

# In Process Sketch / Szkic Operacyjny

WALCOWANIE WIELOWYPUSTU  
(SPLINE ROLLING)

Group: CHASSIS  
Dywizja:

Plant: PRASZKA  
Zakład:

Op-Description:  
Op-Opis:

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. główna

Part-Name:  
Nazwa detalu:

WALEK

Prototype  
 Pre-Launch  
 Production

Control Item  
 Yes  
 Tak

No  
 Nie

Part-No.:  
Nr detalu:

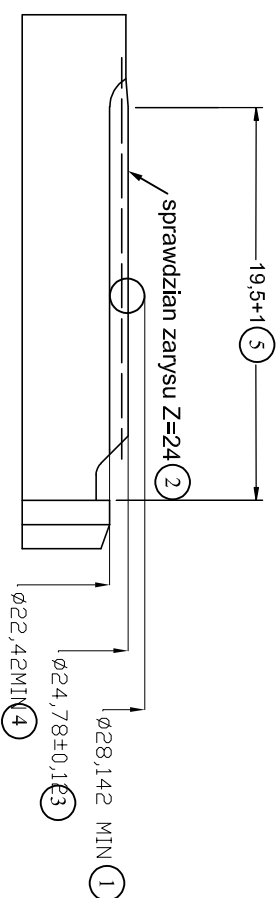
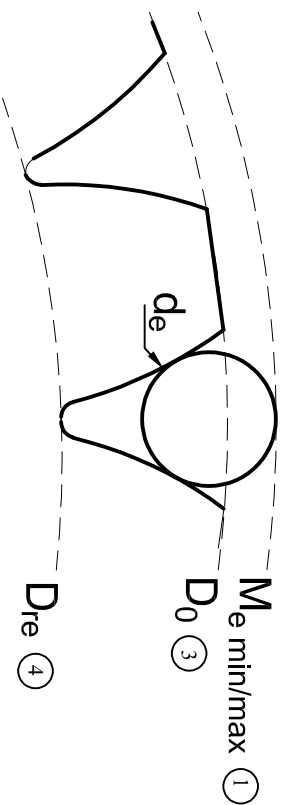
E0002675.A

Do not scale / Rys. nie w skali

# WIELOWYPUST I

Roleki walcujące Z24

8100976.00



## Geometria wielowypustu I

PARAMETR/CHARAKTERYSTYKA	sym.	WARTOŚĆ
Liczba zębów	Z	24 (2)
Kąt	$\alpha$	37,5°
Średnica koła tębów	$D_0$	24,78±0,12 (3)
Średnica koła stóp	$D_{re}$	22,42 MIN (4)
Efektowna grubość zęba	$t_v$	max. efekt. 1,682
Max. średnica przez kulki (DOB)	$M_e$ min $M_e$ max	Ø28,142 MIN (1)
Średnica kulki	$d_e$	2,36
Kąt helix	$\psi$	-

Dimensions and specifications marked thus require a capability study Cpk>1,67. (Serial Production Cpk>1,33)



Dla wyniarow i specyfikacji zawartych w ramce wymaganej jest zdolnosć produkcyjna Cpk>1,67. (Produkcja Seryjna Cpk>1,33)



Clamp  
Zadsk

Locate  
Ustalenie

I.P.  
In Process

P.P.  
Post Process

Proc-Engr.:  
Inz. Procesu:

L. Reszka

Sht.: 5 of 10  
Szkic:

## Profiroil Rolex HP

Mach. Type: Typ Maszyny:		Op.No.: Op.Nr.:	30
Nr Tabl:		Date: Data:	05.10.2023
Proc.Engr.Group: Zespół Inz.	L. Reszka, M. Fliak		

Group: CHASSIS

Plant: PRASZKA

Op-Description:  
Op-Opis:

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. główna

Part-Name:  
Nazwa detalu:

WALEK

Prototype  
 Pre-Launch  
 Production

Control Item  
 Yes  
 Tak

No  
 Nie

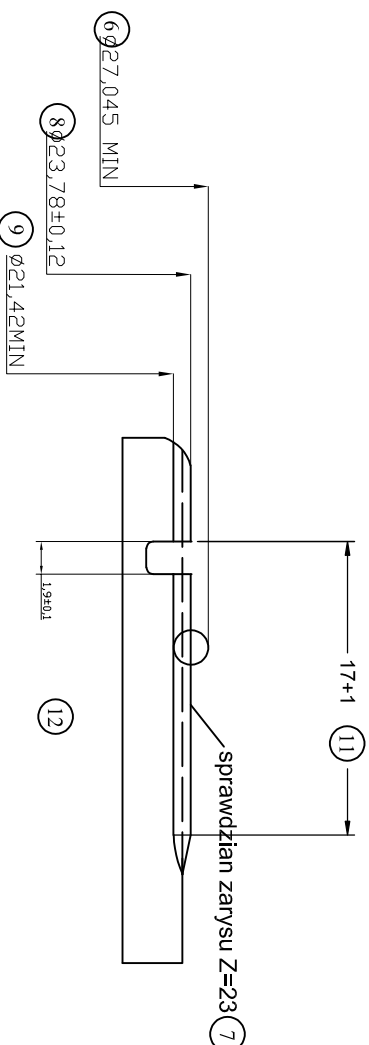
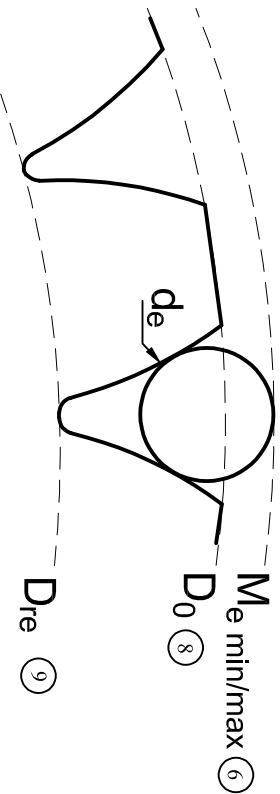
Part-No.:  
Nr detalu:

E0002675.A

# WIELOWYPUST II

Rolki walcujące Z23 LH' 8100977.00

Do not scale / Rys. nie w skali!



## Geometria wielowypustu II

PARAMETR/CHARAKTERYSTYKA	sym.	WARTOŚĆ
Liczba zębów	Z	23 (7)
Kąt	$\alpha$	37.5°
Średnica koła tębów	$D_0$	23,78±0,12 (8)
Średnica koła stóp	$D_{re}$	21,42 MIN (9)
Efektywna grubość zęba	$t_v$	max. efekt. 1,651
max. średnica przez kulki (DOB)	$M_{e \text{ min}}$ $M_{e \text{ max}}$	Ø27,045 MIN (6)
Średnica kulki	de	2,36
Kąt helix	$\psi$	10±3' (LH) (10)

Dimensions and specifications marked thus require a capability study Cpk>1.67. (Serial Production Cpk>1.33)



Mash. Type:  
Typ Maszyny:

**Profiroil Rolex HP**

BT:

Op.No.: 30

Nr. Tak:

Op.Nr.:

Proc.Engr. Group:

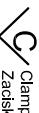
Date:

05.10.2023

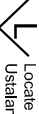
Proc.Engr. Inz. Processu:

Sht.:

6 of 10



Clamp  
Zacisk



Locate  
Ustalenie

\* I.P.  
In Process

\* P.P.  
Post Process

Inz. Processu:

L. Reszka

Sht.:

6 of 10

Group: CHASSIS  
Dywizja:

Plant: PRASZKA  
Zakład:

WYKONANIE WIELOWYPUSTU

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. główna

Part-Name: WALEK  
Nazwa detalu:

Prototype   
Pre-Launch   
Production

Control Item   
Yes   
Tak   
No   
Nie

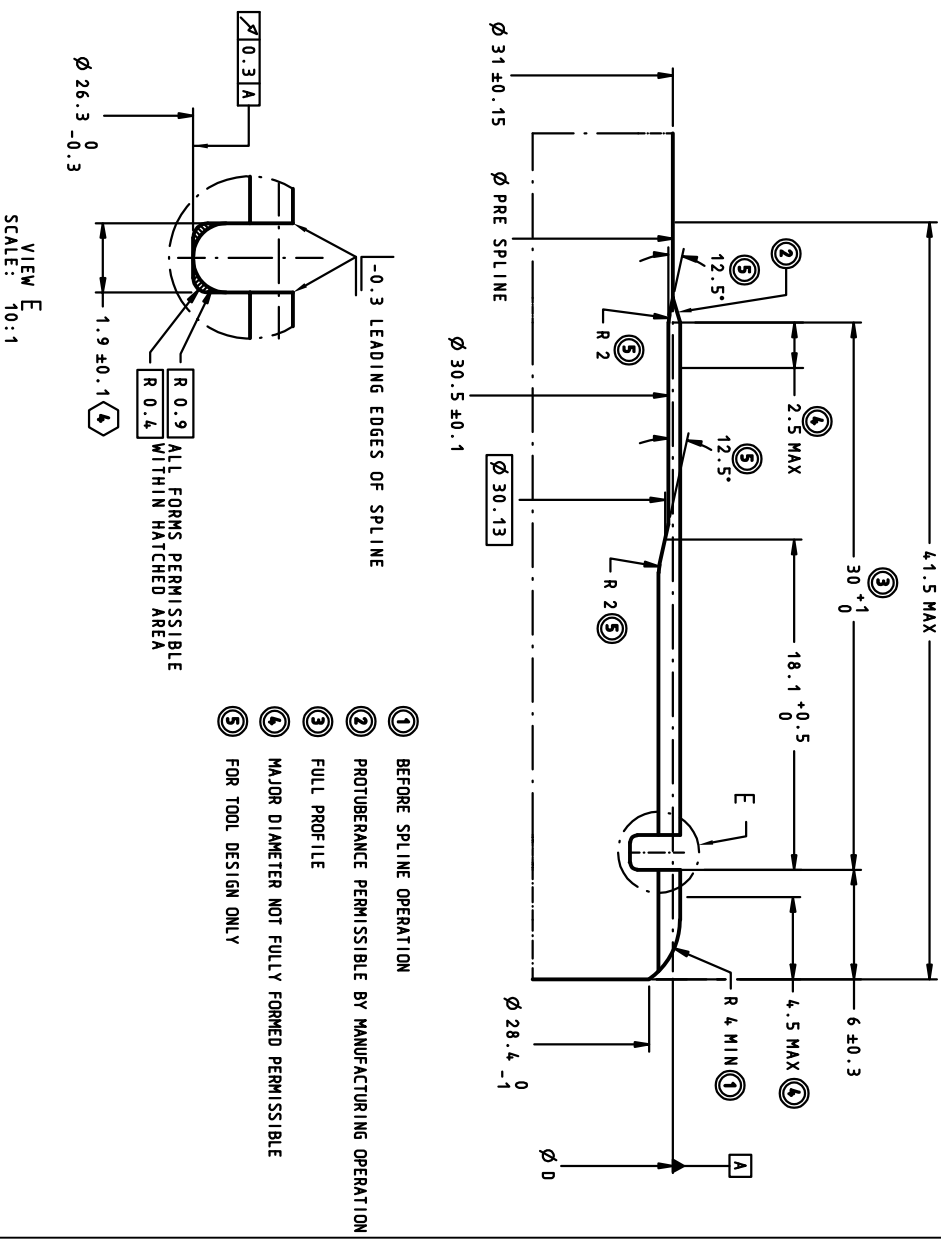
Part-No.:  
Nr detalu:

E0005103.A

# Wielowypust I / Spline I

CG4300/CGI4300/ DOI4300/CGI4700/ DOI4700	Symbol	SAE ANSI B92.2M - 1980 SIMILAR
	ANSI B92.1 ANSI B92.2M	
FIT, ROOT FORM		SIDE FIT FILLED ROOT
NUMBER OF TEETH	N	31
SPLINE PITCH	P/PS	-
MODULE	m	1
PRESSURE ANGLE [°]	$\Phi$	$\alpha$
BASE - $\emptyset$	$D_b$	DB
PITCH - $\emptyset$	D	D
MAJOR - $\emptyset$	$D_o$	31.78 $\pm$ 0.12
FORM - $\emptyset$	$D_{re}$	DFE
MINOR - $\emptyset$	$D_{re}$	DIE
CIRCULAR TOOTH THICKNESS:		
MAX EFFECTIVE	$t_{MAX}$	SVMAX
MIN EFFECTIVE	$t_{MIN}$	SVMIN
MIN ACTUAL	t	S
DOB (MAX DOB MEASURED AT LDOB):		
MAX	-	(35.105)
MIN	-	(35.075)
MEASUREMENT OVER BALL:		
MIN	Me min	MRE
BALL - $\emptyset$	de	DRE
HELIX	$\psi$	$\psi$
Loos length	-	17

Do not scale / Rys. nie w skali



Mash. Type: Typ Maszyn:	Op.No.:
BT:	Op.Nr.:
Nr. Tabl:	
Proc.Engr. Group:	Date: 10.09.2024
Zespol Inz:	Snt.:
Proc.Engr.:	Skt.:
Inz. Procesu:	2 of 2

Release-No.: see cover page  
 Zwolnienie Nr.: patrz str. glowna

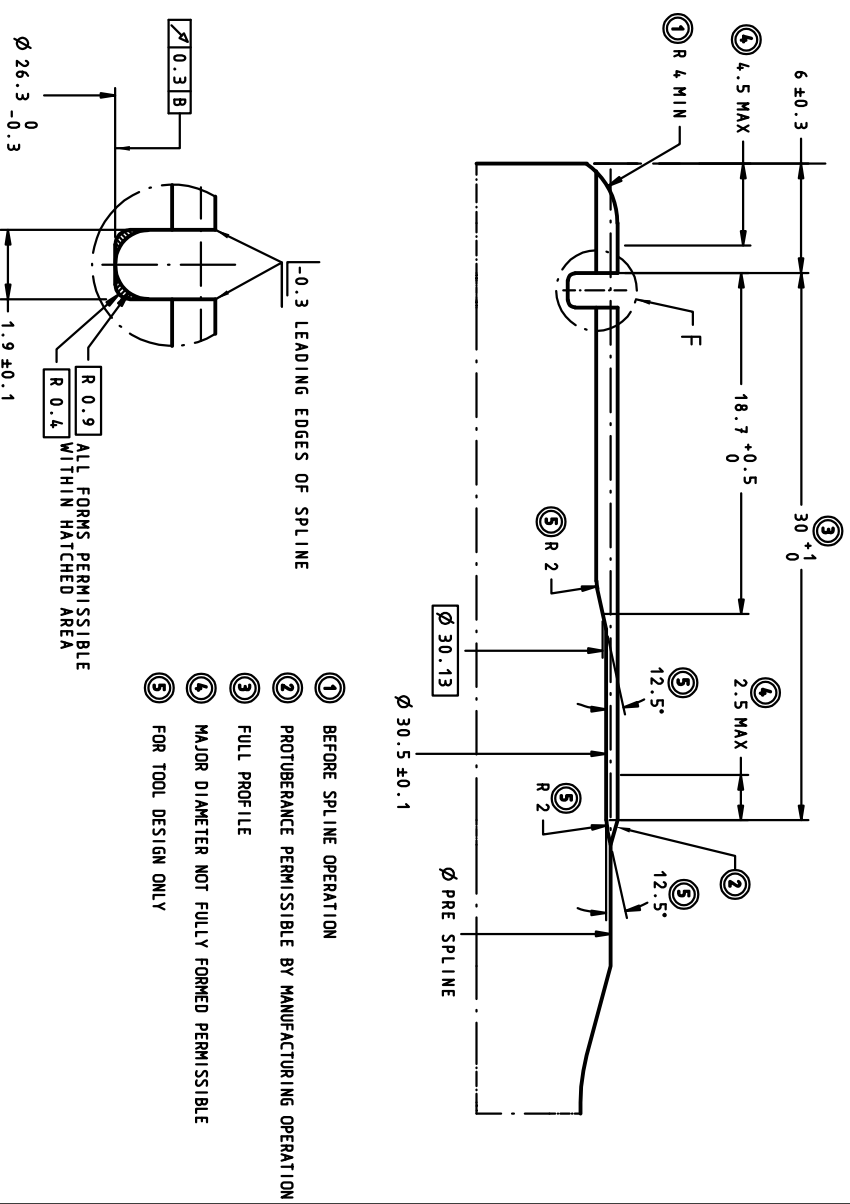
Part-Name: WALEK  
 Nazwa detalui: Nazwa detalui:

Do not scale / Rys. nie w skali!  
 Prototype  
 Pre-Launch  
 Production  
 Control Item  Yes  No  
 Tak Nie

Part-No.: E0005103.A  
 Nr detalui: Nr detalui:

# Wielowypust II / Spline II

FU4700/FU4300/ FRI43/FAI47/FCI47	Symbol		SAE ANSI B92.2M - 1980 SIMILAR	3.11.3. Inner Race non-HB
	ANSI B92.1	ANSI B92.2M		
FT. ROOT FORM	N	Z	SIDE FIT FILLED ROOT	
NUMBER OF TEETH	31			
SPLINE PITCH	P/PS	-		
MODULE	-	m	1	
PRESSURE ANGLE [°]	Φ	α	37,5	
BASE - Ø	D <sub>b</sub>	D <sub>B</sub>	24.5940	
PITCH - Ø	D	D	31.0	
MAJOR - Ø	D <sub>o</sub>	D <sub>EE</sub>	31.78±0.12	
FORM - Ø	D <sub>re</sub>	D <sub>FE</sub>	29.93 MAX	
MINOR - Ø	D <sub>re</sub>	D <sub>IE</sub>	29.42 MIN	
CIRCULAR TOOTH THICKNESS:				
MAX EFFECTIVE	t <sub>MAX</sub>	S <sub>VMAX</sub>	1.628	
MIN EFFECTIVE	t <sub>MIN</sub>	S <sub>VMIN</sub>	(1.599)	
MIN ACTUAL	t	S	1.556	
DOB (MAX DOB MEASURED AT Loop):	-			
MAX	-			
MIN	-			
MEASUREMENT OVER BALLS:				
BALL - Ø	M <sub>min</sub>	M <sub>RE</sub>	-	
MIN	d <sub>e</sub>	D <sub>RE</sub>	2.36	
HELIK (Helix direction - see drawing)	ψ	ψ	10°±3'	
Loop length	-	-	20	



VIEW F

Mash. Type: Typ Maszynowy	Op.No.:
BT:	Op.Nr.:
Nr. Tabl:	Date: 10.09.2024
Proc.Engr.Group:	Datol: 1 of 2
Zespol Inz:	Snt: 1 of 2
Proc.Engr. Inz:	Szkic: 1 of 2
Inz. Processu:	

Group: CHASSIS  
Dywizja: \_\_\_\_\_

Plant: PRASZKA  
Zakład: \_\_\_\_\_

In Process Sketch / Szkic Operacyjny

Op.-Description: WYKONANIE WIELOWYPUSTU  
Op.-Opis: \_\_\_\_\_

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. główną

Part-Name: WALEK  
Nazwa detalu: \_\_\_\_\_

Do not scale / Rys. nie w skali!

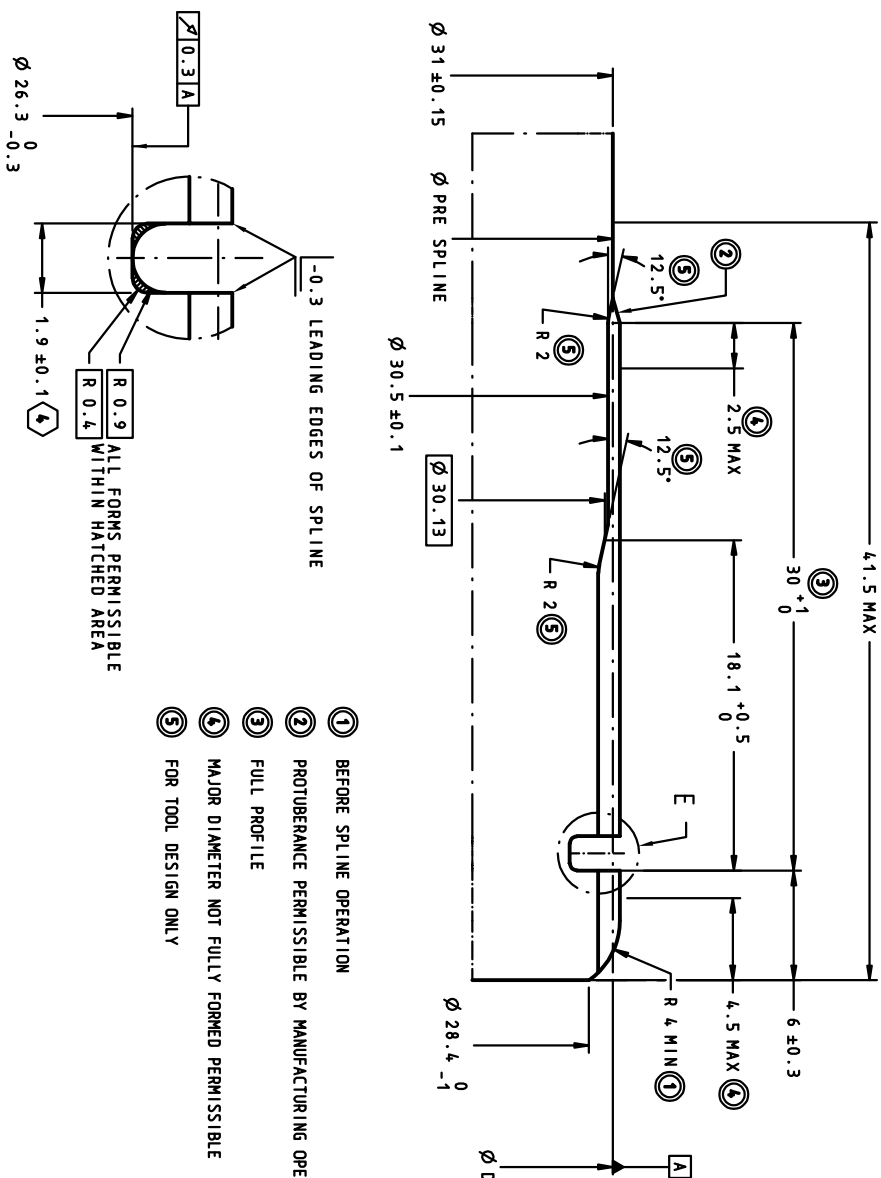
Prototype   
Pre-Launch   
Production

Control Item   
Yes   
No

Part-No.: E0005104.A  
Nr detalu: \_\_\_\_\_

# Wielowypust I / Spline I

CG4300/CGI4300/ DOI4300/CGI4700/ DOI4700	Symbol		4.13.1	
	ANSI B92.1	ANSI B92.2M	SAE ANSI B92.2M - 1980 SIMILAR	
FIT, ROOT FORM	N	Z	SIDE FIT FILLED ROOT	
NUMBER OF TEETH			31	
SPLINE PITCH	P/Ps		-	
MODULE		m	1	
PRESSURE ANGLE [°]	Φ	α	37.5	
BASE - Ø	Db	DB	24.5940	
PITCH - Ø	D	D	31.0	
MAJOR - Ø	Do	DEE	31.78±0.12	
FORM - Ø	Dfe	DFE	29.93 MAX	
MINOR - Ø	Dre	DIE	29.42 MIN	
CIRCULAR TOOTH THICKNESS:				
	MAX EFFECTIVE	twmax	SVmax	1.623
	MIN EFFECTIVE	twmin	SVmin	(1.594)
	MIN ACTUAL	t	S	1.551
DOB (MAX DOB MEASURED AT L008):			(35.105) (35.075)	
MAX				
MIN				
MEASUREMENT OVER BALL:				
	Me min	MIRE min	35.046	
BALL - Ø	de	DRE	2.36	
HELIX	ψ	ψ	10±3'	
Logo length	-	-	17	



VIEW E  
SCALE: 10:1

Mash. Type: _____	Op. No.: _____
Typ. Maszynowy: _____	Op. Nr.: _____
BT: _____	Date: 10.09.2024
Proc. Engr. Group: _____	Sht.: 2 of 2
Zespół Inz.: _____	Szkiec: _____
Proc. Engr.: _____	
Inz. Procesu: _____	

Group: CHASSIS Plant: In Process Sketch / Szkic Operacyjny WYKONANIE WIELOWYPUSTU  
 Dwyizje: PRASZKA Op.-Description: Op.-Opis: Zakiad: WALEK

Release-No.: see cover page  
 Zwolnienie Nr.: patrz str. glowna

Part-Name: WALEK  
 Nazwa detalu:

Do not scale / Rys. nie w skali!  
 Prototype  
 Pre-Launch  
 Production

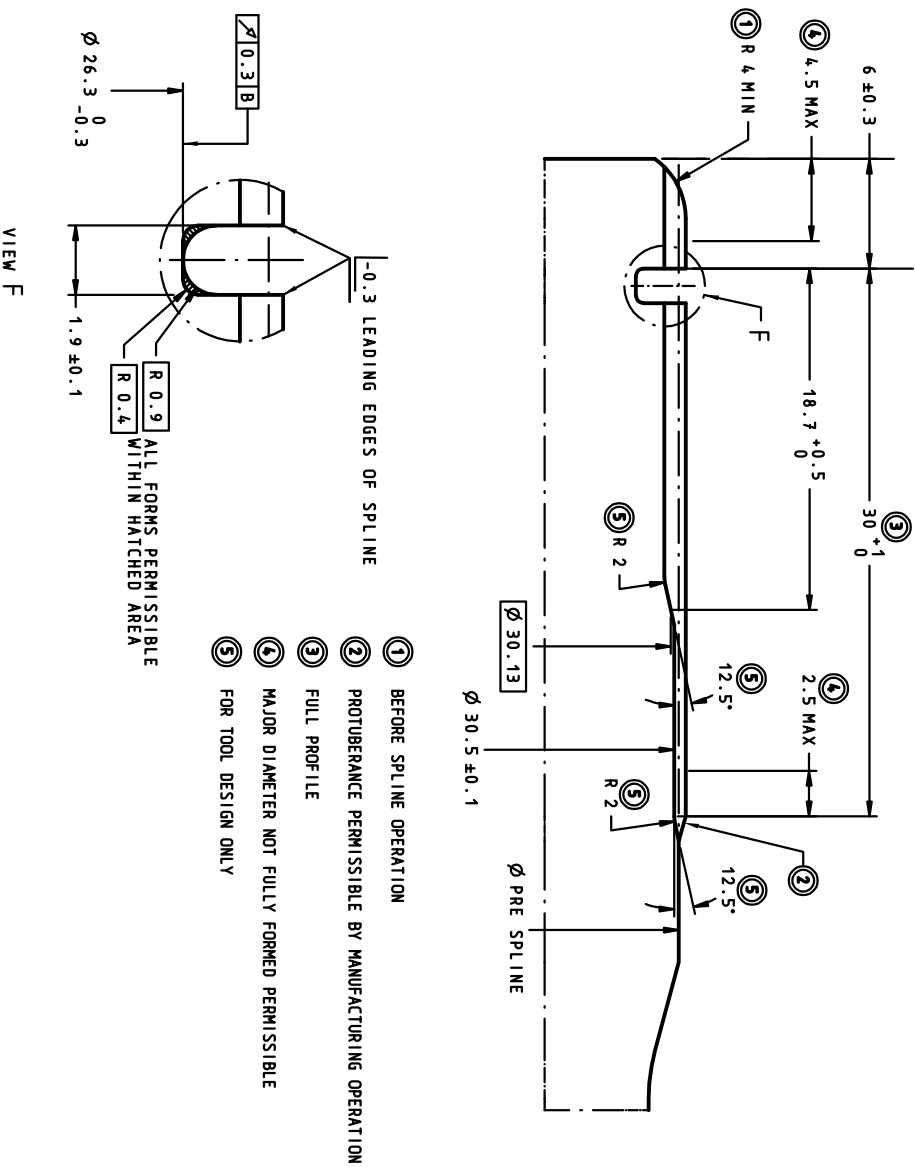
Control Item  
 Yes  
 Tdk  
 No  
 Nie

Part-No.:  
 Nr detalu:

**E0005104.A**

# Wielowypust II / Spline II

FU4700/FU4300/ FR143/FA147/FC147	Symbol		SAE ANSI B92.2M - 1980 SIMILAR	Inner Race non-HB
	ANSI B92.1	ANSI B92.2M		
FT. ROOT FORM	N	Z	31	SIDE FIT FILLED ROOT
NUMBER OF TEETH				
SPLINE PITCH	P/ps	-	-	
MODULE	m	m	1	
PRESSURE ANGLE [°]	Φ	α	37.5	
BASE - Ø	Db	DB	24.5940	
PITCH - Ø	D	D	31.0	
MAJOR - Ø	Do	DEE	31.78±0.12	
FORM - Ø	Dfe	DFE	29.93 MAX	
MINOR - Ø	Dre	DIE	29.42 MIN	
CIRCULAR TOOTH THICKNESS:				
MAX EFFECTIVE	t <sub>MAX</sub>	S <sub>VMAX</sub>	1.628 (1.599)	
MIN EFFECTIVE	t <sub>MIN</sub>	S <sub>VMIN</sub>	1.556	
MIN ACTUAL	t	S		
DOB (MAX DOB MEASURED AT Loop):			(35.111) (35.081)	
MAX	-	-		
MIN	-	-		
MEASUREMENT OVER BALLS:				
MIN	M <sub>min</sub>	MIRE	35.053	
BALL - Ø	d <sub>e</sub>	DRE	2.36	
HELIX (Helix direction - see drawing)	ψ	ψ	10°±3'	
Loop length	-	-	20	



Mash. Type:  
 Typ Maszynowy:  
 BT:  
 Nr Tabl:  
 Proc. Engr. Group:  
 Zespół Inz:  
 Proc. Engr. Inz. Processu:

Op. No.:  
 Op. Nr.:

Date: 10.09.2024  
 Sht. of 1 of 2  
 Skic:

Group: CHASSIS  
Dywiżjo: \_\_\_\_\_

Plant: PRASZKA  
Zakład: \_\_\_\_\_

Op.-Description: \_\_\_\_\_  
Op.-Opis: \_\_\_\_\_

# In Process Sketch / Szkic Operacyjny

WYKONANIE WIELOWYPUSTU

Release-No.: see cover page  
Zwolnienie Nr.: pa.tr.z str. główna

Part-Name: WALEK  
Nazwa detalu: \_\_\_\_\_

Prototype   
Pre-Launch   
Production

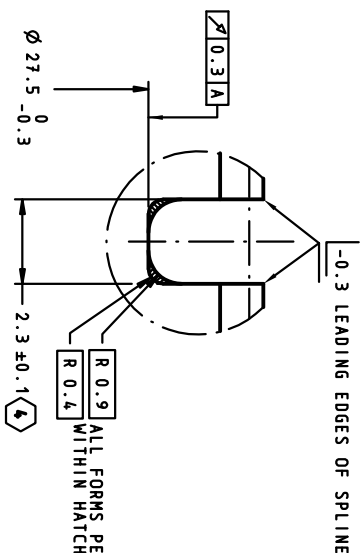
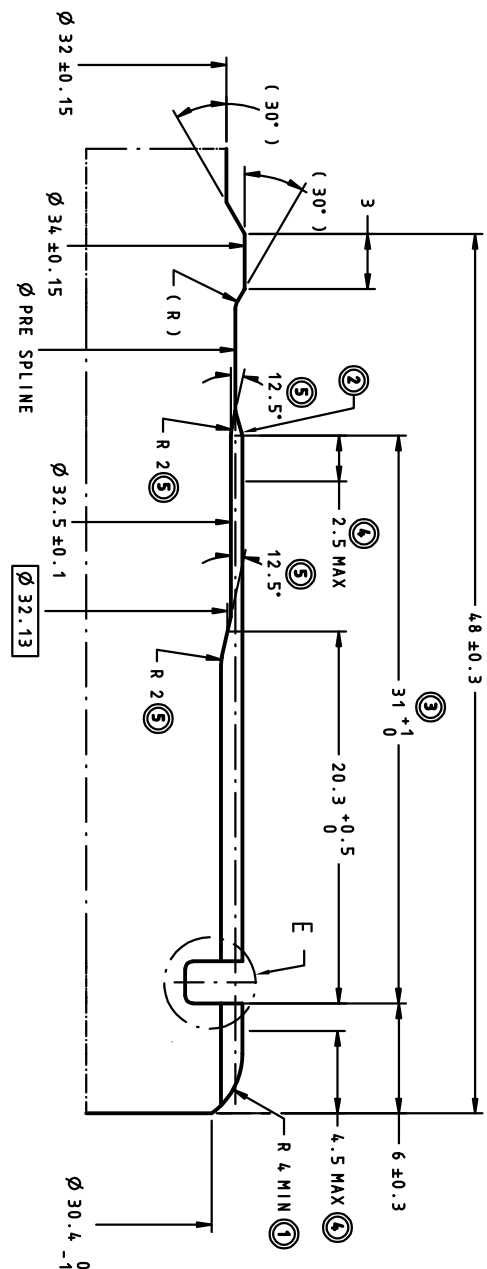
Control Item   
Yes Tak   
No Nie

Part-No.: E0005105.A  
Nr detalu: \_\_\_\_\_

Do not scale / Rys. nie w skali!

## Wielowypust I / Spline I

	Symbol		SAE ANSI B92.2M - 1980 SIMILAR
	ANSI B92.1	ANSI B92.2M	
CGI5300/CGI5700/ DOI5300			4.17.1
FT. ROOT FORM	N	Z	SIDE FIT FILLED ROOT
NUMBER OF TEETH		33	
SPLINE PITCH	P/Ps	-	
MODULE	Φ	m	1
PRESSURE ANGLE [°]	Φ	α	37.5
BASE - Ø	Db	DB	26.1807
PITCH - Ø	D	D	33.0
MAJOR - Ø	Do	DEE	33.78±0.12
FORM - Ø	Dre	DfE	31.93 MAX
MINOR - Ø	Dre	DfE	31.41 MIN
CIRCULAR TOOTH THICKNESS:	tMAX	SVMAX	1.617 (1.587)
	tMIN	SVMIN	1.544
	t	S	
DOB (MAX DOB MEASURED AT L008):			(37.104) (37.074)
MAX MIN			
MEASUREMENT OVER BALL:			
MIN	M <sub>min</sub>	MRE <sub>min</sub>	37.045
BALL - Ø	de	DRE	2.36
HELIX	ψ	ψ	10±3'
Loose length	-	-	22



- ① BEFORE SPLINE OPERATION
- ② PROTUBERANCE PERMISSIBLE BY MANUFACTURING OPERATION
- ③ FULL PROFILE
- ④ MAJOR DIAMETER NOT FULLY FORMED PERMISSIBLE
- ⑤ FOR TOOL DESIGN ONLY

VIEW E  
SCALE: 10:1

Mash. Type:	Op.No.: 30
Typ. Maszynny:	Op.Nr.: _____
BT:	Date: 10.09.2024
Nr. Tabli:	Sht.: 2 of 2
Proc. Engr. Group:	Szkie: _____
Zespol. Inz.:	
Proc. Engr. Inz.:	
Inz. Procesu:	





Group: CHASSIS  
Dywizja: \_\_\_\_\_

Plant: \_\_\_\_\_  
Zakład: \_\_\_\_\_

In Process Sketch / Szkic Operacyjny  
PRASZKA  
Op.-Description: \_\_\_\_\_  
Op.-Opis: \_\_\_\_\_

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. główna

Part-Name: W/ALEK  
Nazwa detalu: \_\_\_\_\_

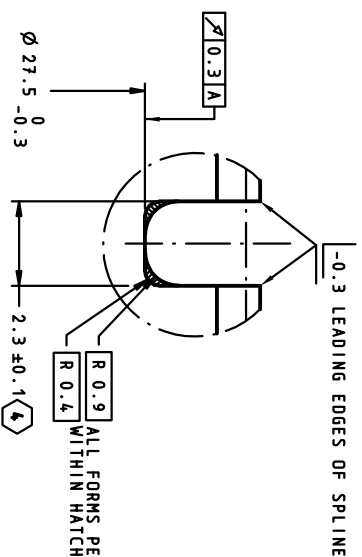
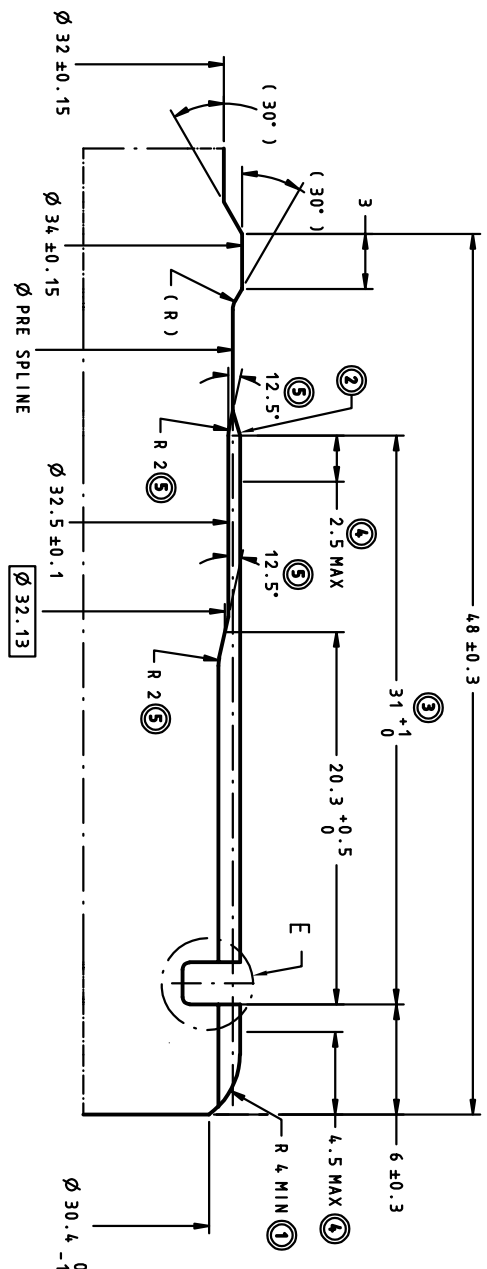
Do not scale / Rys. nie w skali!

Part-No.: \_\_\_\_\_  
Nr detalu: \_\_\_\_\_

E0005106.A

# Wielowypust I / Spline I

CGI5300/CGI5700/ DOI5300	Symbol		SAE ANSI B92.2M - 1980 SIMILAR
	ANSI B92.1	ANSI B92.2M	
FIT, ROOT FORM			SIDE FIT FILLED ROOT
NUMBER OF TEETH	N	Z	33
SPLINE PITCH	P/Ps	-	-
MODULE	-	m	1
PRESSURE ANGLE [°]	Φ	α	37.5
BASE - Ø	Db	DB	26.1807
PITCH - Ø	D	D	33.0
MAJOR - Ø	Do	DEE	33.78±0.12
FORM - Ø	Dre	DFE	31.93 MAX
MINOR - Ø	Dre	DIE	31.41 MIN
CIRCULAR TOOTH THICKNESS:			
MAX EFFECTIVE	tMAX	SVMAX	1.617
MIN EFFECTIVE	tMIN	SVMIN	(1.587)
MIN ACTUAL	t	S	1.544
DOB (MAX DOB MEASURED AT L00B):			
MAX	-	-	(37.104)
MIN	-	-	(37.074)
MEASUREMENT OVER BALL:			
MIN	Me min	MRE min	37.045
BALL - Ø	de	DRE	2.36
HELIX	ψ	ψ	10±3'
Loop length	-	-	22



VIEW E  
SCALE: 10:1

- ① BEFORE SPLINE OPERATION
- ② PROTUBERANCE PERMISSIBLE BY MANUFACTURING OPERATION
- ③ FULL PROFILE
- ④ MAJOR DIAMETER NOT FULLY FORMED PERMISSIBLE
- ⑤ FOR TOOL DESIGN ONLY

Mash. Type:  
Typ Maszyn:

BT:  
Nr Tabli:

Proc.Engr. Group:  
Zespół Inz:  
Proc.Engr. :  
Inz. Procesu:

Op.No.:  
Op.Nr.:

Date: 10.09.2024  
Date:  
Sht.: 2 of 2  
Szkic:

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. glowna

Part-Name: WALEK  
Nazwa detalu:

Do not scale / Rys. nie w skali!

Prototype  
 Pre-Launch  
 Production

Control  Yes  No  
Item  Tak  Nie

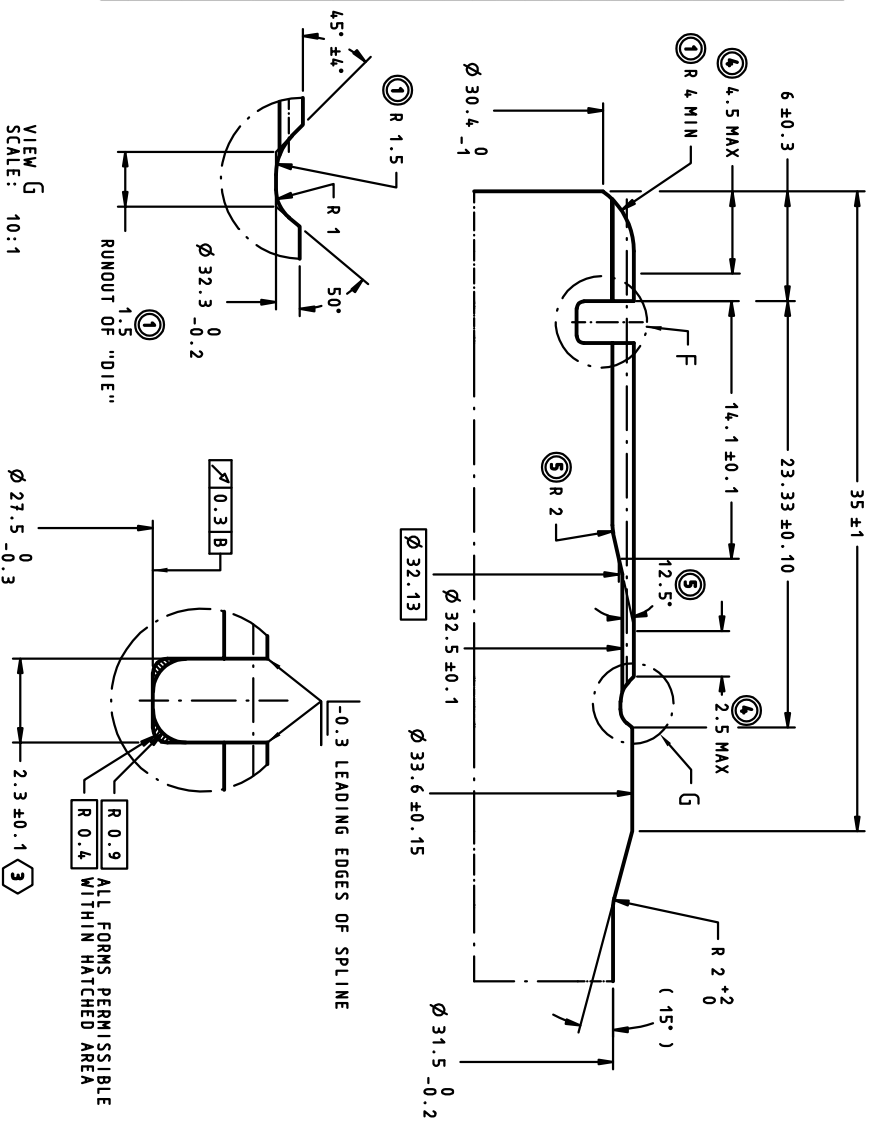
Part-No.:  
Nr detalu:

**E0005106.A**

# Wielowypust II / Spline II

FUJ5300/FAI53/ FR153	Symbol		SAE ANSI B92.2M - 1980 SIMILAR	IR non-HB
	ANSI B92.1	ANSI B92.2M		
FIT. ROOT FORM				
NUMBER OF TEETH	N	Z	33	
SPLINE PITCH	P/Ps	-	-	
MODULE	-	m	1	
PRESSURE ANGLE [°]	α	α	37.5	
BASE - ∅	Db	DB	26.1807	
PITCH - ∅	D	D	33.0	
MAJOR - ∅	Do	DEE	33.78±0.12	
FORM - ∅	DFe	DFE	31.93 MAX	
MINOR - ∅	Dre	DIE	31.41 MIN	
CIRCULAR TOOTH THICKNESS:	tMAX	SVMAX	1.619	
	tMIN	SVMIN	(1.589)	
	t	S	1.546	
	DOB (MAX DOB MEASURED AT LDOB):	-	-	(37.107) (37.077)
MEASUREMENT OVER BALL:	Me min	MRE min	37.047	
	de	DRE	2.36	
BALL - ∅	ψ	ψ	10±3'	
HELIX	-	-	-	
LDOB	-	-	23	

- ① BEFORE SPLINE OPERATION
- ② PROTUBERANCE PERMISSIBLE BY MANUFACTURING OPERATION
- ③ FULL PROFILE
- ④ MAJOR DIAMETER NOT FULLY FORMED PERMISSIBLE
- ⑤ FOR TOOL DESIGN ONLY



VIEW G  
SCALE: 10:1

VIEW F  
SCALE 10:1

Mash. Type: Typ Maszyn:	Op.No.:
BT:	Op.Nr.:
Nr. Tabl:	Date: 10.09.2024
Proc.Engr.Group:	Snt.:
Zespol Inz.:	Szkie: 1 of 2
Proc.Engr.:	
Inz. Procesu:	

Group: CHASSIS  
Dwywizja: \_\_\_\_\_

Plant: \_\_\_\_\_  
Zakład: \_\_\_\_\_

In Process Sketch / Szkic Operacyjny

PRASZKA

Op.-Description: \_\_\_\_\_  
Op.-Opis: \_\_\_\_\_

WYKONANIE WIELOWYPUSTU

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. główna

Part-Name: WALEK  
Nazwa detalu: \_\_\_\_\_

Prototype  
 Pre-Launch  
 Production

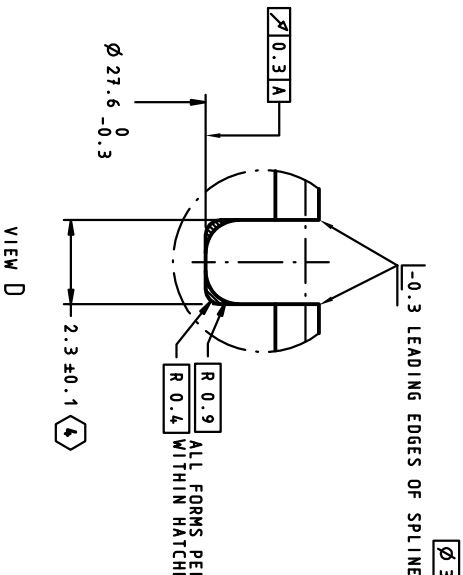
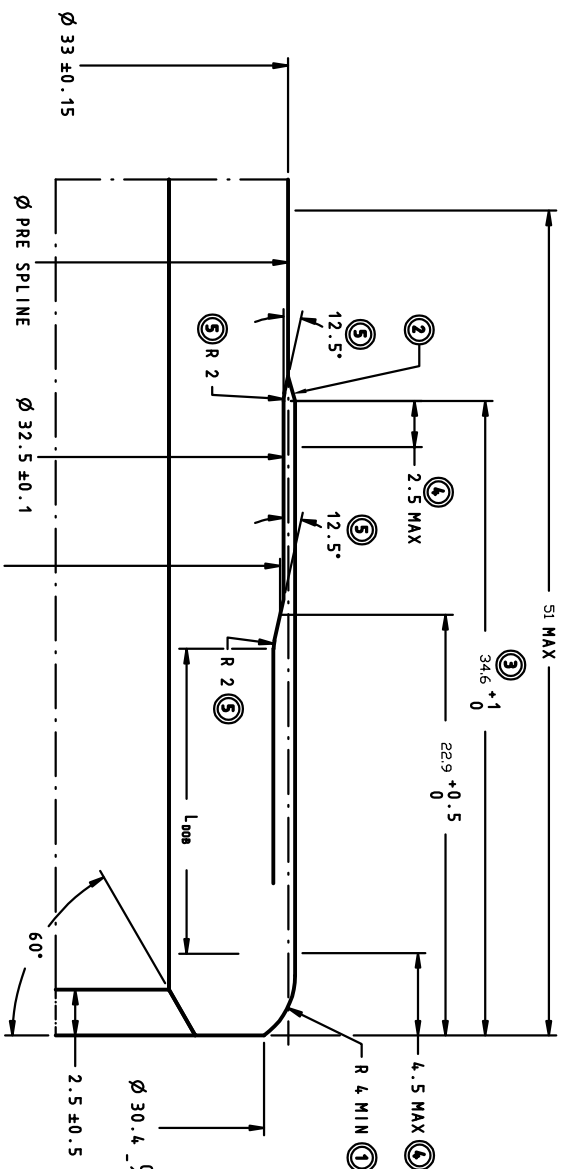
Control Item  
 Yes  
 No

Part-No.: E0007355.A  
Nr detalu: \_\_\_\_\_

# Wielowypust I / Spline I

Do not scale / Rys. nie w skali!

FIT, ROOT FORM	Symbol		SIDE FIT FILLED ROOT
	ANSI B92.1	ANSI B92.2M	
NUMBER OF TEETH	N	Z	33
SPLINE PITCH	P/ps	-	-
MODULE	-	m	1
PRESSURE ANGLE [°]	Φ	α	37.5
BASE - Ø	D <sub>b</sub>	DB	26.1807
PITCH - Ø	D	D	33.0
MAJOR - Ø	D <sub>o</sub>	DEE	33.78±0.12
FORM - Ø	D <sub>fe</sub>	D <sub>FE</sub>	31.93 MAX
MINOR - Ø	D <sub>re</sub>	D <sub>IE</sub>	31.41 MIN
CIRCULAR TOOTH THICKNESS:	t <sub>max</sub>	SV <sub>max</sub>	1.617
	t <sub>min</sub>	SV <sub>min</sub>	(1.587)
	t	S	1.544
	DOB (MAX DOB MEASURED AT LOOB):	-	-
MEASUREMENT OVER BALL:	M <sub>min</sub>	M <sub>RE</sub>	37.045
BALL - Ø	d <sub>e</sub>	D <sub>RE</sub>	2.36
HELIX	ψ	ψ	10±3'
Loob length	-	-	22



- ① BEFORE SPLINE PRESSING OPERATION
- ② PROTUBERANCE PERMISSIBLE BY MANUFACTURING OPERATION
- ③ FULL PROFILE
- ④ MAJOR DIAMETER NOT FULLY FORMED PERMISSIBLE
- ⑤ FOR TOOL DESIGN ONLY

VIEW D

Mash. Type: \_\_\_\_\_  
Typ. Maszyn: \_\_\_\_\_  
BT: \_\_\_\_\_  
Nr. Tabl: \_\_\_\_\_  
Proc. Engr. Group: \_\_\_\_\_  
Zespół Inz: \_\_\_\_\_  
Proc. Engr.: \_\_\_\_\_  
Inz. Procesu: \_\_\_\_\_

Op. No.: \_\_\_\_\_  
Op. Nr.: \_\_\_\_\_  
Date: 10.09.2024  
Sht.: 2 of 2  
Szkic: \_\_\_\_\_

Group: CHASSIS  
Dywizja: \_\_\_\_\_

Plant: PRASZKA  
Zakład: \_\_\_\_\_

In Process Sketch / Szkic Operacyjny

Op.-Description:  
Op.-Opis: \_\_\_\_\_

WYKONANIE WIELOWYPUSTU

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. główna

Part-Name: WALEK  
Nazwa detalu: \_\_\_\_\_

Do not scale / Rys. nie w skali

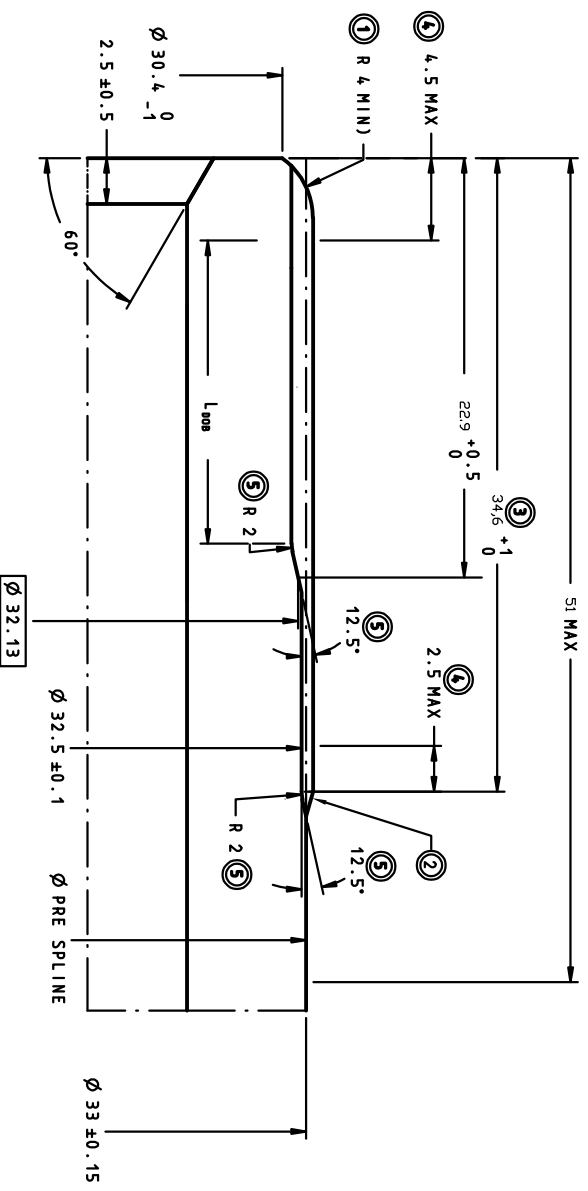
Part-No.: E0007355.A  
Nr detalu: \_\_\_\_\_

Prototype   
Pre-Launch   
Production

Control Item   
Yes   
No

# Wielowypust II / Spline II

CGI5300/CGI5700/ DOI5300	Symbol	SAE ANSI B92.2M - 1980 SIMILAR	4.17.1	
	ANSI B92.1	ANSI B92.2M		
FIT, ROOT FORM		SIDE FIT FILLED ROOT		
NUMBER OF TEETH	N	Z	33	
SPLINE PITCH	P/Ps	-	-	
MODULE	-	m	1	
PRESSURE ANGLE [°]	Φ	α	37.5	
BASE - Ø	D <sub>b</sub>	DB	26.1807	
PITCH - Ø	D	D	33.0	
MAJOR - Ø	D <sub>o</sub>	DEE	33.78±0.12	
FORM - Ø	D <sub>fe</sub>	DFE	31.93 MAX	
MINOR - Ø	D <sub>re</sub>	DIE	31.41 MIN	
CIRCULAR TOOTH THICKNESS:				
	MAX EFFECTIVE	t <sub>wmax</sub>	SV <sub>max</sub>	1.617 (1.587)
	MIN EFFECTIVE	t <sub>wmin</sub>	SV <sub>min</sub>	1.544
	MIN ACTUAL	t	S	
DOB (MAX DOB MEASURED AT L <sub>DOB</sub> ):				
MAX	-	-	(37.104) (37.074)	
MIN				
MEASUREMENT OVER BALL:				
MIN	M <sub>e min</sub>	M <sub>RE min</sub>	37.045	
BALL - Ø	d <sub>e</sub>	D <sub>RE</sub>	2.36	
HELIX	ψ	ψ	10°±3'	
Loop length	-	-	22	



- ① BEFORE SPLINE OPERATION
- ② PROTUBERANCE PERMISSIBLE BY MANUFACTURING OPERATION
- ③ FULL PROFILE
- ④ MAJOR DIAMETER NOT FULLY FORMED PERMISSIBLE
- ⑤ FOR TOOL DESIGN ONLY

Mash. Type: Typ Maszynowy	Op.No.:
BT:	Op.Nr.:
Nr. Tabl:	Date: 10.09.2024
Proc.Engr. Group: Zespół Inż:	Sht.: 1 of 2
Proc.Engr. Inz. Procesu:	Szkic:

Group: CHASSIS  
Dywizja: \_\_\_\_\_

Plant: PRASZKA  
Zakład: \_\_\_\_\_

Op.-Description: \_\_\_\_\_  
Op.-Opis: \_\_\_\_\_

WYKONANIE WIELOWYPUSTU

Release-No.: see Cover page  
Zwolnienie Nr.: patrz str. główna

Part-Name: WALEK  
Nazwa detalu: \_\_\_\_\_

Prototype  
 Pre-Launch  
 Production

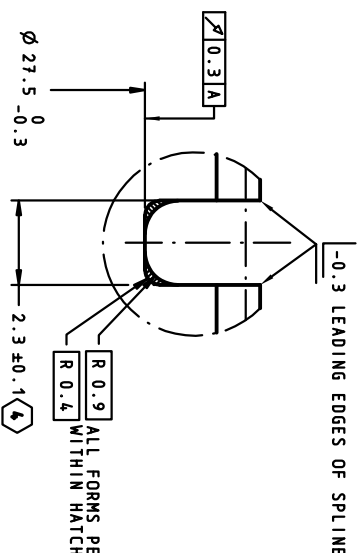
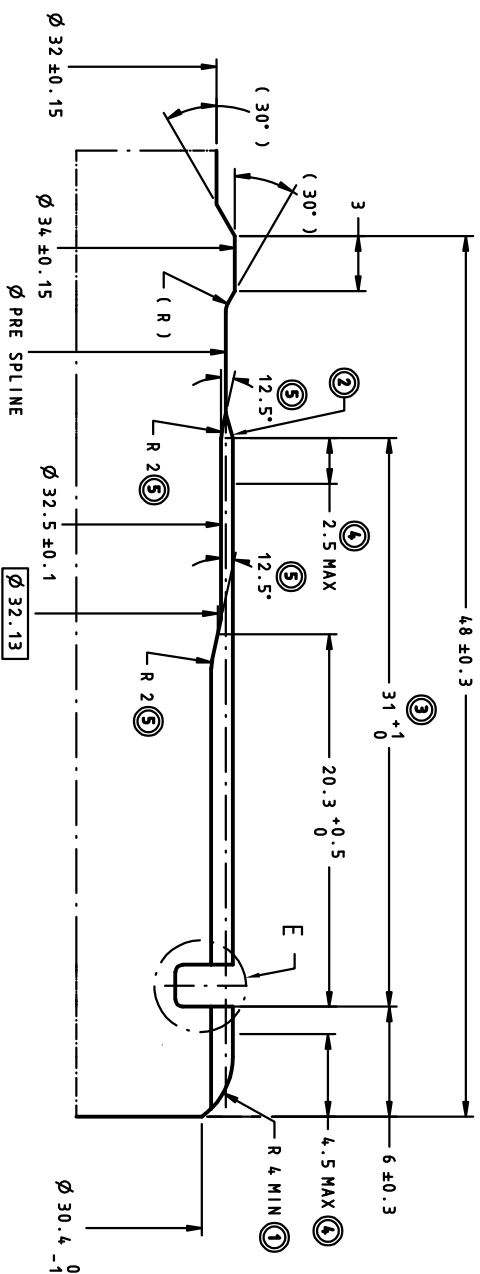
Control Yes  No   
Tak Nie

Part-No.: E0007430.A  
Nr detalu: \_\_\_\_\_

# Wielowypust I / Spline I

Do not scale / Rys. nie w skali

	Symbol		SAE ANSI B92.2M - 1980 SIMILAR
	ANSI B92.1	ANSI B92.2M	
FIT, ROOT FORM	N	Z	33
NUMBER OF TEETH			
SPLINE PITCH	P/Ps	-	-
MODULE	-	m	1
PRESSURE ANGLE [°]	$\Phi$	$\alpha$	37.5
BASE - $\emptyset$	D <sub>b</sub>	DB	26.1807
PITCH - $\emptyset$	D	D	33.0
MAJOR - $\emptyset$	D <sub>o</sub>	DEE	33.78±0.12
FORM - $\emptyset$	D <sub>re</sub>	D <sub>FE</sub>	31.93 MAX
MINOR - $\emptyset$	D <sub>re</sub>	D <sub>IE</sub>	31.41 MIN
CIRCULAR TOOTH THICKNESS:			
MAX EFFECTIVE	t <sub>MAX</sub>	SV <sub>MAX</sub>	1.617
MIN EFFECTIVE	t <sub>MIN</sub>	SV <sub>MIN</sub>	(1.587)
MIN ACTUAL	t	S	1.544
DOB (MAX DOB MEASURED AT Loop):			(37.104)
MAX	-	-	(37.074)
MIN			
MEASUREMENT OVER BALL:			
MIN	Me <sub>min</sub>	MRE	37.045
BALL - $\emptyset$	d <sub>e</sub>	DRE	2.36
HELIX	$\psi$	$\psi$	10 $\pm$ 3'
Loop length	-	-	22



VIEW E  
SCALE: 10:1

- ① BEFORE SPLINE OPERATION
- ② PROTUBERANCE PERMISSIBLE BY MANUFACTURING OPERATION
- ③ FULL PROFILE
- ④ MAJOR DIAMETER NOT FULLY FORMED PERMISSIBLE
- ⑤ FOR TOOL DESIGN ONLY

Mash. Type: Typ Maszyn:	Op.No.:
BT:	Op.Nr.:
Nr. Tabl:	
Proc.Engr.Group:	Date: 10.09.2024
Zespol Inz.:	Date:
Proc.Engr.:	Sht.: 2 of 2
Inz. Procesu:	Szkie:

Group: CHASSIS  
Dywizja:

Plant: PRASZKA  
Zakład:

Op.-Description:  
Op.-Opis:

In Process Sketch / Szkic Operacyjny

WYKONANIE WIELOWYPUSTU

Release-No.: See cover page  
Zwolnienie Nr.: patrz str. główna

Part-Name: WALEK  
Nazwa detalu:

Do not scale / Rys. nie w skali!

Prototype  
 Pre-Launch  
 Production  
Control Item  Yes  No  
Tak Nie

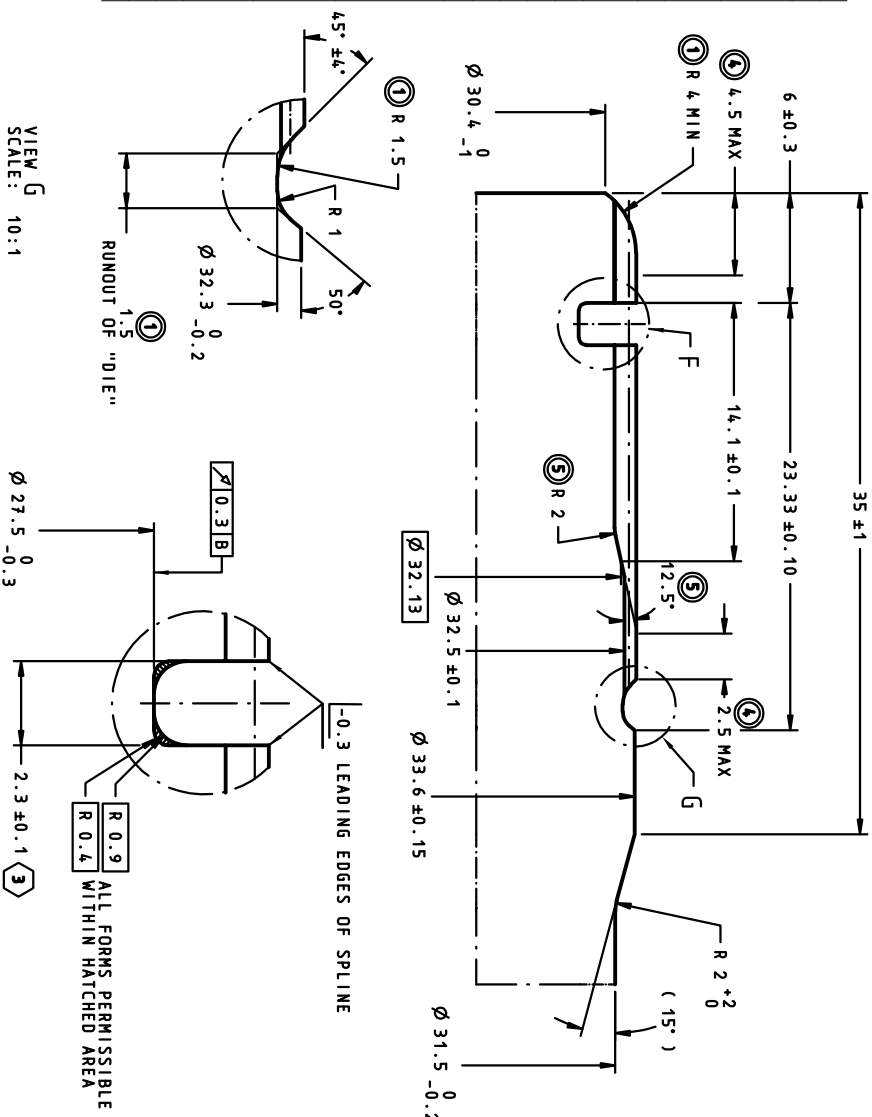
Part-No.:  
Nr detalu:

E0007430.A

# Wielowypust II / Spline II

FUJ5300/FAI53/ FR153		Symbol	SAE ANSI B92.2M - 1980 SIMILAR	IR non-HB
ANSI B92.1	ANSI B92.2M			
FIT. ROOT FORM			SIDE FIT FILLED ROOT	
NUMBER OF TEETH	N	Z	33	
SPLINE PITCH	P/Ps	-	-	
MODULE	-	m	1	
PRESSURE ANGLE [°]	Φ	α	37.5	
BASE - Ø	Db	DB	26.1807	
PITCH - Ø	D	D	33.0	
MAJOR - Ø	Do	DEE	33.78±0.12	
FORM - Ø	Dre	DFF	31.93 MAX	
MINOR - Ø	Dre	DIE	31.41 MIN	
CIRCULAR TOOTH THICKNESS:				
MAX EFFECTIVE	t <sub>MAX</sub>	SV <sub>MAX</sub>	1.619 (1.589)	
MIN EFFECTIVE	t <sub>MIN</sub>	SV <sub>MIN</sub>	1.546	
MIN ACTUAL	t	S		
DOB (MAX DOB MEASURED AT L <sub>DOB</sub> ):				
MAX	-	-	(37.107) (37.077)	
MIN	-	-		
MEASUREMENT OVER BALL:				
MIN	M <sub>e</sub> min	MRE	37.047	
BALL - Ø	d <sub>e</sub>	DRE	2.36	
HELIX	ψ	ψ		
L <sub>DOB</sub>	-	-	10±.3'	23

- BEFORE SPLINE OPERATION
- PROTUBERANCE PERMISSIBLE BY MANUFACTURING OPERATION
- FULL PROFILE
- MAJOR DIAMETER NOT FULLY FORMED PERMISSIBLE
- FOR TOOL DESIGN ONLY



Mash. Type: \_\_\_\_\_  
Typ Maszyn: \_\_\_\_\_  
Nr. Tabl: \_\_\_\_\_  
Op.No.: \_\_\_\_\_  
BT: \_\_\_\_\_  
Proc.Engr. Group: \_\_\_\_\_  
Zespół Inz: \_\_\_\_\_  
Proc.Engr. : \_\_\_\_\_  
Inz. Procezu: \_\_\_\_\_  
Date: 10.09.2024  
Sht.: 1 of 2  
Szkic: \_\_\_\_\_

Group: CHASSIS  
Dywidzja: \_\_\_\_\_

Plant: PRASZKA  
Zaklad: \_\_\_\_\_

Op.-Description: \_\_\_\_\_  
Op.-Opis: \_\_\_\_\_

WYKONANIE WIELOWYPUSTU

Release-No.: see cover page  
Zwolnienie Nr.: patrz str. glowna

Part-Name: WALEK  
Nazwa detalu: \_\_\_\_\_

Prototype  
 Pre-Launch  
 Production

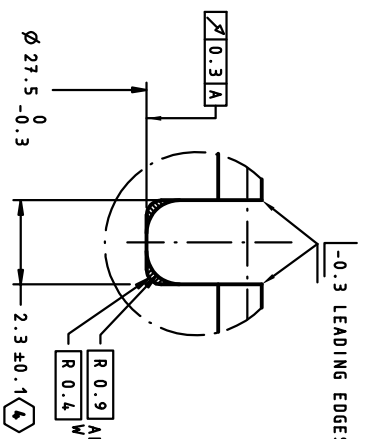
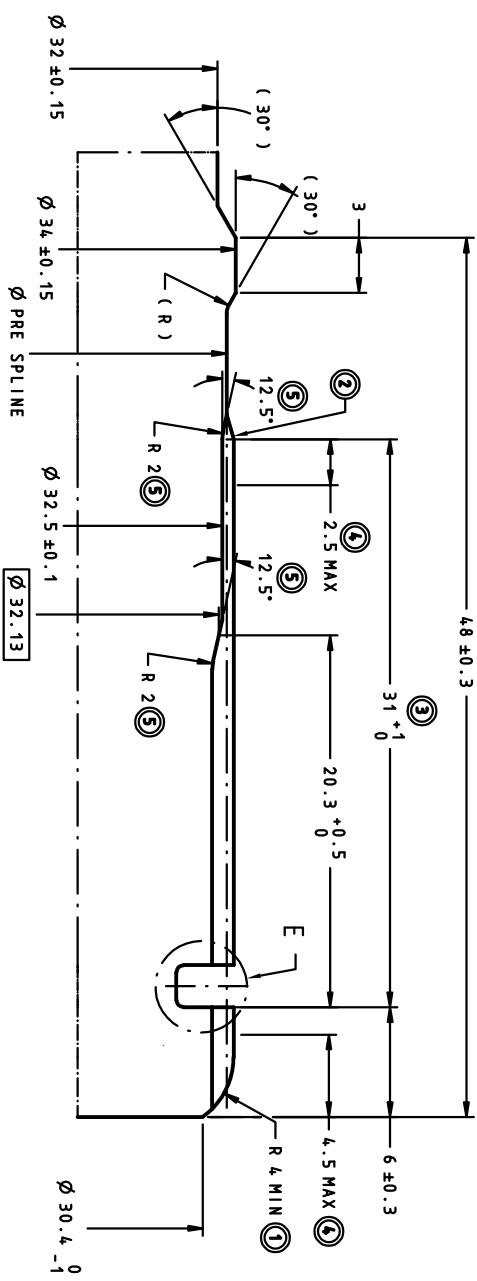
Control Item  
 Yes  
 No

Part-No.: E0007432.A  
Nr detalu: \_\_\_\_\_

# Wielowypust I / Spline I

Do not scale / Rys. nie w skali

CGI5300/CGI5700/ DOI5300	Symbol		SAE ANSI B92.2M - 1980 SIMILAR	4.17.1
	ANSI B92.1	ANSI B92.2M		
FIT, ROOT FORM	N	Z	SIDE FIT FILLED ROOT	
NUMBER OF TEETH		33		
SPLINE PITCH	P/ps	-		
MODULE	-	m	1	
PRESSURE ANGLE [°]	Φ	α	37.5	
BASE - Ø	D <sub>b</sub>	DB	26.1807	
PITCH - Ø	D	D	33.0	
MAJOR - Ø	D <sub>o</sub>	DEE	33.78±0.12	
FORM - Ø	D <sub>re</sub>	D <sub>FE</sub>	31.93 MAX	
MINOR - Ø	D <sub>re</sub>	D <sub>IE</sub>	31.41 MIN	
CIRCULAR TOOTH THICKNESS:				
MAX EFFECTIVE	t <sub>MAX</sub>	SV <sub>MAX</sub>	1.617	
MIN EFFECTIVE	t <sub>MIN</sub>	SV <sub>MIN</sub>	(1.587)	
MIN ACTUAL	t	S	1.544	
DOB (MAX DOB MEASURED AT Loop):				
MAX	-	-	(37.104)	
MIN	-	-	(37.074)	
MEASUREMENT OVER BALL:				
MIN	M <sub>e</sub> min	M <sub>RE</sub>	37.045	
BALL - Ø	d <sub>e</sub>	D <sub>RE</sub>	2.36	
HELIX	ψ	ψ	10±3'	
Loop length	-	-	22	



- ① BEFORE SPLINE OPERATION
- ② PROTUBERANCE PERMISSIBLE BY MANUFACTURING OPERATION
- ③ FULL PROFILE
- ④ MAJOR DIAMETER NOT FULLY FORMED PERMISSIBLE
- ⑤ FOR TOOL DESIGN ONLY

VIEW E  
SCALE: 10:1

Mosh. Type: Typ Maszynowy	Op.No.:
BT:	Op.Nr.:
Nr. Tabl.:	
Proc.Engr. Group:	Date: 10.09.2024
Zespol Inz.:	
Proc.Engr.:	Sht.:
Inz. Procesu:	2 of 2

