

INGENIARITZA MEKANIKOKO GRADUA
GRADU AMAIERAKO LANA

***AUTOMOBIL BATEN ABIADURA-KAXAREN
DISEINUA***

4. DOKUMENTUA- PLANOAK

Ikaslea: Lertxundi, Saez, Eneko

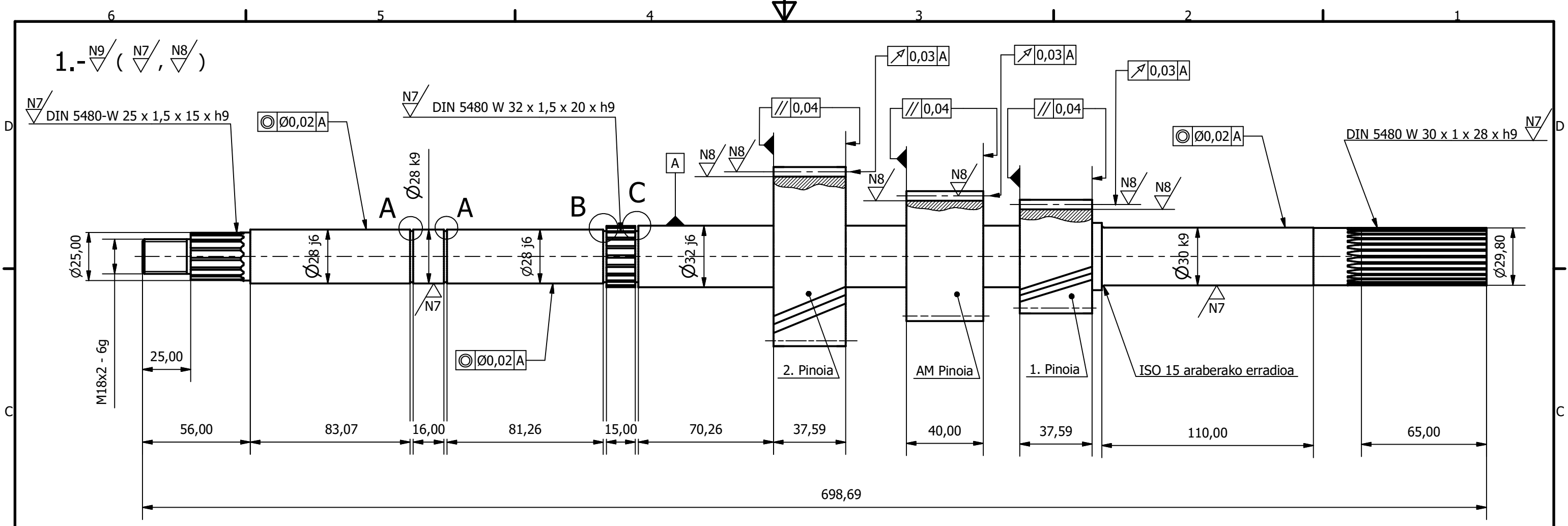
Zuzendaria : Santos, Pera, Juan Antonio

Ikasturtea: 2018-2019

Data: Bilbon, 2019ko otsailaren 8an

4. DOKUMENTUA: PLANOAK

ABIADURA KAXA.....	2
ARDATZ PRIMARIOA.....	3
ARDATZ SEKUNDARIOA.....	4
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GURPIL ASKEAK	6
GURPIL FINKOAK	7
SINKRONIZATZAILEAK.....	8
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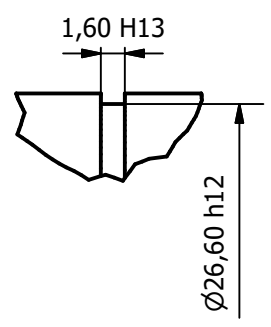
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D30	k9	+0,052 0
1,6	H13	+0,14 0
D26,6	h12	0 -0,21
Kota	Doikuntza	Perdoia

2. PINOIA	
Modulua	4 mm
Hortz kopurua	20
Eraso angelua	20°
Inklinazioa	Ezkerra
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	85,131 mm
Kanpo diametroa	93,131 mm
Barne diametroa	75,131 mm

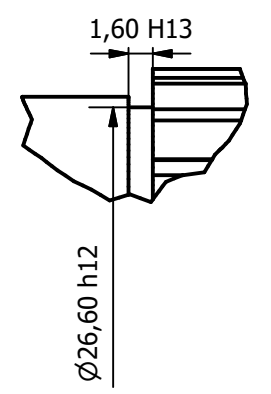
A.M. PINOIA	
Modulua	4 mm
Hortz kopurua	15
Eraso angelua	20°
Oinarrizko diametroa	60 mm
Kanpo diametroa	68 mm
Barne diametroa	50 mm

1. PINOIA	
Modulua	4mm
Hortz kopurua	12
Eraso angelua	20°
Inklinazioa	Ezkerra
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	51,01 mm
Kanpo diametroa	59,01 mm
Barne diametroa	41,01 mm

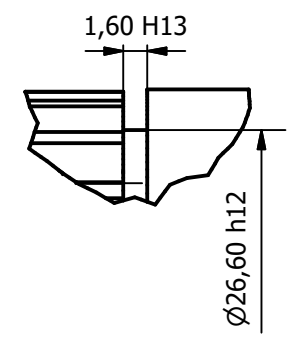
A (2:1)


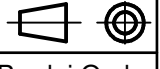


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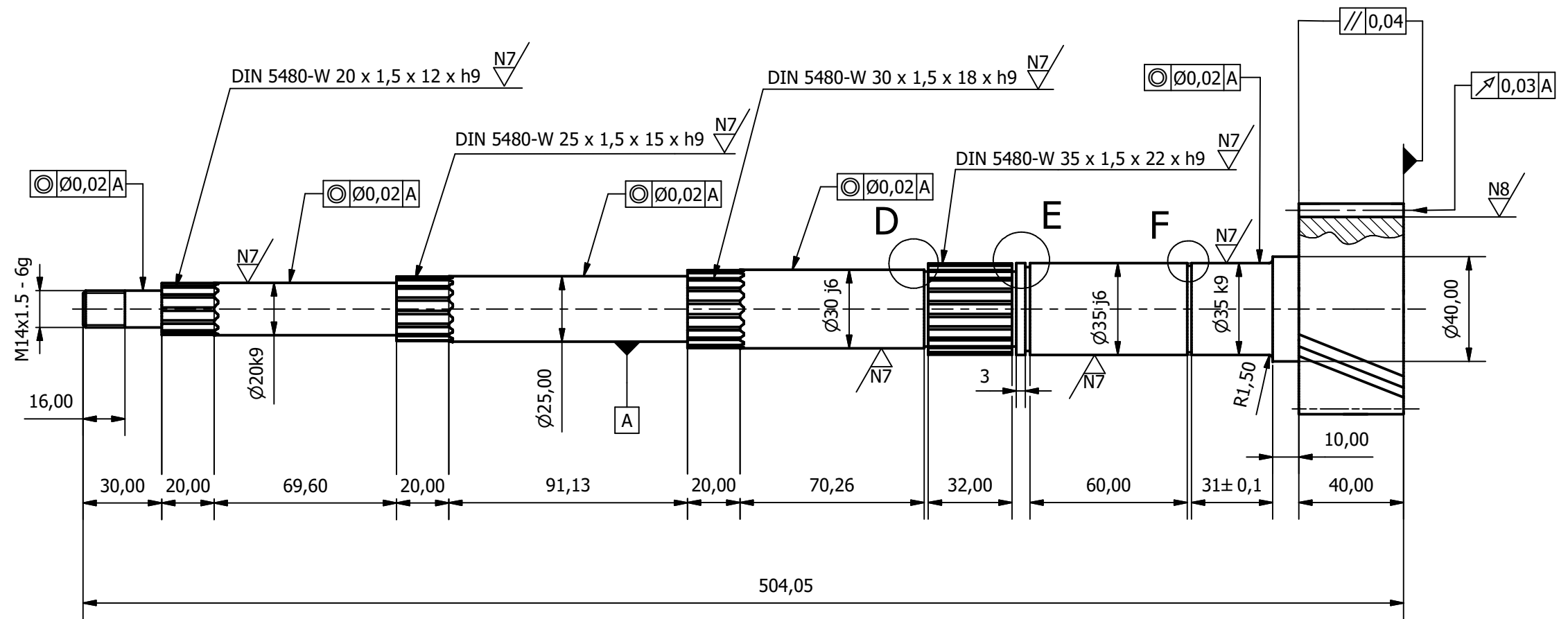
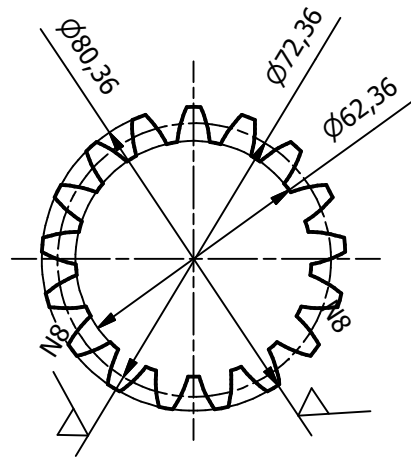


C (2:1)

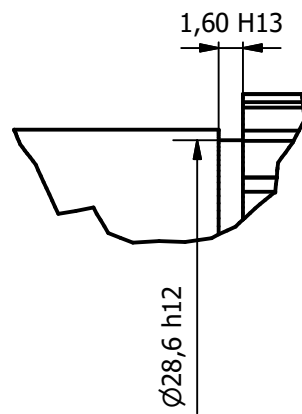


1	1	Ardatz primarioa	M-03-1234-P01	34NiCrMo6	4.37 kg
MARKA	KANT.	IZENDAPENA	ARAUDIA/PLANOIA	MATERIALA	MASA
Marraztua :	2019/01/28	Izen-Abizenak	Sinadurak	 EUSKAL HERRIKO UNIBERTSITATEA BILBOKO INDUSTRIA INGENIARITZA TEKNIKORAKO UNIBERTSITATE ESKOLA	
Gainbegiratua :					
Homologatua :					
 Eskala 1:2 (2:1)		Ardatz primarioa		AUTOMOBIL BATEN ABIADURA-KAXAREN DISEINUA Plano Zkia. : M-03-1234-P01 Plano Kop. : 2 / 8	

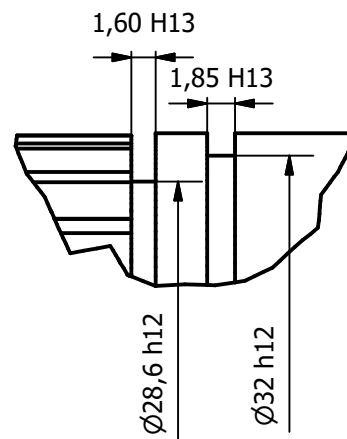
2.- $\nabla_{N9} / (\nabla_{N8} / \nabla_{N7})$



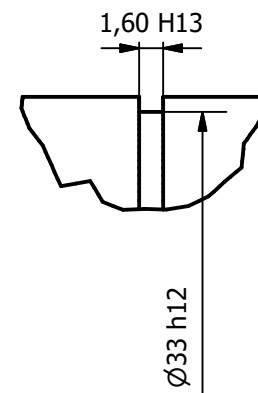
D (2:1)



E (2:1)



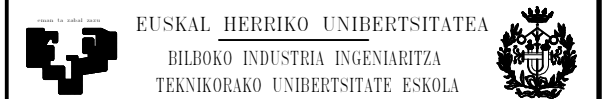
F (2:1)



PINOI DIFERENTZIALA	
Modulua	4 mm
Hortz kopurua	17
Eraso angelua	20°
Inklinazioa	Eskuina
Inklinazio angelua	20°
Zabalera	40 mm
Oinarrizko diametroa	72,36 mm
Kanpo diametroa	80,36 mm
Barne diametroa	62,36 mm

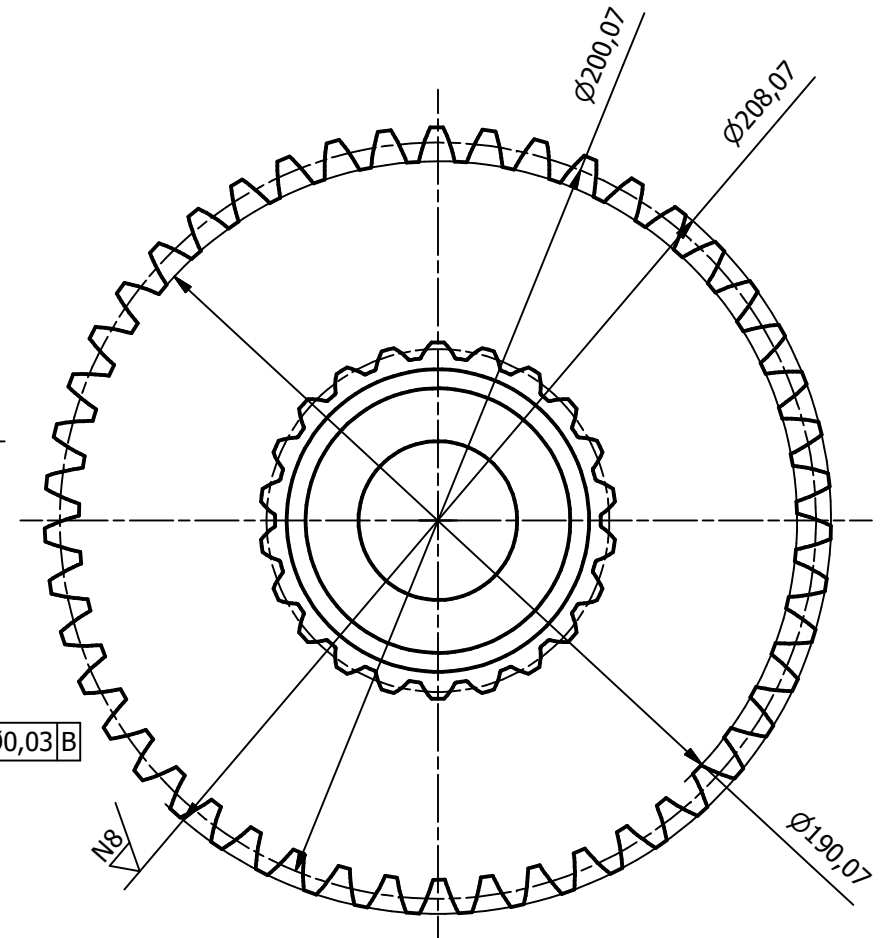
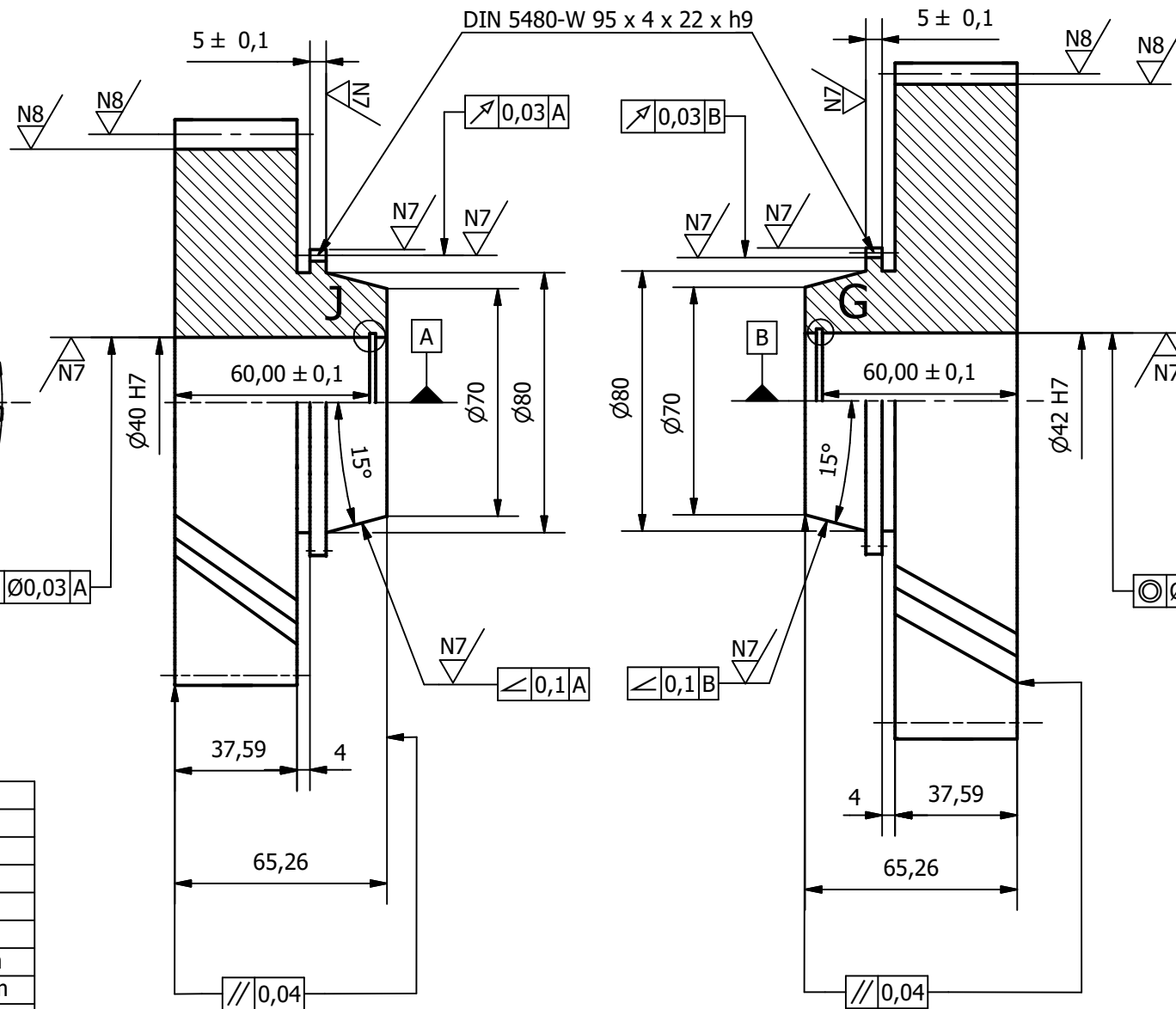
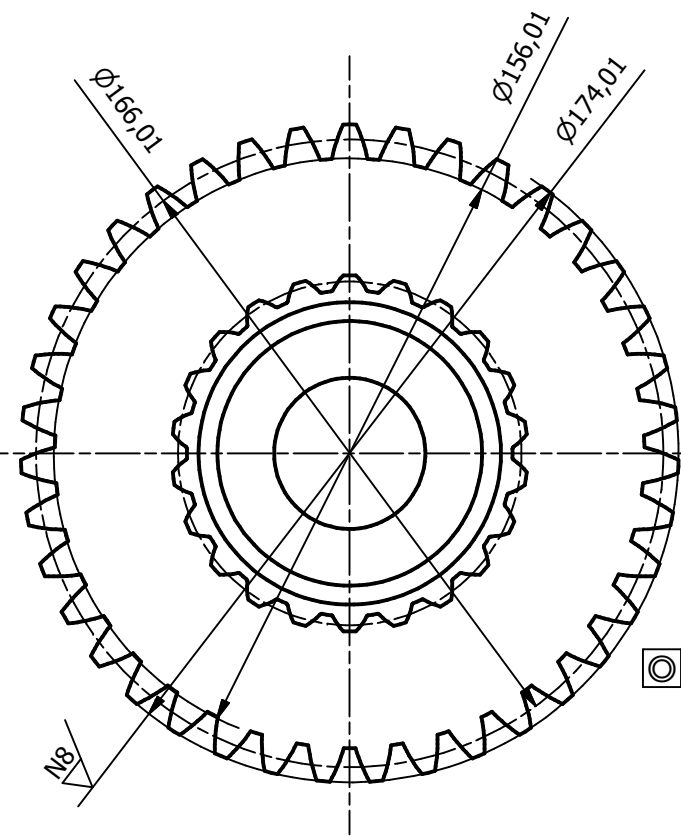
D35	k9	+0,062 0
D35	j6	+0,016 0
D30	j6	+0,013 0
D20	k9	+0,052 0
1,85	H13	+0,14 0
1,6	H13	0,014 0
D33	h12	0 -0,25
D32	h12	0 -0,25
D28,6	h12	0 -0,21
Kota	Doikuntza	Perdoia

2	1	Ardatz sekundarioa	M-03-1234-P02	34NiCrMo6	3.28 kg
MARKA	KANT	IZENDAPENA	ARUDIA/PLANOA	MATERIALA	MASA
		Data	Izen-Abizenak	Sinadurak	
Marraztua :		2019/01/28	Eneko Lertxundi Saez		
Gainbegiratua :					
Homologatua :					
Eskala		Ardatz sekundarioa		AUTOMOBIL BATEN ABIADURA-KAXAREN DISEINUA	
Perdoi Orok.		1:2 (2:1)		Plano Zkia. : M-03-1234-P02	
ISO 2768-m				Plano Kop. : 3 / 8	



5.- ∇_{N9} / (∇_{N8} / ∇_{N7})

4.- ∇_{N9} / (∇_{N8} / ∇_{N7})

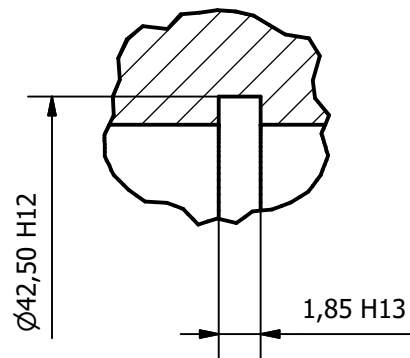


2. GURPILA	
Modulua	4mm
Hortz kopurua	39
Eraso angelua	20°
Inklinazioa	Ezkerra
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	166,01 mm
Kanpo diametroa	174,01 mm
Barne diametroa	156,01 mm

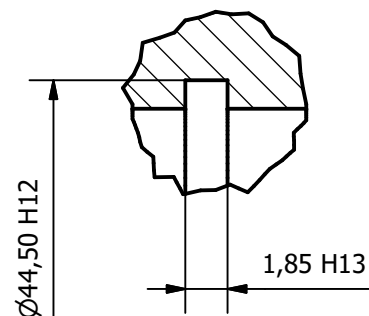
1. GURPILA	
Modulua	4mm
Hortz kopurua	47
Eraso angelua	20°
Inklinazioa	Eskuina
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	200,07 mm
Kanpo diametroa	208,07 mm
Barne diametroa	190,07 mm

D42	H7	+0,025 0
D40	H7	+0,025 0
1,85	H13	+0,014 0
D42,5	h12	0 -0,25
D44,5	h12	0 -0,25
Kota	Doikuntza	Perdoia

J (3:1)

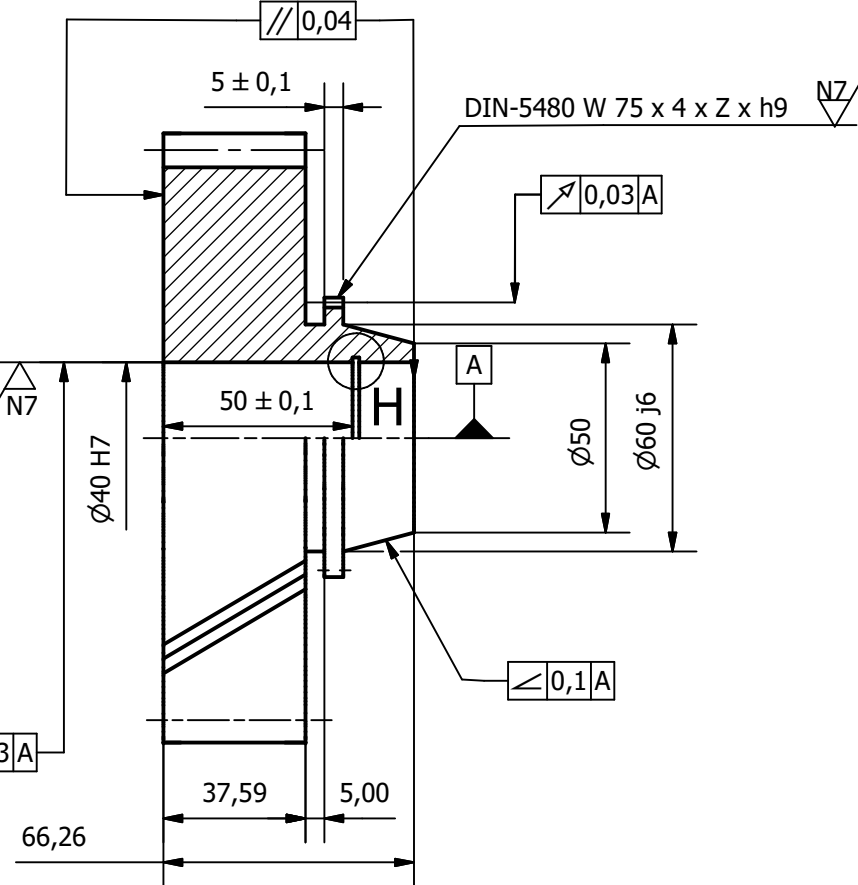
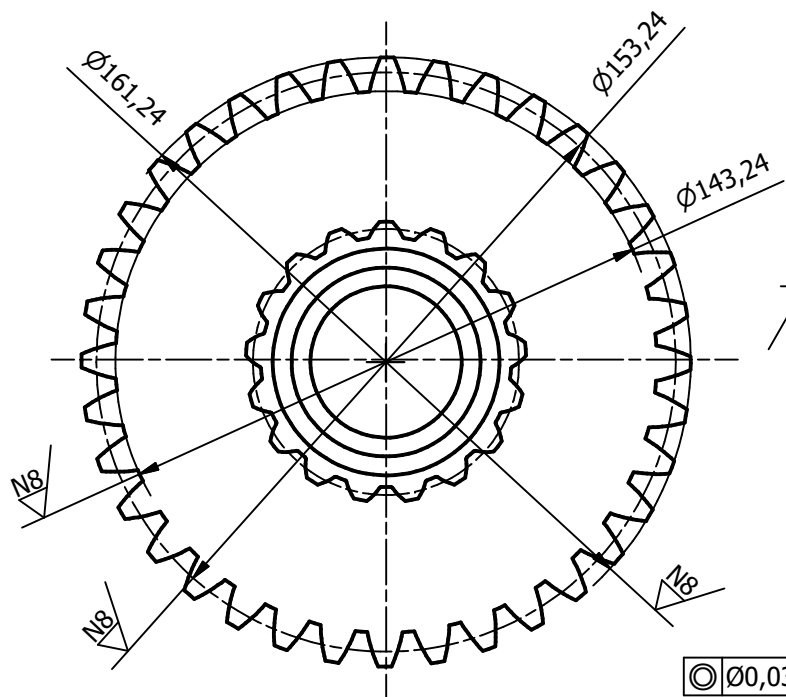


G (3:1)

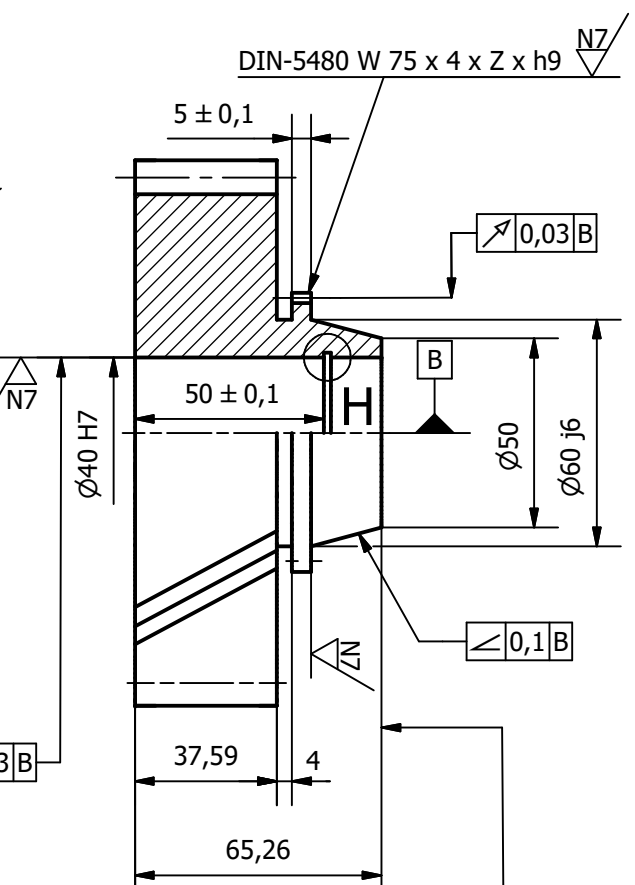
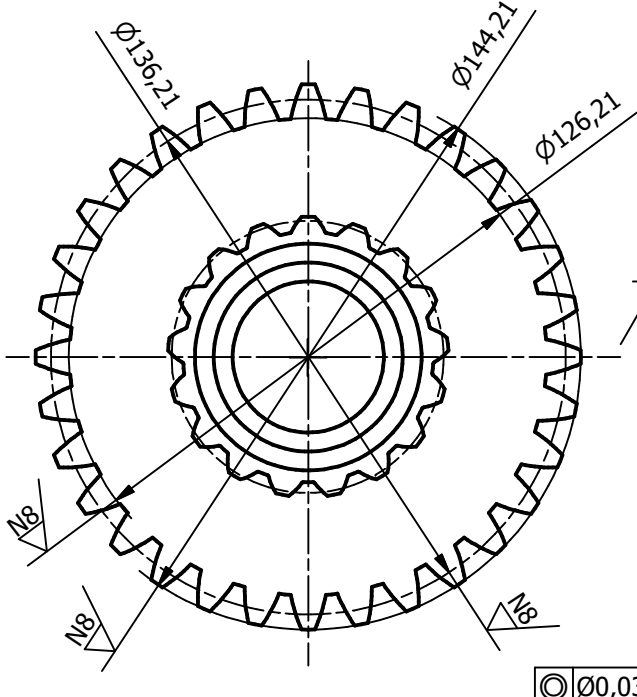


5	1	2. Gurpila	M-03-1234-P03	14NiCrMo13	3.57 kg
4	1	1. Gurpila	M-03-1234-P03	14NiCrMo13	4.90 kg
MARKA	KANT.	IZENDAPENA	ARAUDIA/PLANOA	MATERIALA	MASA
Marraztua :	2019/01/28	Izen-Abizenak	Sinadurak	EUSKAL HERRIKO UNIBERTSITATEA BILBOKO INDUSTRIA INGENIARITZA TEKNIKORAKO UNIBERTSITATE ESKOLA	
Gainbegiratua :				AUTOMOBIL BATEN ABIADURA-KAXAREN DISEINUA	
Homologatua :				Plano Zkia. : M-03-1234-P03	
Eskala	1:2 (3:1)		Gurpil askeak		
Perdoi Orok.	ISO 2768-m		Plano Kop. : 4 / 8		

8.- ∇_{N9} (∇_{N8} , ∇_{N7})



7.- ∇_{N9} (∇_{N8} , ∇_{N7})



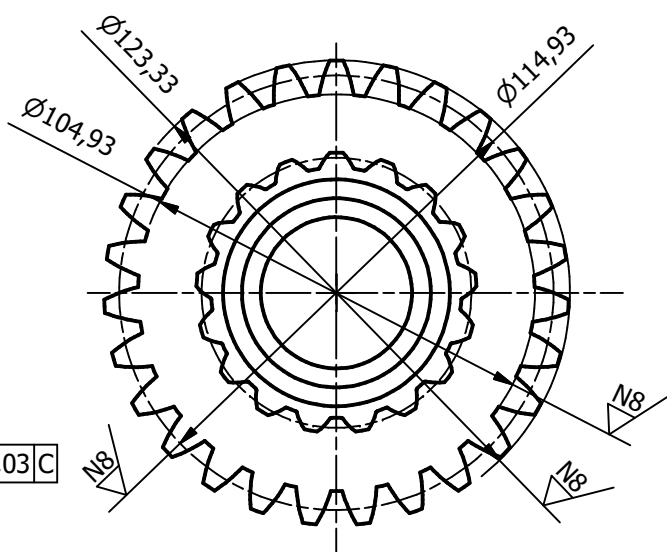
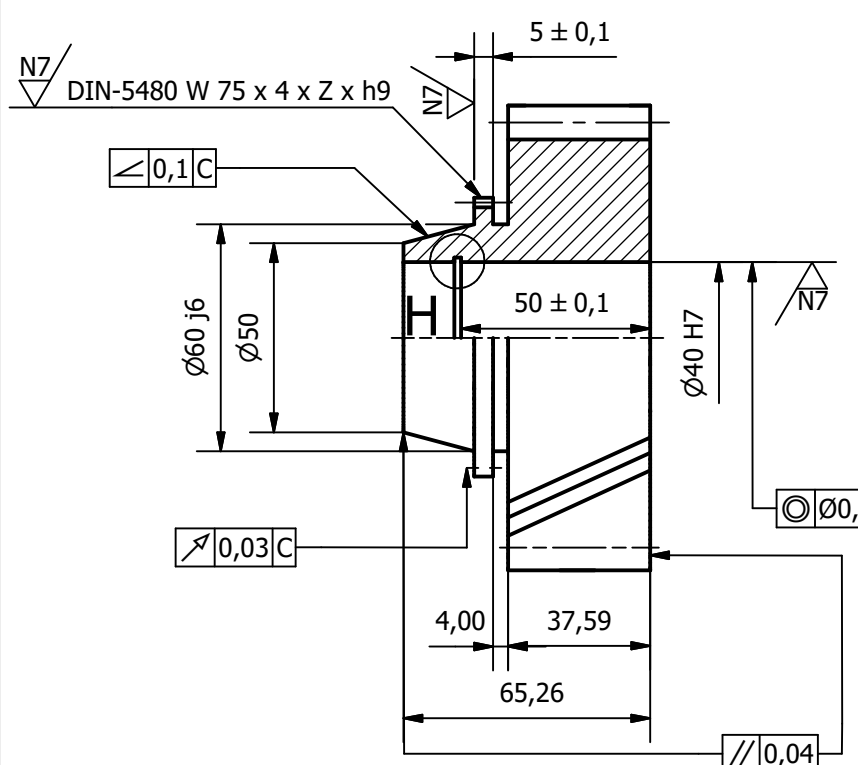
D74	h9	0 -0,074
D40	H7	+0,025 0
Kota	Doikuntza	Perdoia

5. GURPILA	
Modulua	4mm
Hortz kopurua	36
Eraso angelua	20°
Inklinazioa	Ezkerra
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	153,24 mm
Kanpo diametroa	161,24 mm
Barne diametroa	143,24 mm

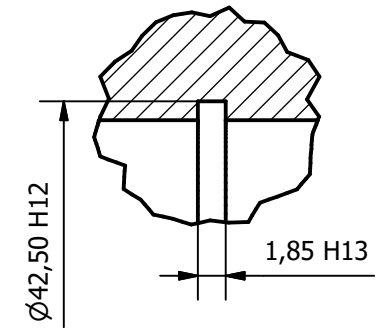
3. PINOIA	
Modulua	4mm
Hortz kopurua	27
Eraso angelua	20°
Inklinazioa	Ezkerra
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	114,93 mm
Kanpo diametroa	122,93 mm
Barne diametroa	104,93 mm

4. GURPILA	
Modulua	4mm
Hortz kopurua	32
Eraso angelua	20°
Inklinazioa	Ezkerra
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	136,21 mm
Kanpo diametroa	144,21 mm
Barne diametroa	126,21 mm

6.- ∇_{N9} (∇_{N8} , ∇_{N7})

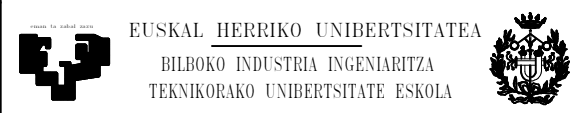


H (2:1)



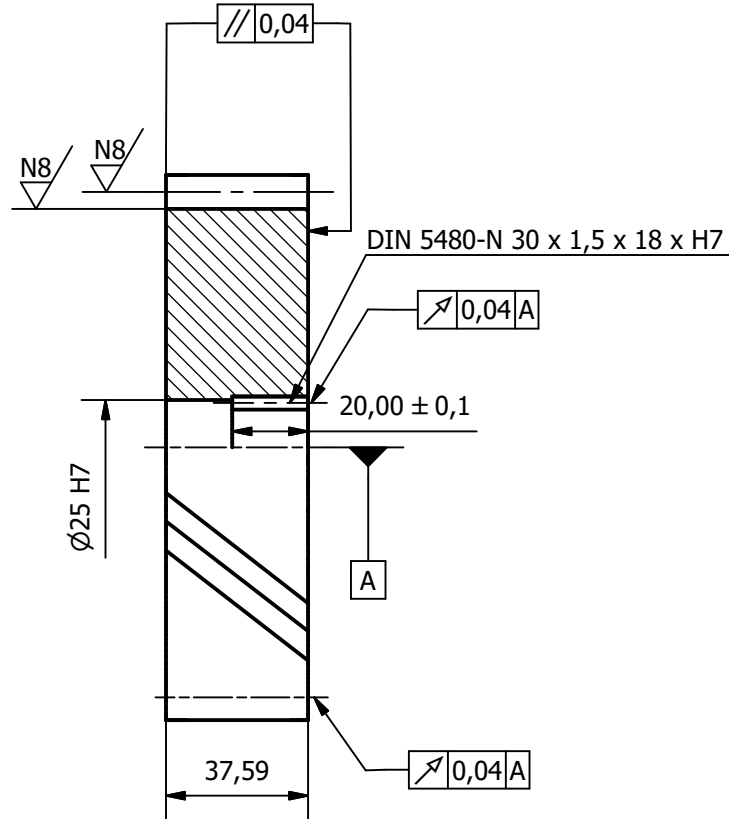
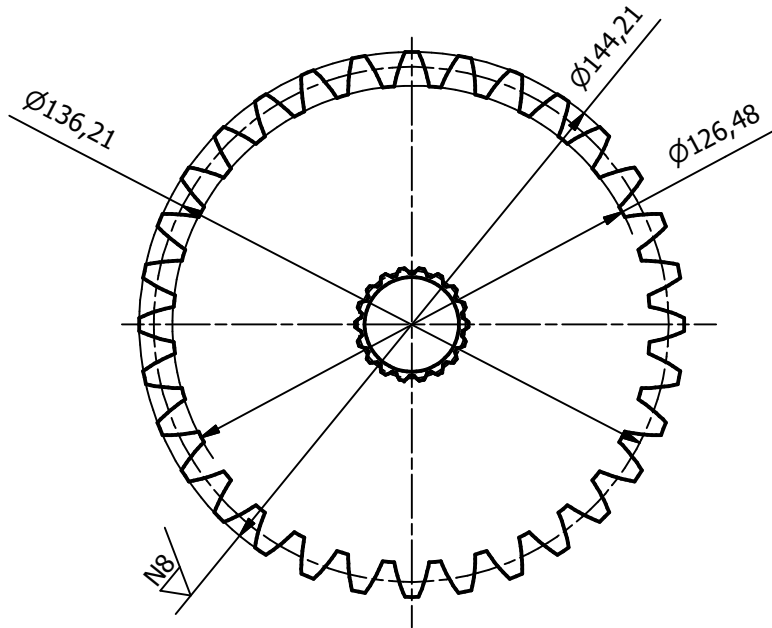
8	1	5. Gurpila	M-03-1234-P04	14 NiCrMo 13	3.54 kg
7	1	4. Gurpila	M-03-1234-P04	14 NiCrMo 13	3.26 kg
6	1	3. Pinoia	M-03-1234-P04	14 NiCrMo 13	2.98 kg
MARKA		KANT.	IZENDAPENA		ARAUDIA/PLANOA
					MATERIALA
					MASA

Marraztua :	2019/01/28	Izen-Abizenak	Eneko Lertxundi Saez	Sinadurak	
Gainbegiratua :					
Homologatua :					

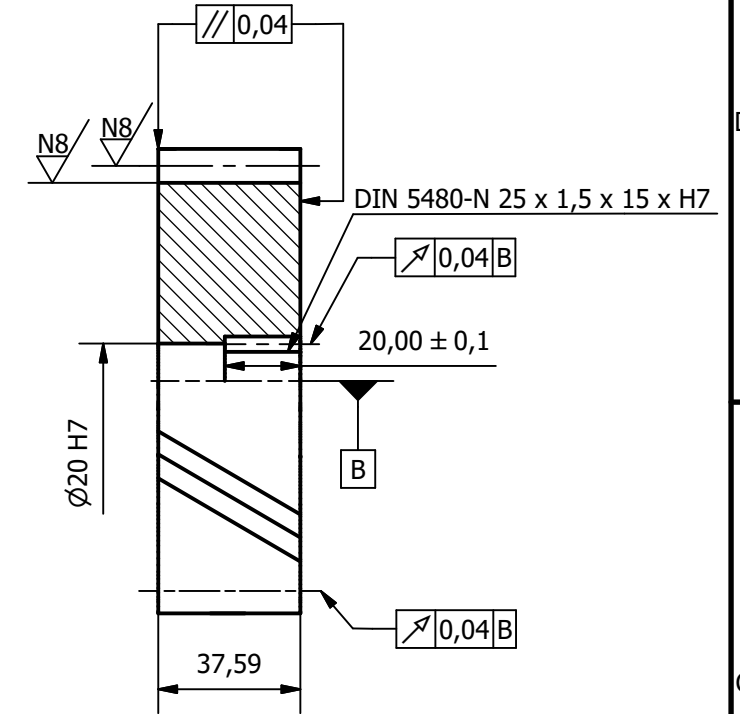
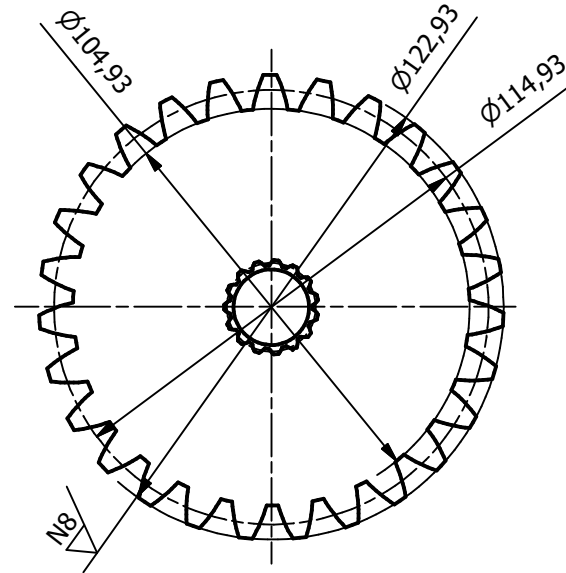


 Perdoi Orok.	Eskala 1:2 (2:1)	<h1>Gurpil askeak</h1>	AUTOMOBIL BATEN ABIADURA-KAXAREN DISEINUA	
			Plano Zkia. : M-03-1234-P04	
			Plano Kop. : 5 / 8	

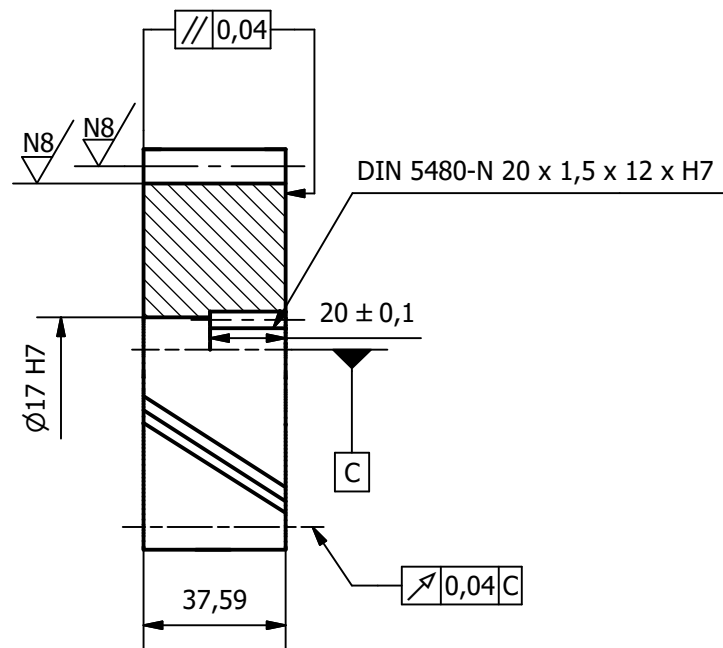
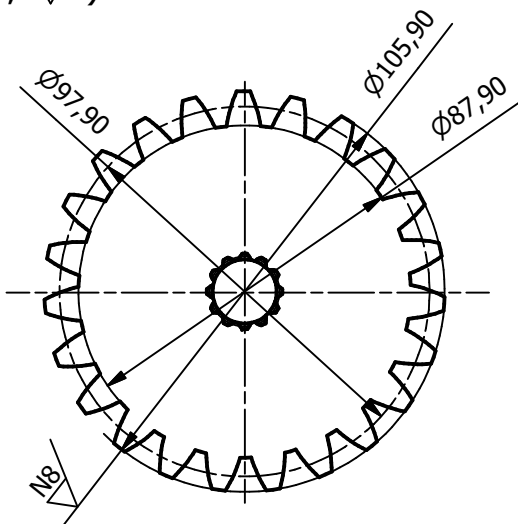
9.- ∇_{N9} (∇_{N8} , ∇_{N7})



10.- ∇_{N9} (∇_{N8} , ∇_{N7})



11.- ∇_{N9} (∇_{N8} , ∇_{N7})



D17	H7	+0,018 0
D20	H7	+0,025 0
D25	H7	+0,025 0
D30	H7	+0,025 0
Kota	Doikuntza	Perdoia

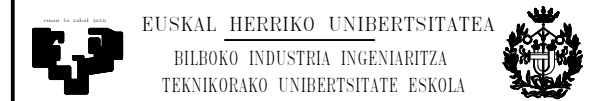
4. PINOIA	
Modulua	4mm
Hortz kopurua	27
Eraso angelua	20°
Inklinazioa	Eskuina
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	114,93 mm
Kanpo diametroa	122,93 mm
Barne diametroa	104,93 mm

3. GURPILA	
Modulua	4mm
Hortz kopurua	32
Eraso angelua	20°
Inklinazioa	Eskuina
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	136,21 mm
Kanpo diametroa	144,21 mm
Barne diametroa	126,21 mm

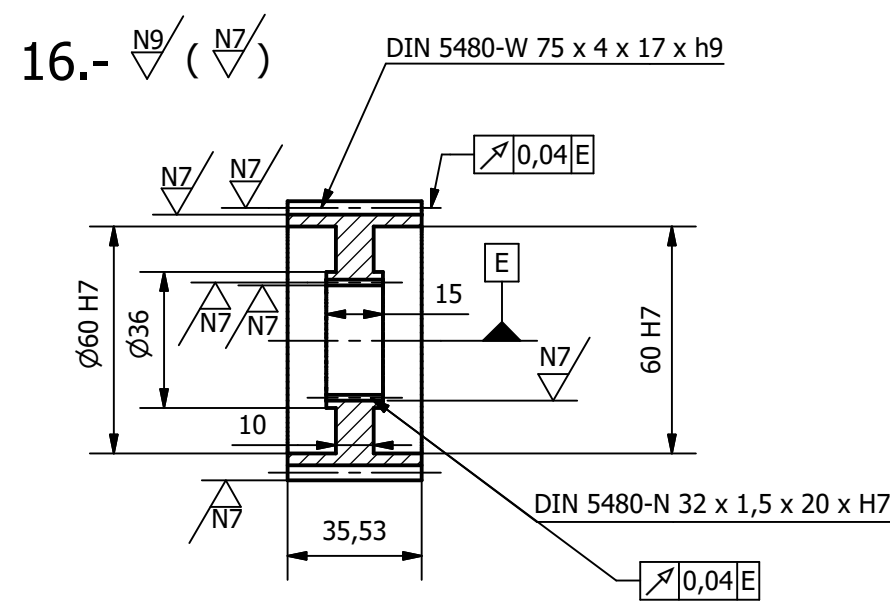
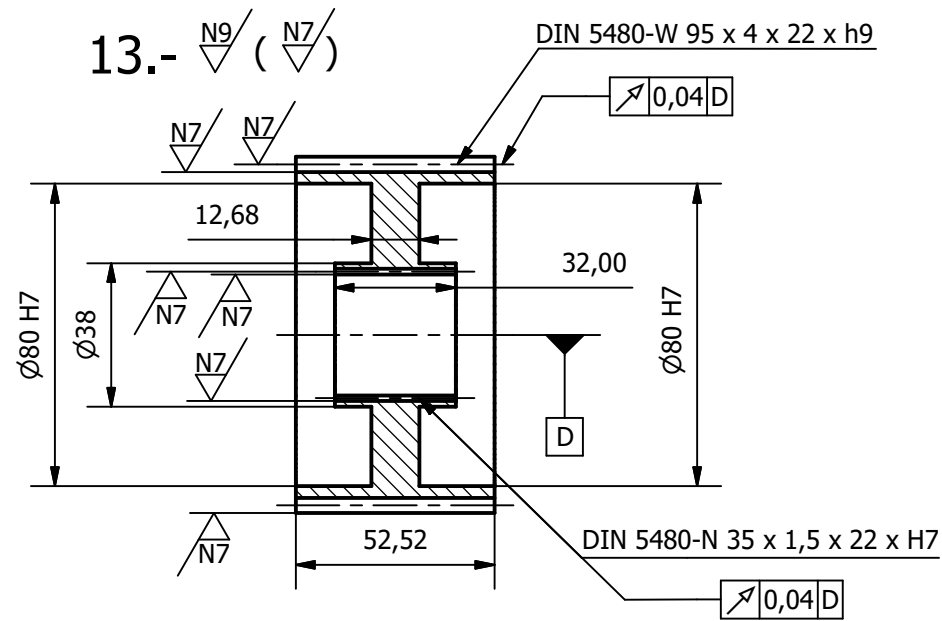
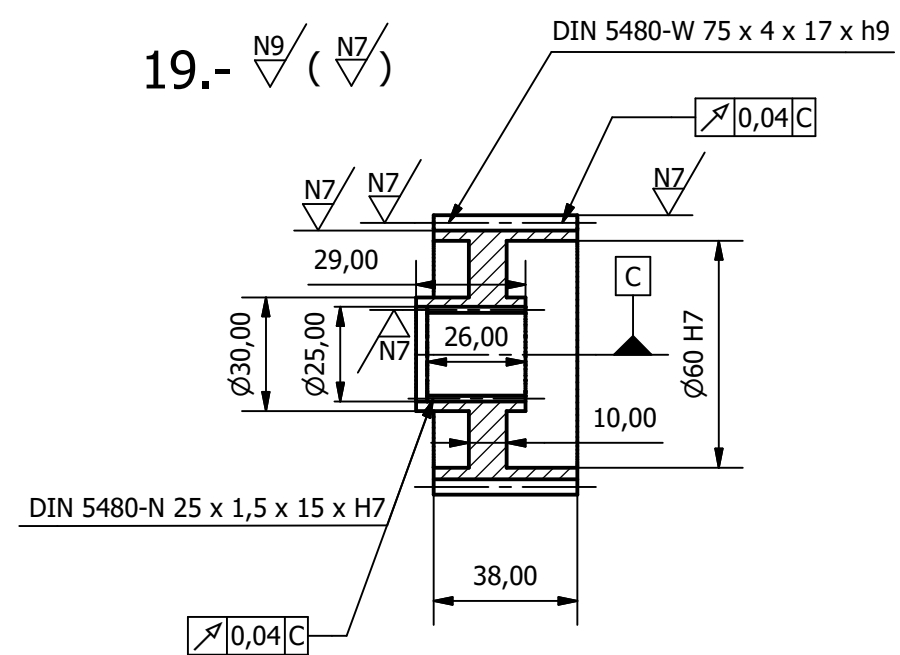
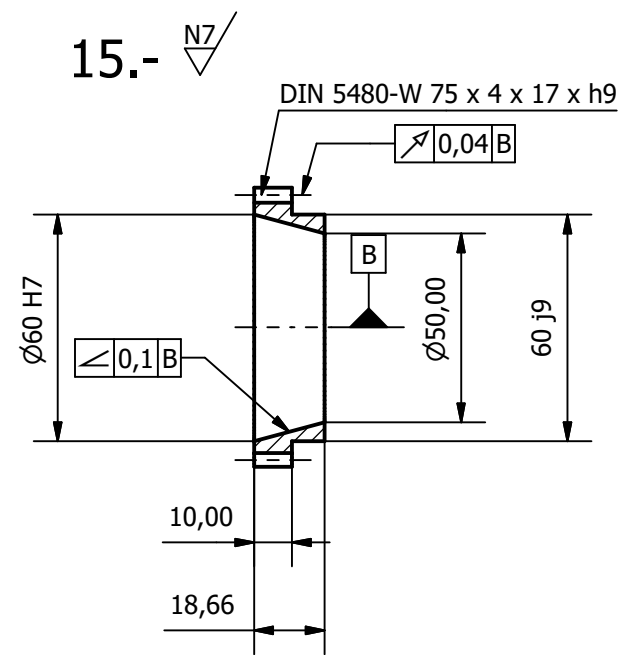
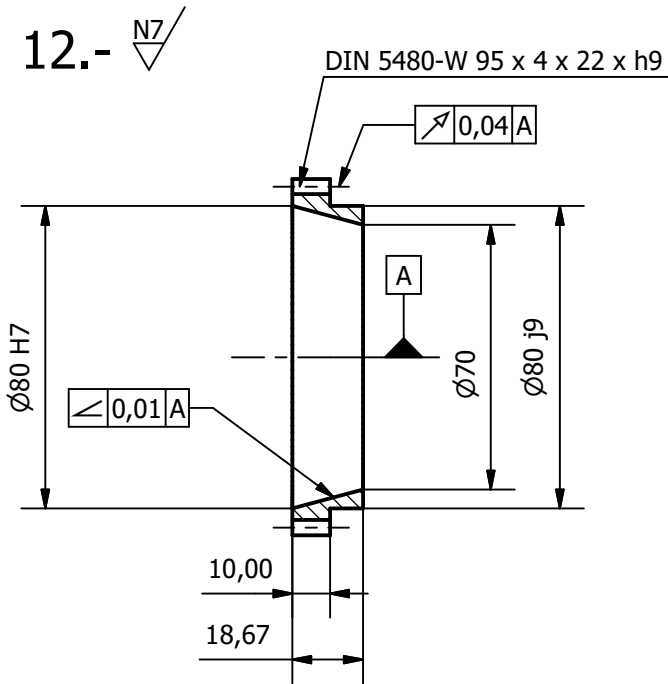
5. PINOIA	
Modulua	4mm
Hortz kopurua	23
Eraso angelua	20°
Inklinazioa	Eskuina
Inklinazio angelua	20°
Zabalera	37,59 mm
Oinarrizko diametroa	97,90 mm
Kanpo diametroa	105,90 mm
Barne diametroa	87,90 mm

11	1	5. Pinoia	M-03-1234-P05	14 NiCrMo 13	2.87 kg	
10	1	4. Pinoia	M-03-1234-P05	14 NiCrMo 13	3.27 kg	
9	1	3. Gurpila	M-03-1234-P05	14 NiCrMo 13	4.10 kg	
MARKA	KANT.	IZENDAPENA		ARUDIA/PLANOA	MATERIALA	MASA

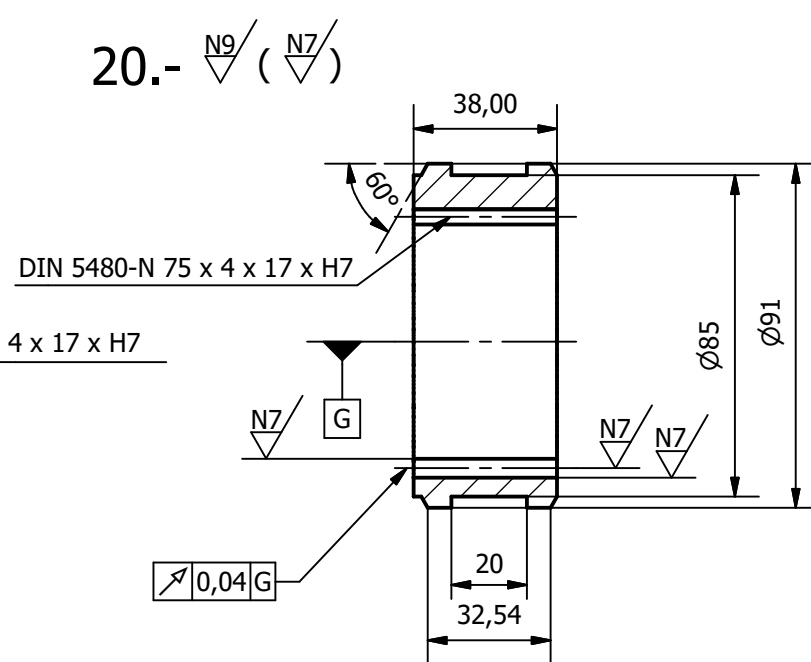
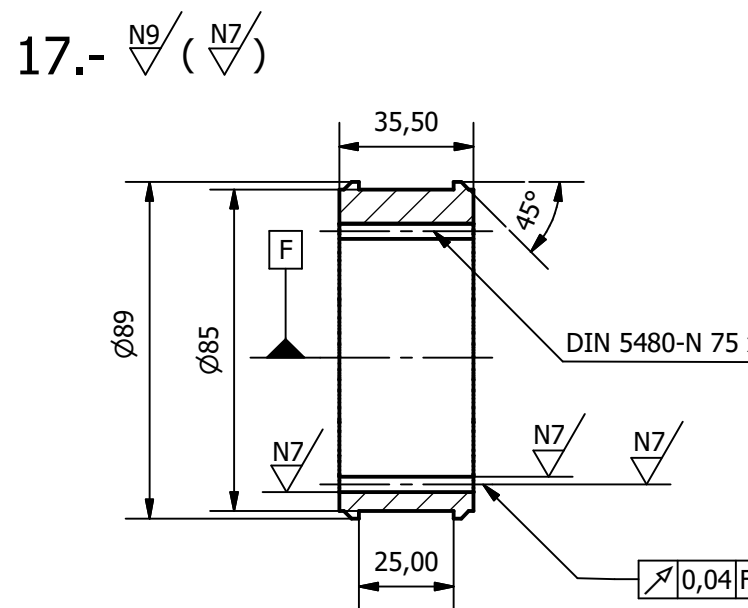
Marraztua :	2019/01/28	Izen-Abizenak	Eneko Lertxundi Saez	Sinadurak	
Gainbegiratua :					
Homologatua :					



Eskala 1:2	Gurpil finkoak	AUTOMOBIL BATEN ABIADURA-KAXAREN DISEINUA
		Plano Zkia. : M-03-1234-P05
Perdoi Orok. ISO 2768-m		Plano Kop. : 6 / 8



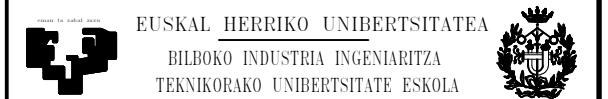
D80	H7	+0,030 0
D80	j9	+0,074 0
D60	H7	+0,030 0
D60	j9	+0,074 0
Kota	Doikuntza	Perdoia



20	1	Selektorea 5	M-03-1234-P06	20MnCr5	0.63 kg
19	1	Kubo sinkronizatzailea 5	M-03-1234-P06	14NiCrMo13-4	0.53 kg
17	1	Selektorea 3-4	M-03-1234-P06	20MnCr5	0.63 kg
16	1	Kubo sinkronizatzailea 3-4	M-03-1234-P06	14NiCrMo13-4	0.53 kg
15	1	Eraztun sinkronizatzailea 3-4-5	M-03-1234-P06	DIN 1716	0.20 kg
13	1	Kubo sinkronizatzailea 1-2	M-03-1234-P06	14NiCrMo13-4	0.56 kg
12	1	Eraztun sinkronizatzailea 1-2	M-03-1234-P06	DIN 1716	0.22 kg

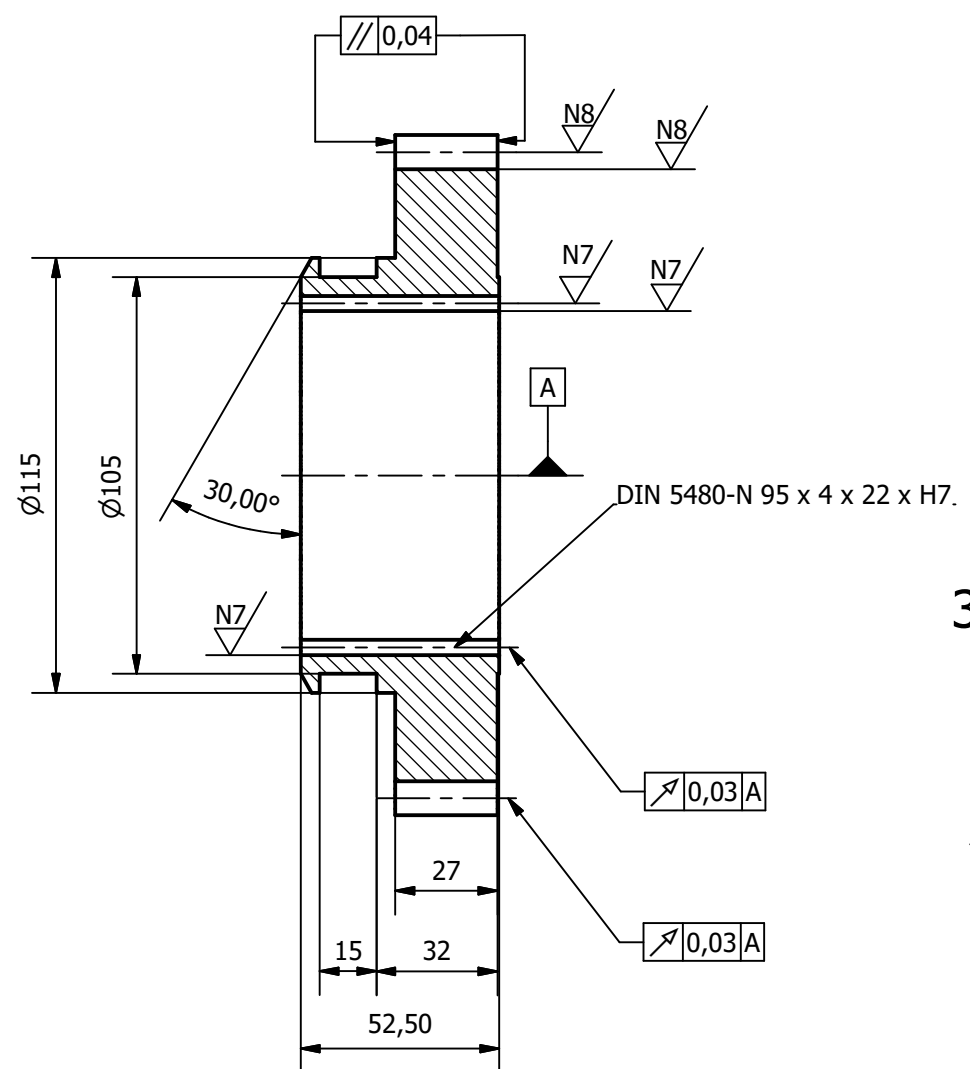
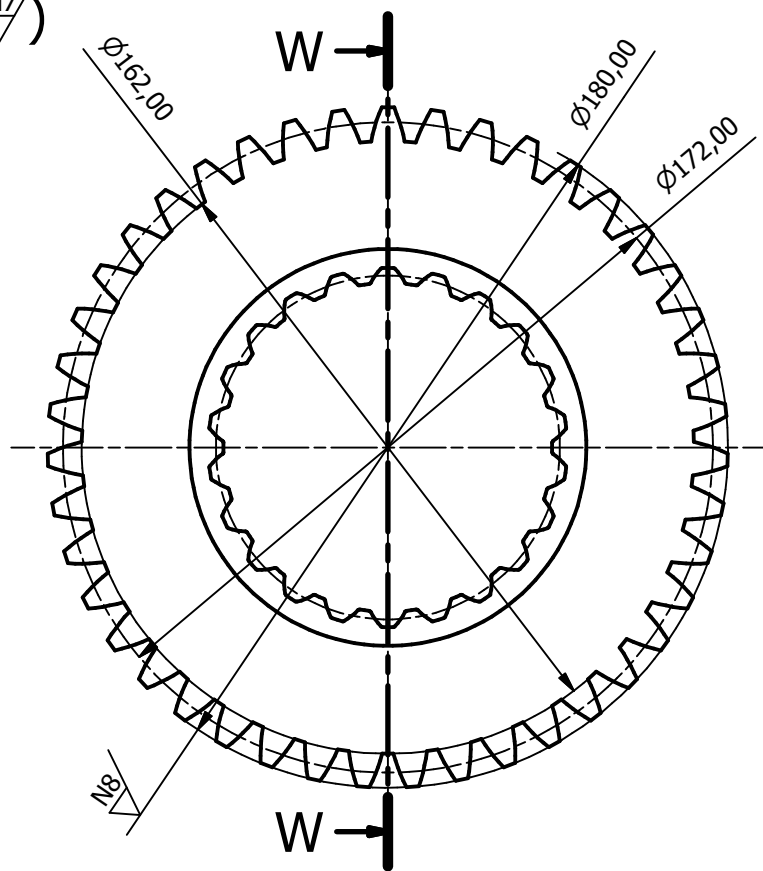
MARKA	KANT.	IZENDAPENA	ARAUDIA/PLANOA	MATERIALA	MASA
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Marraztua :	Data	Izen-Abizenak	Sinadurak
Gainbegiratua :	2019/01/28	Eneko Lertxundi Saez	
Homologatua :			

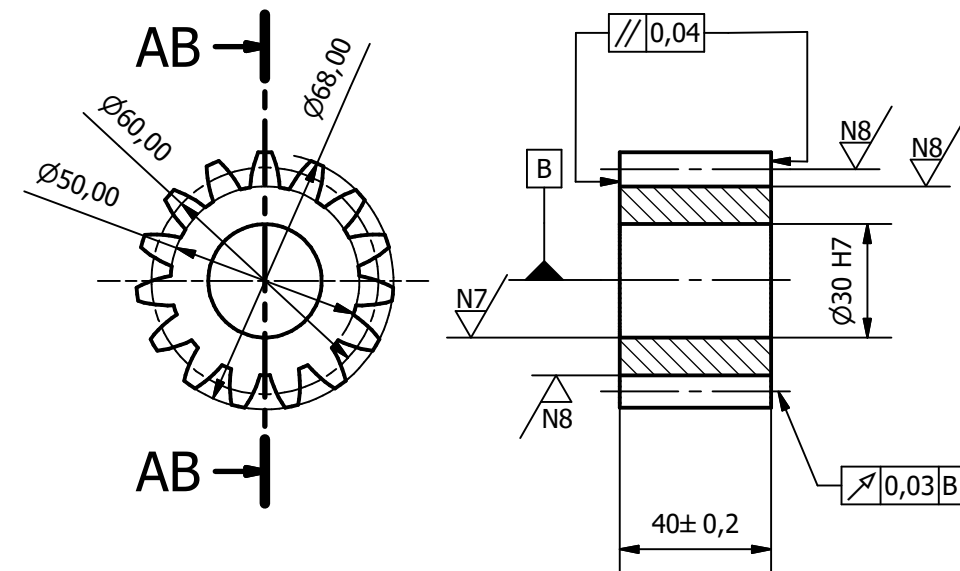


Eskala 1:2 Perdoi Orok. ISO 2768-m	Sinkronizatzaileak		AUTOMOBIL BATEN ABIADURA-KAXAREN DISEINUA
			Plano Zkia. : M-03-1234-P06
			Plano Kop. : 7 / 8

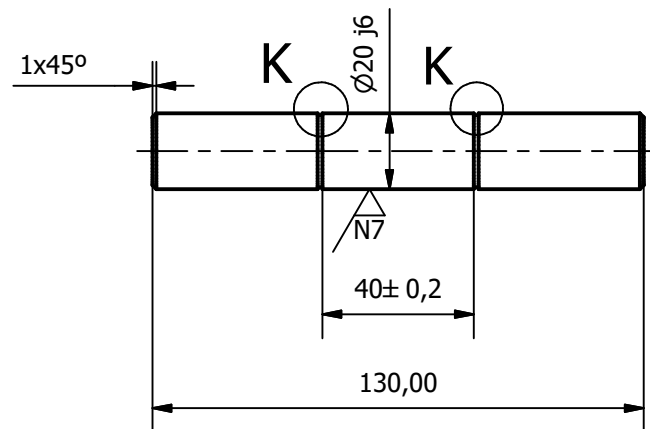
14.- $\nabla_{N9} / (\nabla_{N7})$



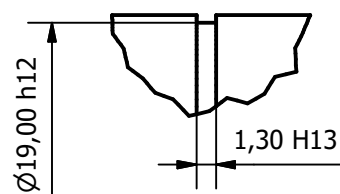
38.- $\nabla_{N9} / (\nabla_{N7})$



3.- $\nabla_{N9} / (\nabla_{N7})$



K (2:1)



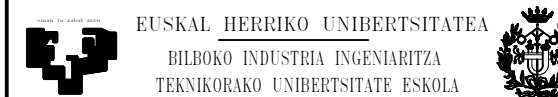
A.M. GURPILA	
Modulua	4 mm
Hortz kopurua	43
Eraso angelua	20°
Oinarrizko diametroa	172 mm
Kanpo diametroa	180 mm
Barne diametroa	162 mm

AM PINOIA	
Modulua	4 mm
Hortz kopurua	15
Eraso angelua	20°
Oinarrizko diametroa	60 mm
Kanpo diametroa	68 mm
Barne diametroa	50 mm

38	1	AM Pinoia	M-03-1234-P07	14NiCrMo13	0.54 kg
3	1	AM ardatza	M-03-1234-P07	34NiCrMo6	0.89 kg
14	1	Selektorea 1-2	M-03-1234-P07	20MnCr5	2.86 kg

MARKA	KANT.	IZENDAPENA	ARAUDIA/PLANOA	MATERIALA	MASA
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	Data	Izen-Abizenak	Sinadurak
Marrastua :	2019/01/28	Eneko Lertxundi Saez	
Gainbegiratua :			
Homologatua :			



Eskala Perdoi Orok. ISO 2768-m 1:2 (2:1)	Atzeranzko martxa	AUTOMOBIL BATEN ABIADURA-KAXAREN DISEINUA
		Plano Zkia. : M-03-1234-P07 Plano Kop. : 8 / 8