type management

general

Input typename	CIVIC 1st LH DOM SLL3
set of boundery 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.]

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.

	selection	min	max	
monitoring - contact pos.	yes	123.800	126.000	[mm]

| type name: | CIVIC 1st LH DOM SLL3 |

overview - setpoints

setpoint clamping force | 24.0 | [kN]

contacting

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

process friction welding

phase friction welding	1.friction 1	2.friction 2	3.braking	4.upsetting 1	5.upsetting 2	
force	8.000	4.000		8.000	8.000	[kN]
force gradient time	0.000	0.080		0.050	0.020	[s]
rotation	14000.0	14000.0		2000.0		[rpm]
switch - mode	time	time		time		
process time	0.030	0.100	+0.020	0.040	0.250	[s]
reduction	0.020	0.040	+0.000	0.100	0.100	[mm]
angle pos.	180.000	[degree]				
set angle pos.	yes					

process control

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

type no.:	**45**		**overall - counter:**	**1692078**		
type name:	**CIVIC 1st LH DOM SLL3**					

overview - monitoring values

process time

	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]

force gradient time

	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]

reduction

	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]

rotation

	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]

part length

	part length	
selection	no	
maximum - length	0.00	[mm]
minimal - length	0.00	[mm]

part angle

	angle pos.	
selection	yes	
maximum - angle	190.000	[deg.]
minimal - angle	170.000	[deg.]

type no.:	45	overall - counter:	1692078
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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: | 1692078 |

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				