY LOAD [kg]
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	AUDI	A4 (8D2, B5)	11/94	09/01	FRONT	205	1840
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	AUDI	A4 (8E2, B6)	11/00	12/04	FRONT	201	1940
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	AUDI	A4 (8EC, B7)	11/04	06/08	FRONT	206	2020
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	AUDI	A4 Avant (8D5, B5)	11/94	09/01	FRONT	201	1885
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	AUDI	A4 Avant (8E5, B6)	04/01	12/04	FRONT	197	1995
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	AUDI	A4 Avant (8ED, B7)	11/04	06/08	FRONT	200	2080
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	SEAT	EXEO (3R2)	12/08	-	FRONT	216	2030
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	SEAT	EXEO ST (3R5)	05/09	-	FRONT	210	2090
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	VW	PASSAT (3B2)	08/96	12/01	FRONT	206	2160
09.7196.1X	59.7196.1Z	24700 X	8E0615301B 8E0615301D 8E0615301P	6,3	VW	PASSAT Variant (3B5)	05/97	12/01	FRONT	200	2160
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	MAZDA	3 (BK)	10/03	12/09	FRONT	182	1825
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	MAZDA	3 (BL)	12/08	-	FRONT	187	1830

BREMBO XTRA	RACING	AP XTRA	OE REFERENCE	WEIGHT DISC [kg]	APPLICATION	MODEL	YEAR FROM	YEAR TO	FRONT - REAR	VEHICLE MAX SPEED [km/h]	PAY LOAD [kg]
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	MAZDA	3 Saloon (BK)	09/99	06/09	FRONT	185	1810
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	MAZDA	3 Saloon (BL)	12/08	-	FRONT	188	1815
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	MAZDA	5 (CR19)	02/05	-	FRONT	197	2250
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	MAZDA	5 (CW)	09/10	-	FRONT	194	2125
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	MAZDA	PREMACY (CP)	07/99	03/05	FRONT	188	1980
09.9464.2X	**59.9464.2Z**	**24957 X**	**BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD**	**7,3**	**MAZDA (CHANGAN)**	**3 Saloon**	**01/11**	**-**	**Front**	**240**	**1930**
09.9464.2X	**59.9464.2Z**	**24957 X**	**BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD**	**7,3**	**MAZDA (CHANGAN)**	**3 Saloon**	**02/06**	**12/14**	**Front**	**240**	**1930**

BREMBO XTRA	RACING	AP XTRA	OE REFERENCE	WEIGHT DISC [kg]	APPLICATION	MODEL	YEAR FROM	YEAR TO	FRONT - REAR	VEHICLE MAX SPEED [km/h]	PAY LOAD [kg]
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	MAZDA (CHANGAN)	3 Hatchback	09/11	-	Front	206	1965
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	JEEP (GAC)	COMPASS	12/16	-	Rear	190	1610
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	JEEP (GAC)	COMPASS 4x4	11/17	-	Rear	190	1505
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	JEEP (GAC)	RENEGADE T	05/16	-	Rear	196	1610
09.9464.2X	59.9464.2Z	24957 X	BP4Y3325XB BP4Y3325XC BP4Y3325XD C24Y3325XB C24Y3325XC C24Y3325XD	7,3	JEEP (GAC)	RENEGADE D-VVT 4x4	09/16	-	Rear	196	1610
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	HYUNDAI	i30 (GD)	11/11	-	FRONT	197	1940
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	HYUNDAI	i30 CW (GD)	06/12	-	FRONT	197	1940
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	HYUNDAI	VELOSTER (FS)	03/11	-	FRONT	214	1685
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	HYUNDAI	i30 Coupe	05/13	-	FRONT	197	1940
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	KIA	CEE`D Sportswagon (JD)	09/12	-	FRONT	197	1940
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	KIA	CEE'D (JD)	05/12	-	FRONT	200	1850
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	KIA	PRO CEE´D (JD)	03/13	-	FRONT	200	1850
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	HYUNDAI	ELANTRA Saloon (MD, UD)	09/10	-	FRONT	195	1900

BREMBO XTRA	RACING	AP XTRA	OE REFERENCE	WEIGHT DISC [kg]	APPLICATION	MODEL	YEAR FROM	YEAR TO	FRONT - REAR	VEHICLE MAX SPEED [km/h]	PAY LOAD [kg]
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	HYUNDAI	KONA (OS)	06/17	-	Front	228	1800
09.C249.1X	59.C249.1Z	25495 X	51712-2V000 51712-A6000	6,3	HYUNDAI (BEIJING)	ELANTRA / LANGDONG	01/12	-	Front	228	1840
09.C249.1X	/	25495 X	51712-2V000 51712-A6000	6,3	HYUNDAI (BEIJING)	ELANTRA / LINGDONG	03/16	-	Front	228	1840
09.C249.1X	/	25495 X	51712-2V000 51712-A6000	6,3	KIA (DYK)	K3	10/12	-	Front	213	1230
09.C249.1X	/	25495 X	51712-2V000 51712-A6000	6,3	KIA (DYK)	K3S Hatchback	04/14	-	Front	220	1230
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	AUDI	A3 Convertible (8V7, 8VE)	10/13	-	FRONT	203	1875
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	AUDI	A3 Limousine (8VS, 8VM)	05/13	-	FRONT	202	1940
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	AUDI	A3 Sportback (8VA, 8VF)	09/12	-	FRONT	193	1940
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	SEAT	LEON (5F1)	09/12	-	FRONT	215	1870
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	SEAT	LEON SC (5F5)	01/13	-	FRONT	215	1820
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	SEAT	LEON ST (5F8)	08/13	-	FRONT	215	2030
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	SKODA	OCTAVIA III (5E3)	11/12	-	FRONT	219	1976
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	SKODA	OCTAVIA III Combi (5E5)	11/12	-	FRONT	216	2075
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	VW	GOLF ALLTRACK (BA5)	12/14	-	FRONT	192	2040
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	VW	GOLF SPORTSVAN (AM1)	02/14	-	FRONT	212	1940
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	VW	GOLF VII (5G1, BQ1, BE1, BE2)	08/12	-	FRONT	222	2040
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	VW	GOLF VII Estate (BA5, BV5)	04/13	-	FRONT	213	2040
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	SKODA (SVW)	OCTAVIA	01/14	-	Front	190	2.730
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	VW (FAW)	GOLF SPORTSVAN	05/16	-	Front	192	1420
09.C547.1X	/	25631 X	5Q0 615 301 A	6,6	VW (FAW)	GOLF VII	12/13	-	Front	220	2.110





"a" = approval number
"b" = traceability of the production process
"c" = minimun thickness
"d" = manufacturer's name
"e" = part number