

type no.: 45

overall - counter: 1692028



type name: CIVIC 1st LH DOM SLL3

## type management

### general

Input typename CIVIC 1st LH DOM SLL3

set of boundary parts 49

### retractor

retractor article code P34361270A

retractor type top-connect

retractor laser job number 1

### MGG

MGG article code 34311248

MGG color 5 - light grey YAZAKI top-connect

MGG cam angle tolerance 10.000 [deg.]

FW max. - angle pos. 190.000 [deg.]

FW - set angle pos. 180.000 [deg.]

FW min. - angle pos. 170.000 [deg.]

type no.: 45

overall - counter: 1692028

type name: CIVIC 1st LH DOM SLL3



## positions, speed, geometry & clamping force

### Z1 - axis: feed spindle

basic position / start loading position MGG	270.000	[mm]
planarity measuring position	232.800	[mm]
MGG transfer position / end loading position MGG	225.500	[mm]
MGG nok unload position	225.000	[mm]
basic position feed	1500.0	[mm]
full speed feed	30000.0	[mm]

### X1 - axis: stator clamping

basic position	61.000	[mm]
pre position clamping	12.800	[mm]
clamping pos.	12.600	[mm]
full speed feed	5000.0	[mm/min]

### geometry data

1. chuck length spindle	97.000	[mm]
2. unsupported length spindle	0.000	[mm]
3. part length spindle	3.000	[mm]
4. free length spindle (cup-length)	32.000	[mm]
5. chuck length stator clamping	23.000	[mm]
6. unsupported length stator clamping	5.000	[mm]
safety distance	1.000	[mm]

### stator clamping

	selection	min.- force	max.- force	
selection clamping force - control active	no			
setpoint clamping force		22.0	24.0	[kN]
monitoring clamping force	yes	20.0	25.0	[kN]

### planarity sensor

	selection	min	max	
monitoring planarity MGG	yes	0.000	0.070	[mm]
monitoring distance MGG	no	0.000	0.000	[mm]

### contact pos.

monitoring - contact pos.	yes	123.800	126.000	[mm]
---------------------------	-----	---------	---------	------

11/03/2023 11:50:38

HBO021

User: ZapataF

-----  
Date, Signature

type no.: 45  
type name: CIVIC 1st LH DOM SLL3

overall - counter: 1692028



## overview - setpoints

setpoint clamping force  [kN]

### contacting

	way [mm]	force [kN]	feed [mm/min]
safety distance before Start	<input type="text" value="1.000"/>		
pat down before clamping	<input type="text" value="no"/>	<input type="text" value="5.000"/>	<input type="text" value="3.0"/>
pat down after clamping	<input type="text" value="yes"/>	<input type="text" value="15.0"/>	
contact mode		<input type="text" value="force ctr. (rot.)"/>	
contacting parameter	<input type="text" value="4.000"/>	<input type="text" value="6.000"/>	<input type="text" value="200.000"/>
lifting	<input type="text" value="0.600"/>		<input type="text" value="8000.000"/>
recontact	<input type="text" value="0.400"/>		

### process friction welding

phase friction welding	1.friction 1	2.friction 2	3.braking	4.upsetting 1	5.upsetting 2	
force	<input type="text" value="11.000"/>	<input type="text" value="5.000"/>		<input type="text" value="11.000"/>	<input type="text" value="11.000"/>	[kN]
force gradient time	<input type="text" value="0.000"/>	<input type="text" value="0.080"/>		<input type="text" value="0.050"/>	<input type="text" value="0.020"/>	[s]
rotation	<input type="text" value="14000.0"/>	<input type="text" value="14000.0"/>		<input type="text" value="2000.0"/>		[rpm]
switch - mode	<input type="text" value="time"/>	<input type="text" value="time"/>		<input type="text" value="time"/>		
process time	<input type="text" value="0.030"/>	<input type="text" value="0.100"/>	<input type="text" value="+0.020"/>	<input type="text" value="0.040"/>	<input type="text" value="0.250"/>	[s]
reduction	<input type="text" value="0.020"/>	<input type="text" value="0.040"/>	<input type="text" value="+0.000"/>	<input type="text" value="0.100"/>	<input type="text" value="0.100"/>	[mm]
angle pos.	<input type="text" value="180.000"/>	[degree]				
set angle pos.	<input type="text" value="yes"/>					

### process control

	0. contacting	1. friction 1	2. friction 2	4. upsetting 1	5. upsetting 2	
Kp: P - contribution	<input type="text" value="4.000"/>	<input type="text" value="3.000"/>	<input type="text" value="2.000"/>	<input type="text" value="2.000"/>	<input type="text" value="1.000"/>	[s]
Tn: I - contribution	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	[s]
Tv: D - contribution	<input type="text" value="0.000"/>	<input type="text" value="0.250"/>	<input type="text" value="0.270"/>	<input type="text" value="0.270"/>	<input type="text" value="0.300"/>	
V_max	<input type="text" value="300.000"/>	<input type="text" value="150.000"/>	<input type="text" value="250.000"/>	<input type="text" value="600.000"/>	<input type="text" value="300.000"/>	[mm/min]
V_offset		<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	<input type="text" value="0.000"/>	[% V_max]

type no.: 45

overall - counter: 1692028

type name: CIVIC 1st LH DOM SLL3



### overview - monitoring values

<u>process time</u>	1. friction 1	2. friction 2	3. braking	4. upsetting 1	5. upsetting 2	rotation speed = 0	
selection	yes	yes	yes	yes	yes	yes	
maximum - time	0.035	0.105	0.230	0.045	0.255	0.320	[s]
minimal - time	0.025	0.095	0.190	0.035	0.245	0.245	[s]
<u>force gradient time</u>	1. friction 1	2. friction 2		4. upsetting 1	5. upsetting 2		
selection	no	no		no	no		
maximum - time	0.000	0.000		0.025	0.000		[s]
minimal - time	0.000	0.000		0.008	0.000		[s]
<u>reduction</u>	1. friction 1	2. friction 2	3. braking / 4.upsetting 1		5. upsetting 2	overall	
selection	no	no	yes		no	yes	
maximum - reduction	0.280	0.100	1.200		0.140	1.900	[mm]
minimal - reduction	0.100	0.025	0.700		0.020	1.000	[mm]
<u>rotation</u>	1. friction 1	2. friction 2		4. upsetting 1			
selection	yes	no		no			
maximum - rotation	14100.0	13010.0		27.0			[rpm]
minimal - rotation	12000.0	12990.0		-120.0			[rpm]
<u>part length</u>	part length						
selection	no						
maximum - length	0.00	[mm]					
minimal - length	0.00	[mm]					
<u>part angle</u>	angle pos.						
selection	yes						
maximum - angle	190.000	[deg.]					
minimal - angle	170.000	[deg.]					

type no.: 45

overall - counter: 1692028

type name: CIVIC 1st LH DOM SLL3



### overview - force envelope settings

overall-  
activation

yes

#### friction 1

min. - force

max. - force

phase - time

point 1

+5.000

+8.500

[kN]

0

[ms]

point 2

+6.500

+10.500

[kN]

13

[ms]

point 3

+6.500

+11.200

[kN]

22

[ms]

point 4

+6.500

+11.700

[kN]

30

[ms]

point 5

+6.500

+12.000

[kN]

38

[ms]

activation

yes

#### friction 2

min. - force

max. - force

phase - time

point 1

+6.500

+12.000

[kN]

0

[ms]

point 2

+6.500

+12.500

[kN]

16

[ms]

point 3

+5.300

+9.500

[kN]

70

[ms]

point 4

+4.400

+6.500

[kN]

120

[ms]

point 5

+4.200

+6.400

[kN]

290

[ms]

activation

yes

#### upsetting 1

min. - force

max. - force

phase - time

point 1

+4.200

+6.400

[kN]

0

[ms]

point 2

+3.000

+5.900

[kN]

12

[ms]

point 3

+2.500

+5.600

[kN]

18

[ms]

point 4

+2.000

+4.500

[kN]

30

[ms]

point 5

+2.000

+5.500

[kN]

38

[ms]

activation

yes

#### upsetting 2

min. - force

max. - force

phase - time

point 1

+2.000

+5.500

[kN]

0

[ms]

point 2

+4.000

+9.000

[kN]

12

[ms]

point 3

+7.000

+10.500

[kN]

28

[ms]

point 4

+9.000

+11.000

[kN]

75

[ms]

point 5

+9.000

+11.000

[kN]

250

[ms]

activation

yes

type no.: 45

overall - counter: 1692028



type name: CIVIC 1st LH DOM SLL3

## overview - distance envelope settings

overall-  
activation

yes

### friction 1

min. - dist.

max. - dist.

phase - time

point 1

-0.030

+0.030

[mm]

0

[ms]

point 2

+0.000

+0.060

[mm]

10

[ms]

point 3

+0.015

+0.070

[mm]

15

[ms]

point 4

+0.030

+0.080

[mm]

20

[ms]

point 5

+0.040

+0.100

[mm]

28

[ms]

activation

yes

### friction 2

min. - dist.

max. - dist.

phase - time

point 1

+0.040

+0.100

[mm]

0

[ms]

point 2

+0.060

+0.200

[mm]

30

[ms]

point 3

+0.100

+0.460

[mm]

100

[ms]

point 4

+0.330

+0.870

[mm]

210

[ms]

point 5

+0.550

+1.250

[mm]

302

[ms]

activation

yes

### upsetting 1

min. - dist.

max. - dist.

phase - time

point 1

+0.550

+1.250

[mm]

0

[ms]

point 2

+0.600

+1.300

[mm]

12

[ms]

point 3

+0.670

+1.400

[mm]

22

[ms]

point 4

+0.830

+1.570

[mm]

38

[ms]

point 5

+0.870

+1.600

[mm]

42

[ms]

activation

yes

### upsetting 2

min. - dist.

max. - dist.

phase - time

point 1

+0.870

+1.600

[mm]

0

[ms]

point 2

+1.000

+1.900

[mm]

28

[ms]

point 3

+1.000

+1.900

[mm]

120

[ms]

point 4

+1.000

+1.900

[mm]

200

[ms]

point 5

+1.000

+1.900

[mm]

248

[ms]

activation

yes