ETCS INC ETCS TOOL & DIE

21275 MULLIN AVE, WARREN, MI 48089

www.etcsinc.com, info@etcsinc.com

2021-2022 MMBDC certified

Minority Business Enterprise (MBE)

2021-2022 ISO 9001 certified





ETCS, Inc. Capabilities

ETCS INC is an Engineering, Tooling, Components systems company headquartered in the Metro-Detroit area that was established in 2003.

ETCS INC was founded to offer tool design, Engineering & Tool build for Stamping Dies, Injection Molds & Check Fixtures. Sister company, Chippewa Plastics, offers full-service tool room and plastic part production in MI



www.etcsinc.com www.chippewaplastics.com





Our largest Clients include:







Technik für Automobile





ETCS, Inc. Capabilities

Engineering

- ETCS offers Stamping tool design, Injection mold & fixture design service.
- Manufacturing Feasibility, Product Optimization & CAE services. Quality Services,
 Measurement validation using Blue Light/ White Light scanning.
- Direct engineering vendor to Ford, GM, FCA, and several tier suppliers like Autodie and Gestamp.

Tooling

- ETCS builds over 200 stamping dies, injection molds, and check fixtures a year.
- Chippewa Plastic is a full service mold shop in Evart MI and ETCS Tool & Die is a full service Stamping Die shop in Warren MI.
- ETCS is recommended by Ford GVT and has won several tooling programs via the Ford/ Ariba auction process (details on next slide).

Components

- ETCS through its Plastics manufacturing plant in Evart MI supplies Interior and Exterior plastic parts and assemblies (Injection molded parts, up to 1000T).
- Major customers include Magna Seating, JCI, SMP/Mercedes, IAC, Group Antolin, General Dynamics, Steelcase, etc. www.chippewaplastics.com

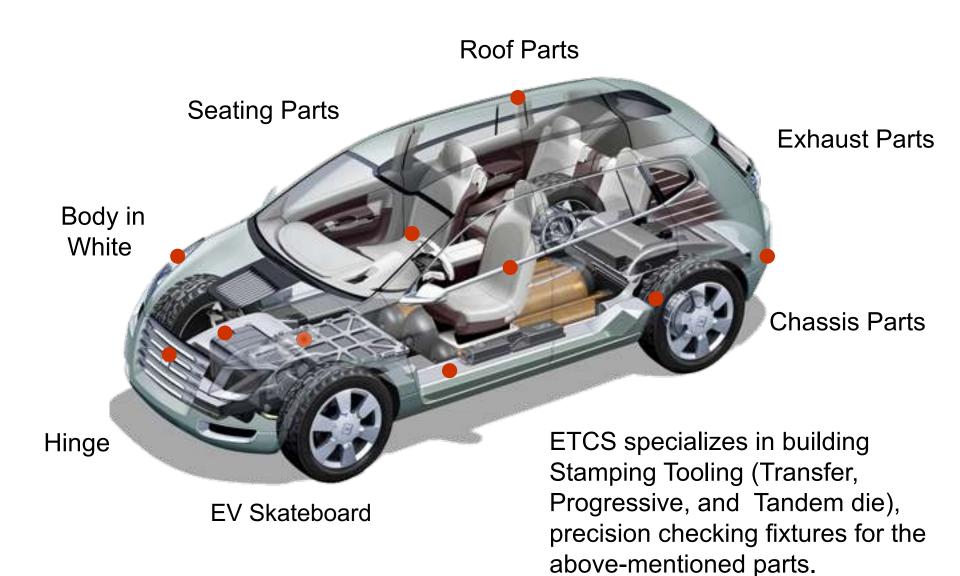


OUR MISSION

- The mission of ETCS is to serve our customers, in a responsive and cost-effective manner, while meeting their goals for developing high-quality products and services. Our customer base is the worldwide automotive and aerospace industry, as well as those customers who can benefit from our core technologies and expertise.
- Customer Satisfaction is a measure of our success and people are our strength.



Automotive Stamping Tooling & Parts





Die Engineering, Die Design & Die Manufacturing Activities

- Die Design supplier to Ford Motor, Autodie, and many major Tier suppliers
- Product Optimization and CAE supplier to Ford, Gestamp, Fisher Dynamics, Martinrea and many Tier Stampers.
- Die Buyoff services PPAP with Blue Light/White Light measurement and Gage R&R
- Die Build supplier to OEM: Rivian, Canoo, Honda, Ford, GM, Stellantis, Tier I & Tier II: WICO, Flex N Gate, Magna, Lear, Fisher Dynamics, Hamlin, Titan Industries, JCI, Challenge etc.



ETCS EQUIPMENT LIST

No.	Equipment Name	Picture	No.	Equipment Name	Picture	No.	Equipment Name	Picture
1	300 T Verson press with feel line, 96 Bed		2	Hurco VMX42 CNC machine with auto tool changer		3	Bridgeport 1	
4	1000T Danly press with feed line, 180" X 80", SH 53"		5	Hurco Vertical CNC machine		6	Bridgeport 2	
7	Dry Grinder 1		8	Wet Grinder 1		9	End Grinder	
10	Dry Grinder 2		11	Drill Press		12	Radial Drill	



ETCS EQUIPMENT LIST

No.	Equipment Name	Picture	No.	Equipment Name	Picture	No.	Equipment Name	Picture
13	Rough grinder		14	Tarus Horizontal arm CMM 10' by 6' bed		15	Ingersoll Rand Air Compressor	(B) reposal to
16	Leblond Lathe		17	30 HP Denver Gardner Air Compressor		18	Toyota 5000 LBS Forklift	
19	Hyster 15000 LBS Forklift		20	7 ton crane		21	5 ton crane	
22	15/15 ton Overhead dual head roll over crane		23	10/10 ton Demag crane		24	5 ton crane	



ETCS EQUIPMENT



300 TON PRESS W/FEED LINE RL: 96" x FB: 60"



1000 TON PRESS W/FEED LINE RL:180" x FB:80"



FORKLIFT- 5000 LBS



FORKLIFT 15000LBS



CRANE 15/15/10/10/5/5/5/5 TON (7 NOS)



ETCS ETCS MANUFACTURING EQUIPMENT







BAND SAW

DRILL M/C

HURCO CNC M/C 42" 24" X/Y Axis Travel



CARLTON RADIAL DRILL



MILLING M/C

PEDESTRIAL GRINDER



ETCS ETCS MANUFACTURING EQUIPMENT











SURFACE GRINDER

SAW

SURFACE GRINDER CNC MILLING M/C

SURFACE GRINDER





LATHE M/C

WET SURFACE GRINDER



ETCS EQUIPMENT



TARUS HORIZONTAL ARM CMM



3D BLUE LIGHT SCANNER ATOS/GOM



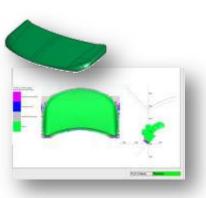
DENVER GARDNER AIR COMPRESSOR

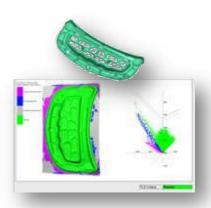


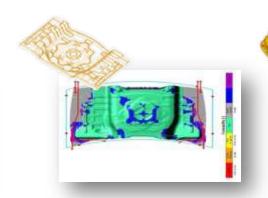
Die Engineering - Simulation

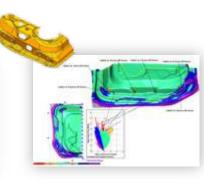


- Multi-step simulation using Autoform
- Spring-back Analysis and correction of draw surface for spring back compensation,
- Experienced in the simulation of Dual-phase materials, tailor welded blanks and Aluminum











Automotive Parts





Automotive Seating Parts







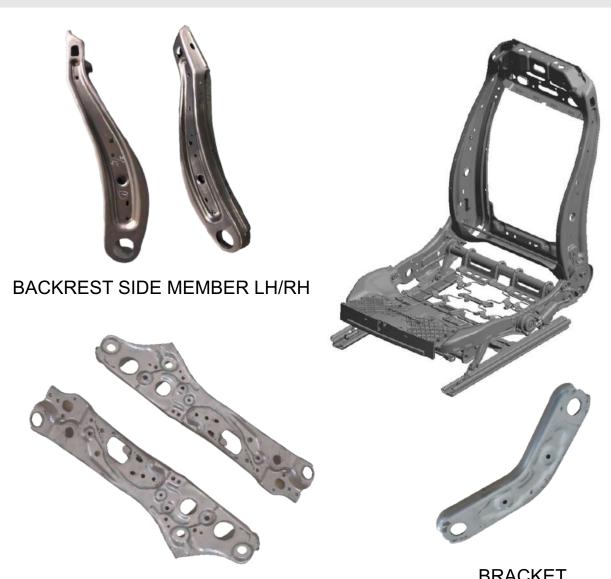








Automotive Seating Parts





UPPER CROSS MEMBER

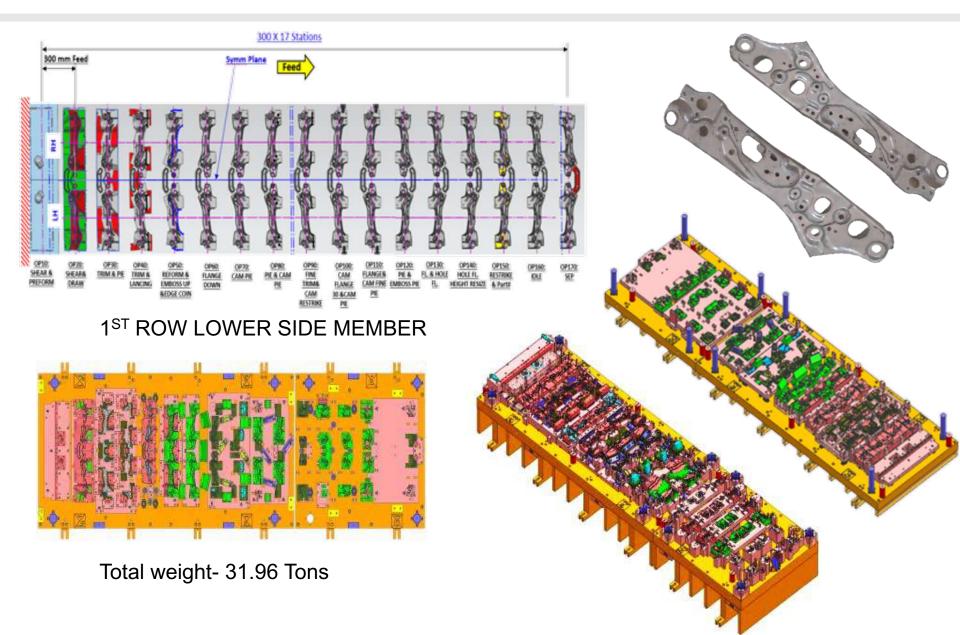


CUSHION SIDE MEMBER LH/RH

BRACKET



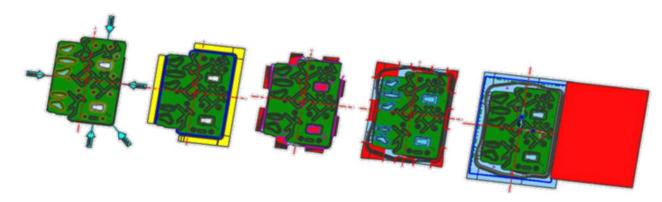
Dies Built – For Seating System Parts



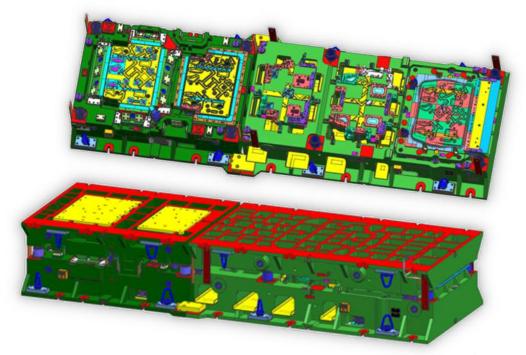


Dies Built – For Seating System Parts





60% BACK PANEL





TRANSFER DIE

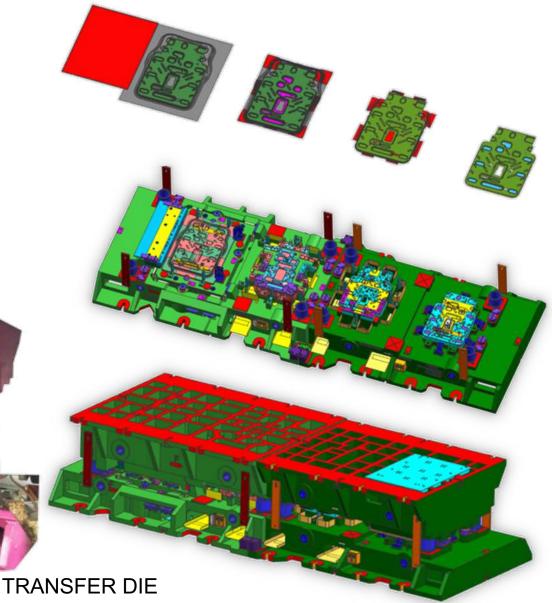


Dies Built – For Seating System Parts



40 % BACK PANEL





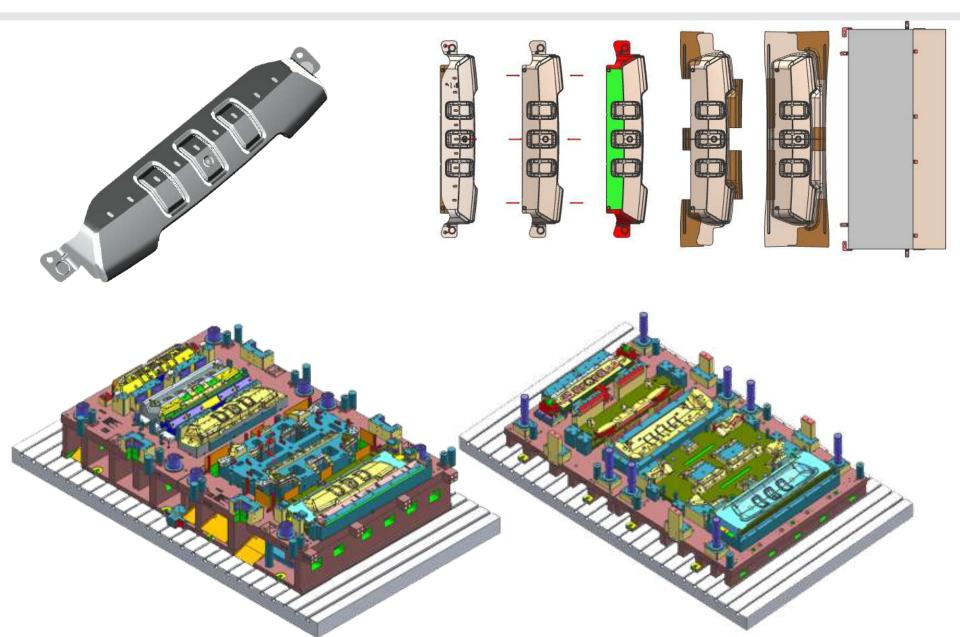


Dies Built – For Rivian Electric Amazon Van Program (RPV-500/700)



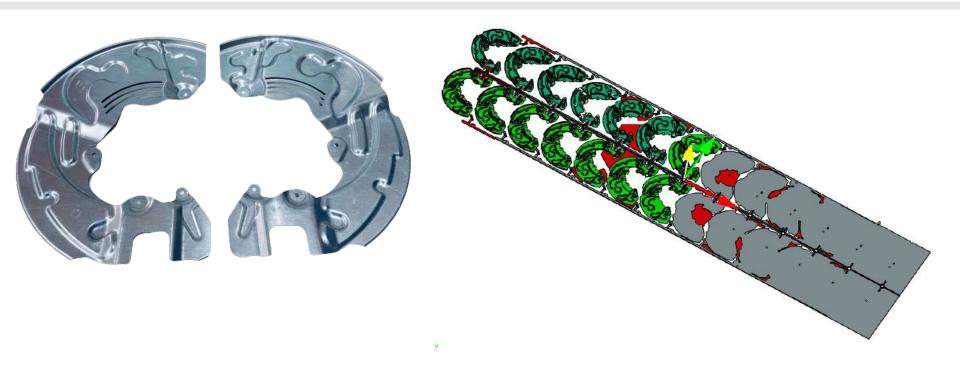


ETCS Dies Built – Ford/ TDM Skid Plate

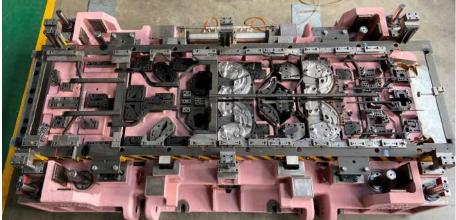




CETCS Dies Built – Ford/Wico CX727 Program

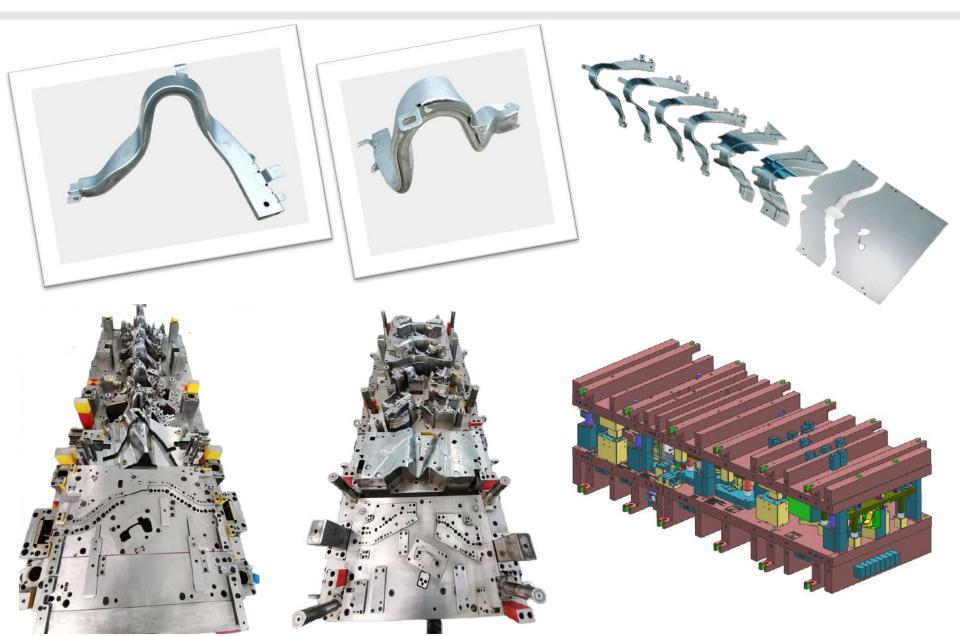








Dies Built – FCA Aptiv Tunnel





Major Die Build Programs

- 2023 Fisher CDX746_7 Electric Crossover (Nautilus/Edge)
- 2022/3 Canoo EV Van
- ❖ 2022 Flex N Gate Ford P708 Bumper program
- ❖ 2022 Rivian Electric Amazon Van Program (RPV-500/700)
- 2021 FCA Aptive EV
- 2021/22 Ford/Wico P758 Small Pickup Program
- 2021/22 Ford/Wico P708
- 2021 Ford U725 Bronco Program
- 2021 GM/Fisher Synergy Program
- ❖ 2021 GM/Challenge B1TXX Electric Hummer Program
- 2020/21 Chrysler/Magna Jeep WL/WL45 Programs
- 2020 Ford/Wico CX727 Program
- 2019 Mercedes C167, X167, V167 Programs
- 2018 Mercedes X166, W166, C292 Programs
- 2018 Ford/Wico CX483 Program
- 2017/18 Ford/Wico CX482 Program
- 2017/18 Ford/Brose/Gill C2 1st Row Seat Structures Metal Program
- 2017/18 Ford/Lear U625 1st Row Seat Structures Metal Program
- ❖ 2017 VW/JCI Tiguan Program
- 2016/17 Ford/JCI U55X Seat Structures Metal Tooling
- 2015/16 GM C1XX Stamping and Plastic Tooling
- 2014 FORD CD4.2 seat structure program(CD539N & U540 program)
- 2013 Ford V363 (Transit) 1st Row & 2nd Row Plastic seating
- 2011 RT Mini-Van Program
- 2010 WK/WD Chrysler Seating Plastics Program



Major Die Build Programs - Details

Ford/Flex N Gate P708 - Bumper Stampings

No.	Part # (or description)	Picture		e Statio	Stock Attributes Th x W x P			Tool Dimensions LR x FB x SH			Tonnage
T	PC3B 17B894 / 5				Matl Type	WSS-M1A367- A46	ST	LR	220	+:-	
-	AA		1+1 OUT	12	Thickness	4.20	mm	FB	65	-	20007
1	Plate Front Bumper	William Control	PROG DIE	14	Width	990	mm	SH	45	*	2000 T
	RH / LH			ĺ	Pitch	445.00	mm	TP		-	
- 12	PC3B 17B836 / 7		1+1 OUT PROG DIE	13	Matl Type	WSS-M1A367- A46	ST	LR 107 "		+	
_	АА				Thickness	2,67	mm	FB	62	1	800 T
2	Brkt Frt Bmpr Outer				Width	921	mm	SH	45		
	RH /LH				Pitch	189.00	mm	ŢP		+	
	PC3B 17A750 AA- Brist Asy RR Brinpr Miting RH		1 OUT PROG		Mati Type	WSS-M1A367- A46	ST	LR	127	*	10007
				11	Thickness	4.20	mm	FB	50	-	
3			DIE	11	Width	620	mm	SH	45	*	1000 T
				ĺ	Pitch	270.00	mm	TP		4	
- 0	3		1 OUT PROG DIE	11	Matl Type WSS-M1A367- A46		ST	LR	127	*	
4	PC3B 17A751 AA-				Thickness	4.20	mm	FB	50		1000 T
4	Brkt Asy RR Bmpr Mtng LH	D			Width	620	mm	SH	45	-	
					Pitch	270.00	mm	TP		-	
- î	PC3B 17795 / 6 AA	3	1111/211211		Mati Ivpe	WSS-M1A367- A46	ST	LR	114	*	
5	Arm RR Broom Otr	1	1+1 OUT BLANK +	8	Thickness	2.00	mm	FB	41	-	1000 T
3	RH / LH	1	MANUAL TRANSFER		Width	386	mm	SH	60	*	10001
				ĺ	Pitch	256.00	mm	TP		+	
7	PC3B 17787 /8				Matl Type WSS-M1A367- A46		ST E	LR	69	+	
-	AAW		1+1 OUT PROG DIE	41	Thickness	5.70	mm	FB	55	*	1000 T
6	Bracket RR Bropr			11	Width	740	mm	SH	45	-	
	Arm Otr RH / LH				Pitch	136.00	mm	TP			



ETCS Major Die Build Programs - Details

Ford/Flex & Gate P708 - Bumper Stampings











ETCS Major Die Build Programs - Details

Ford/Flex & Gate P708 - Bumper Stampings











Major Die Build Programs - Details

Rivian Electric Amazon Van Program USA 2022

No.	Part # (or description)	ription) Picture To	Tooling Type	Stati		Stock Attributes Th x W x P		Too	Tonnage		
					Matl Type	CR-550Y-650T- LA-SH-GI60-II	STE	LR	199	-	
243	PT00032830		1+1-OUT	13	Thickness	2.50	mm	FB	52	*	8501
1	/ PT00054525	0	PROG DIE	12	Width	662	mm.	SH	36		8501
					Pitch	370.00	mm	TP			8
				9 (Matl Type	CR - DP 980	STE	LR	104	*	0 3
2	PT00054446	1	1+1-OUT	15	Thickness	2.00	mm	FB	72		1100
2	/ PT00054451		PROG DIE	13	Width	1180	mm	SH	40	•	1100T
					Pitch	160.00	mm	TP			
T		1			Matl Type	CR-590Y-980T- DP-GI60	STE	LR	85	×	1200 T
	PT00031919-REINF		1-OUT PROG	75	Thickness	2.20	mm	FB	86		
3	- FRT RAIL; INR; RR ; UPR; RPV		DIE	14	Width	1546	mm	SH	40		
					Pitch	137.00	mm	TP			
- 10	38		+	\$ 0	Matl Type	CR-590Y-980T- DP-GI60	STE	LR	86	*	-
	PT00031940-REINF - FRT RAIL; INR; RR ; UPR; LH; RPV	1-OUTPRO DIE	1-OUT PROG	1372-0	Thickness	2.20	mm	FB	86		
4			OH DESCRIPTION OF	14	Width	1525	mm	SH	40	-	1183
			50		Pitch	138.00	mm	TP		-	-
		\			Matl Type	HR-550Y-610T- LA-GL60	STE	LR	89	in	735
300	PT00031941-REINF		1-OUT PROG	1022	Thickness	2.20	mm	FB	85		
5	- FRT RAIL; OTR; RR ; UPR; LH; RPV		DIE	14	Width	1515	mm.	SH	40		
		1			Pitch	144.00	mm	TP			
	88	Carco		90.00	Matl Type	CR-590Y-980T- DR-GI60	STE	LR	89	*	. 1200 T
	PT00031917-REINF		1-OUT PROG	4.20	Thickness	2.20	mm	FB	86		
6	- FRT RAIL; OTR; RR ; UPR; RPV		DIE	14	Width	1546	mm	SH	40	-	
		/			Pitch	143.00	mm	TP		-	
					Matl Type	CR-420Y-480T- LA-GI60	STE	LR	149		6
	PT00034320- CROSSMEMBER -	-	1-OUT PROG	1000	Thickness	1.80	mm	FB	49	*	304
7	MOTOR MOUNT;	CON	DIE	14	Width	604	mm	SH	40		
	LWR; RPV-500	L; RPV-500	**		Pitch	253.00	mm	TP		*	

No.	Part # (or description)	Picture		Stati		Stock Attributes Th x W x P			ol Dimensio .R x FB x Si	Tonnage	
П	PT00034338-				Mati Type	CR-420Y-480T- LA-GJ60	STE	LR	148		
8	CROSSMEMBER - MOTOR MOUNT:	-	1-OUT PROG	14	Thickness	1.80	mm	FB	56	1	365
0	LWR; RPV- 700/900	97.40	DIE	**	Width	785	mm	SH	40	ľ	303
					Pitch	250.00	mm	TP			
	PT00032023 LH /	- 4	1		Mati Type	CR-590Y-980T- DP-GI60	STE	LR	188	-	
9	80	;RPV-	1+1 OUT	10	Thickness	2.00	mm	FB	80	Ē.	1472
9	BRKT-FRTRAIL; INR;RR;LH;RPV-		PROG DIE	10	Width	1380	mm	SH	40	1	1472
	700				Pitch	452.00	mm	TP		-	
	1		1+1 OUT PROG DIE	- 22	Mati Type	CR-330Y-590T- DP-SH-GI60-U	STE	LR	139		2000 T
202	PT00052930/PT00 054301			12	Thickness	2.00	mm	FB	71		
10				12	Width	1143	mm	SH	40	-	
		13			Pitch	273.00	mm	TP		100	
					Mati Type	CR-330Y-590T- DP-SH-GI60-U	STE	LR	135		
	PT00050026/PT00	1	1+1 OUT	Terrary.	Thickness	2.00	mm	FB	71		
11	054300		PROG DIE	12	Width	1145	mm	SH	40	-	2000 T
		1			Pitch	265.00	mm	TP		-	*
	PT00031921 LT/		1+1 OUT PROG DIE		Mati Type	HR-550Y-610T- LA-GI60	STE	LR	127		2000 T
12	RT			12	Thickness	3.50	mm	FB	58	*	
12	PLATE - FRT BUMPER MNTG :				Width	820	mm	SH	40	1	
	RPV			1 2	Pitch	248.00	mm	TP	5 (2) (2) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4		
		And I			Mati Type	CR-420Y-480T- I.A-SH-GJ60-JJ	STE	LR	151	-	S.
13	PT00032829		1+1-OUT	13	Thickness	2.50	mm	FB	69	1	1000 T
13	PT00032831	1	PROG DIE	13	Width	1112	mm	SH	36	•	
		6/6 13			Pitch	275.00	mm	TP		-	Gr.
	PT00031926 RT/	1		100	Mati Type	CR-590Y-980T- DP-GI60	STE	LR	227		
14	LT		2-OUT PROG	**	Thickness	2.20	mm	FB	74	*	2500 T
14	BRKT - FRT RAIL; OTR : RR : RPV		DIE	11	Width	1240	mm	SH	40		
	om, m, m				Pitch	502.00	mm	TP			



Major Die Build Programs - Details

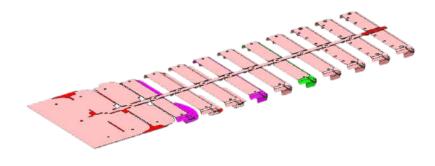
Rivian Electric Amazon Van Program USA 2022

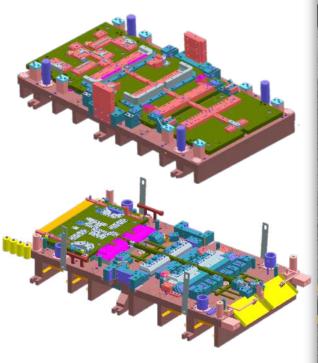
No.	Part # (or description)	Picture	Tooling Type	Stati	Stock Attributes Th x W x P				ol Dimension	ns	Tonnage
	PT00044629-BRKT-				Mati Type	CR-550Y-650T- LA-SH-GI60-U	STE	LR	103	+	550T
15	SKATEBOARD TO BODY ATT_AT_6;LH;RPV PTOQU44615-BRKT- SKATEBOARD TO BODY ATT_AT_6;RH;RPV		1+1 OUT	10	Thickness	2.20	mm	FB	40		DDFF66#F
15			PROG DIE	10	Width	358	mm	SH	32	*	PRESS#5
				3	Pitch	236.00	mm	TP			USED
	PT00050544-BRKT DAMPER MOUNT LH / PT00050545-BRKT DAMPER MOUNT RH		9:		Mati Type	CR-550Y-650T- J.A-SH-GJ60-JJ	STE	LR	62	* .	650T
		10	1+1 OUT	10	Thickness	3.00	mm	FB	46	•	
16			PROG DIE	10	Width	520	mm	SH	32	•	PRESS# 1 1000 T
					Pitch	132,00	mm	TP		4	USED
	PT00044088-BRKT- SKATEBOARD TO BODY ATT;AT_5;RPV			Matl Type	CR-550Y-650T- LA-SH-GI60-U	STE	LR	142	÷	900 T	
		1+1 OUT	188	Thickness	2.50	mm	FB	42	-		
17	/ PT00044089-BRKT-		PROG DIE	10	Width	425	mm	SH	32		PRESS# 1 1000 T
	SKATEBOARD TO BODY ATT AT 5;LH;RPV	1		3	Pitch	336.00	mm	TP		*	USED
		1000	18		Mati Type	CR-330Y-590T- DP.SH-G160-U	STE	LR	113.23	*	8
			1 Out Transfer		Thickness	1.20	mm	FB	69.69	-	
18	PT00032155		Die		Width	1018.00	mm	SH	35.98	-	900 T
				3	Pitch	221.00	mm	TP		4	
	PT00050546- PT00050547				Matl Type	HR-550Y-610T- LA	STE	LR	140.16		9
			1+1 Out Prog Die	1 2	Thickness	2.00	mm	FB	52.36	-	325002
19				9	Width	480,00	mm	SH	29.49	*	610 T
				3	Pitch	165.00	mm	TP			7
		8	2-Out Prog		Mati Type	CR-420Y-480T-	STE	LR	45.08	*	86
	2008/02/9-2006/0.70/11				Thickness	1.00	mm	FB	39.76	-	
20	PT00044317	8	Die	8	Width	336.00	mm	SH	20.98	-	90 T
	N.	(D)			Pitch	63.00	mm	TP		4	1
		X			Matl Type	CR 330Y-590T- DP-SH-GI60-U	STE	LR	137.80		9
		4	1-Out Prog	2	Thickness	1.20	mm	FB	56.30	-	50000
21	PT00033646		Die	9	Width	751.00	mm	SH	29.49	*	420 T
				3	Pitch	235.00	mm	TP		4.	
	<u> </u>	A	18.		Mati Type	CR-330Y-590T- DP-SH-UC-U	STE	LR	111.73	* .	8
	Control & St. Market		1-Out	8	Thickness	1.8	mm	FB	45.67	*	520 T
22	PT00032174	-	Transfer Die		Width	416,00	mm	SH	30.98	•	
				1	Pitch	288.00	mm	TP		4	1



RIVIAN USA 2021: RPV700 D-Pillar





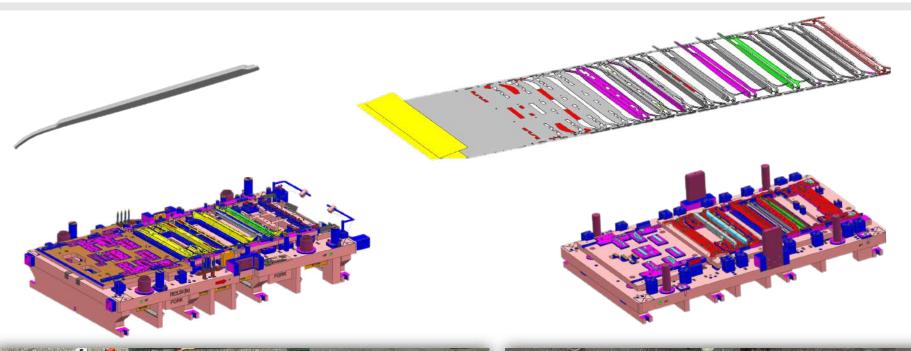


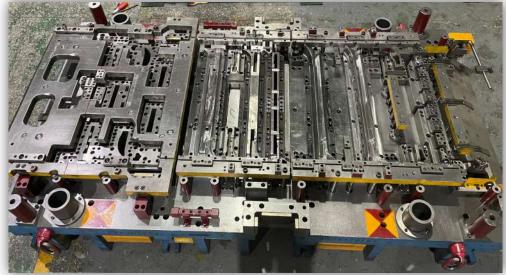


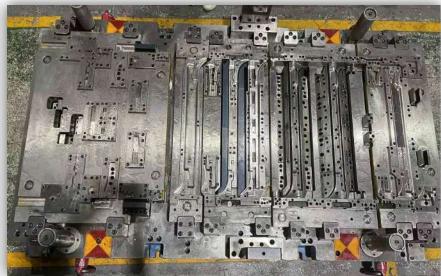




RIVIAN USA 2021: RPV700 D-Pillar

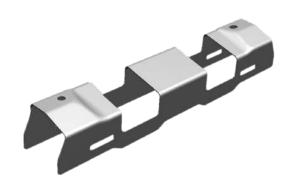


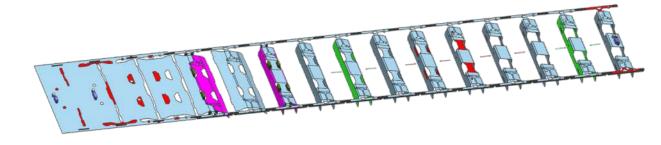


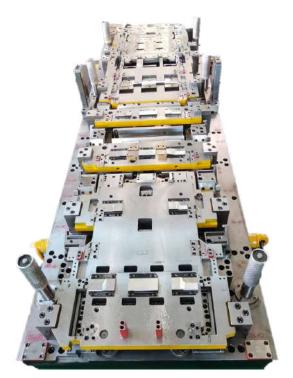


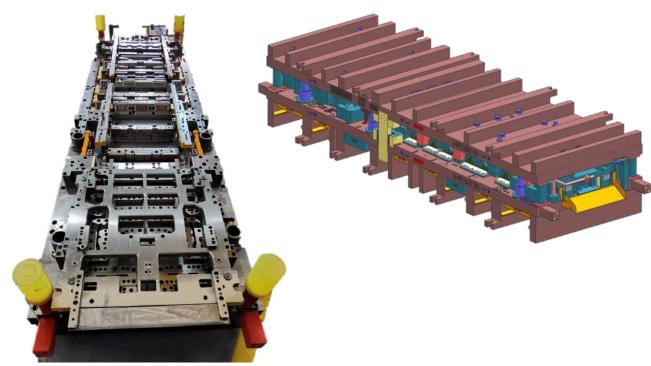


ETCS RIVIAN USA 2021: RPV700 Skateboard



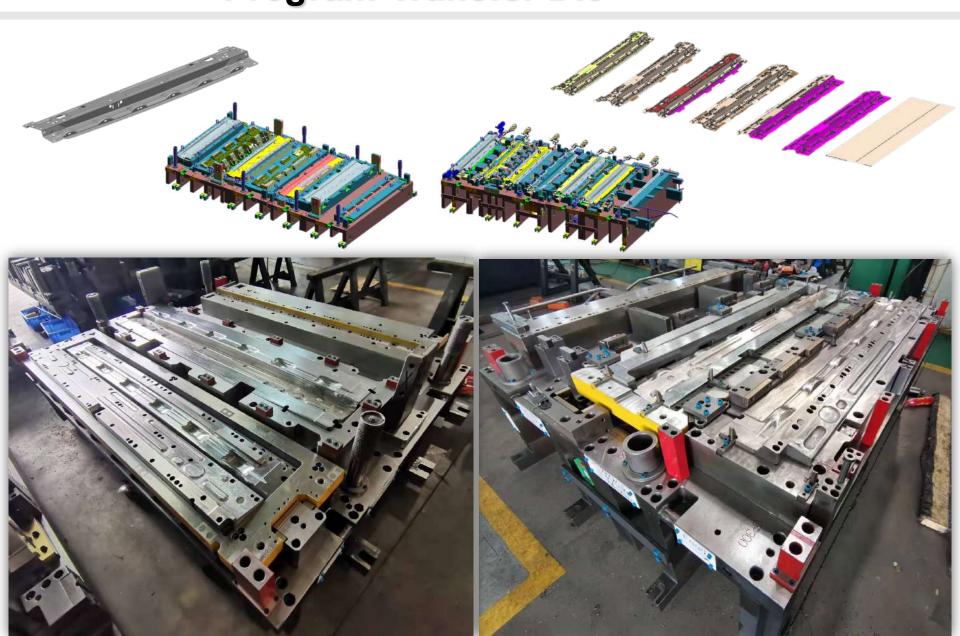






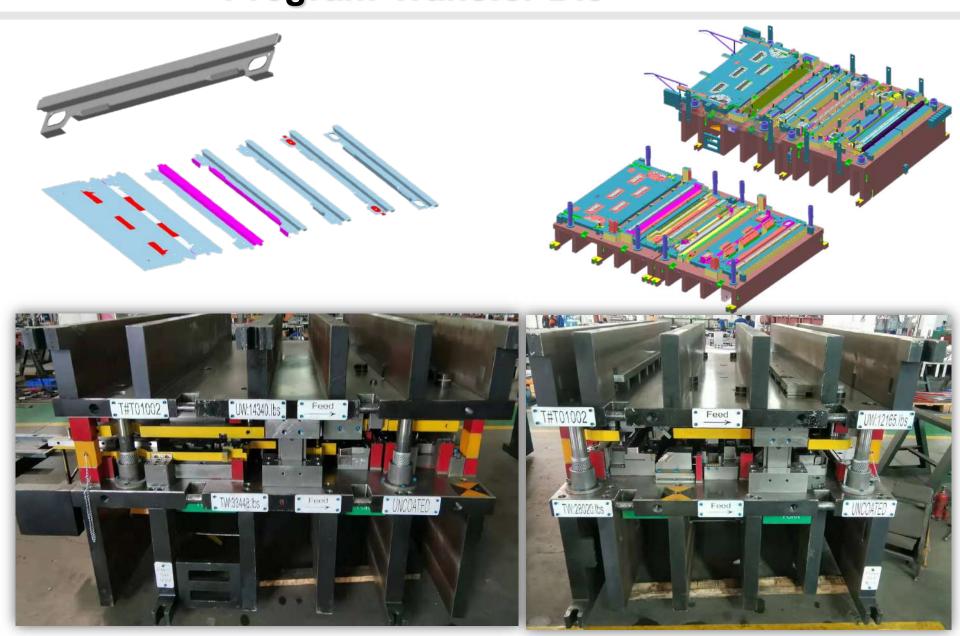


GM/ CHALLENGE 2021: BT1XX Program-Transfer Die



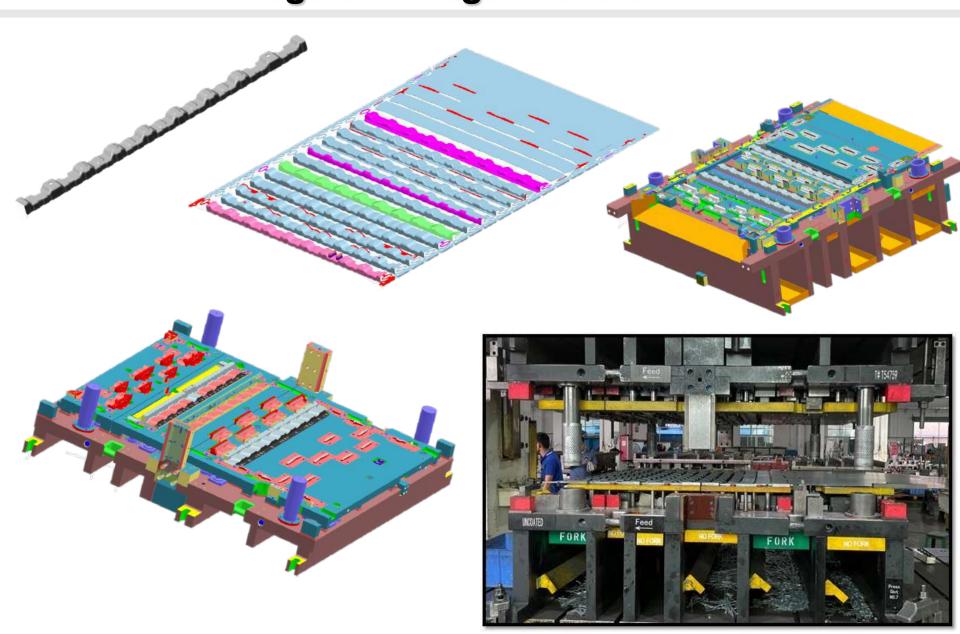


GM/ CHALLENGE 2021: BT1XX Program-Transfer Die





GM/ CHALLENGE 2021: BT1XX Program- Progressive Die





Major Die Build Programs - Details

Ford/Continental plastic Big-3 U725 Bronco Program USA 2021

No. Part # (or description)		Picture	Volume	Tooling Type	s	tock Attributes Th x W x P		Tonnage
	~				Matl Type	STEEL WSS- M1A365-A11	STE	
1	N2DV-S27840_41-			1+1 OUT	Thickness	Control of the control of the	mm	#400 T
1	A-PIA-01	-	11283	PROG	Width		mm	KOMATSU
		32			Pitch	119.00	mm	
				1+1 OUT	Mati Type	STEEL WSS- M1A365-A11	STE	
2	N2DV-527840-A- PIA-03		11283		Thickness	1.07	mm	#400 T
5	N2DV-S27841-A- PIA-03	BA	11203	PROG	Width		mm	KOMATSU
		B			Pitch	82.00	mm .	
	9				Matl Type	STEEL WSS- M1A365-A11	STE	
3	N2DV-527841-A-		11283	1-OUT PROG	Thickness	0.70	mm	#400 T
3	PIA-04		11283	1-OUT PROG	Width		mm	KOMATSU
					Pitch	247.00	mm	
		- B.D.		1-OUT PROG	Mati Type	5052 Aluminum	STE	#200 T KOMATSU
4	N2DV-527840-A-		11283		Thickness	1.00	mm	
*	PIA-05				Width	90	mm	
	E				Pitch	34.00	mm .	
						M1A367-A33		
N.	Assessment of	200	10012333		Thickness		mm	#200 T
5	M2D8-S278D58-A	1	11283	1-OUT PROG	Width	78	mm	KOMATSU
		V			Pitch		mm	
					Mati Type	STEEL WSS- M1A365-A11	STE	Ģ.
6	N2DV-16005-A-PIA- 05		11302	1+1 OUT	Thickness	1.20	mm	#400 T
0	N2DV-16006-A-PIA- 05	I-PIA-	11283	PROG	Width		mm	KOMATSU
	52544	1			Pitch	129.00	mm .	

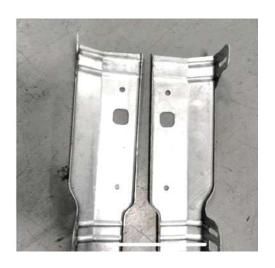
No.	Part # (or description)	Picture	Volume	Tooling Type	.5		Tonnage	
					Mati Type	STEEL WSS- M1A365-A11	STE	
-	N2DV-16005-A-PIA- 06		100/02/	TO LINE SERVICE	Thickness		mm	#200 T
7			11283	1-OUT PROG	Width	66	mm	KOMATSU
					Pitch	3	mm	
			1		Matl Type	*********	STE	
	N2DV-16005-A-PIA- 02		11283	1+1 OUT	Thickness		mm	#400 T KOMATSU
8	N2DV-16006-A-PIA- 02			PROG	Width		mm	
		1			Pitch	177.00	mm	
T					Matl Type	STEEL WSS- M1A365-A11	STE	
9	N2DV-16005-A-PIA- 03	3	100222	1+1 OUT	Thickness		mm.	#400 T
9	N2DV-16006-A-PIA- 03	0	11283	PROG	Width	590	mm	KOMATSU
					Pitch	140.00	mm	
		000	*	1+1 OUT PROG	Matl Type	WSS-M1A365- A11 CLASS3	STE	#200 T KOMATSU
	N2DV-16005-A-PIA-	0			Thickness	Street and Street Street Street	mm	
10	12 & N2DV- 527840-A-PIA-09				Width	171	mm	
		50			Pitch	79.00	mm	
П					Mati Type	5052-H32 ALUMINUM	STE	
	N2DV-527840-A-	()		politica de la constante de la	Thickness		mm	#200 T
11	PIA-04	101		1-OUT PROG	Width	87	mm	KOMATSU
		9			Pitch	36.00	mm	
-			78	3	Matl Type	WSS-M1A365- A11 CLASS3	STE	
**	N2DV-S27840-A-	0		4.007007	Thickness	0.75	mm	#200T
12	PIA-04	90		1-OUT PROG	Width	48	mm	KOMATSU
				8	Pitch	46.00	mm	



Ford/Continental plastic Big-3 U725 Bronco Program USA 2021

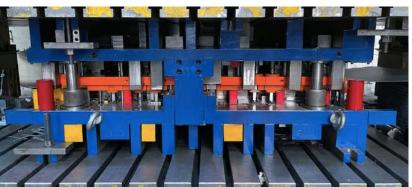












TOOL WEIGHT: 9.43 TON TOOL WEIGHT: 5.14 TON



Lear Ford U625 Program, USA/ Year 2017/8

Į	3	L0274643 / L0274645	CUSA-36610A08-AD / CUSA-36610A08-AD	1810337 ea	E-S-2017-06	AA08/AA08 SIZIZIZIZIZIZIZIZIZI 3-Nov-16	C'alson/Rativ Ran.	3	Dimech, Raymond S RDimech@lear.com	SAE 12340 4900F	400,05	355.6	72.7%	0.0.40.000.000
į	3	L0274637	CU5A-99811D80-AE	1810337	E-S-2017-07	AAUT. 9]2]2[2]2[3]2[3]5[9]	O'UberstRAJIV BAN	Carbenstra.trv RAN 10-Mer-17	Olmech, Raymond S. ROlmech@loar.com	SAE 22340 4200F	785.0	4.86.7	745%	1 to 10 to 10 to 10 to
100,		L0274638	CUSA-98810A06-AC	1810337	E-S-2017-08	A08 8 3 2 3 3 3 3 3 3 3-New-16	C'AlsentiBaJIV BAN	CWsonWRAJIV RAN 36-Mar-17	Omech, Raymond S. ROlmech@lear.com	SAE 22340 4900F	445.01	381	30%	0.0.10.00.00

SAE 22340 4900F	SAE 32340 4200F	SAE 32340 49006
445.01	785.0	400,05
381	1.88.4	356.6
30%	74%	72.7%
0.9+0.080-0.0	0.9 +0.08/-0.1	0.0 +0.08/-0.0
17.520	30.908	15.750
15.000	17.272	14.000















Lear Ford U625 Program, USA/ Year 2017/8

Page?	Stras	SI No. 4	-	GRAPHICS	Customer Part #	ther A	Sumo	N.SIG	mean	CL
Later Office Date Macenaed		18	Lear Bestock	ETCS		Ford Part Number #	Annual Volume	ETCS DIE A	Plant Drowing Number	RFQ Level Driwing Rev
*	*	¥	Y			V	•	×	•	*
			80	Q	L0549404AA,00,,001 8 L0604052AA,00,,001	2500		E-8-2017-01		AA00 001
ž			**		L0554599AA_01 (old: L0549414AA,00,002 / L0549431AA,00,002)	0):	680782	E-S-2017-02		AA00 000
					L0549436AA_00001 & L0604051AA_00001			E-S-2017-03		C. N. SREENING ALIV RANJAN GEORGE
Mar.	- 3		2	AA	L0549437AA,00,,001 / L0549439AA,00,,001		1149575 88	E-8-2017-04	ic .	AABO OOT
			2	DD	L0549402AA,00,,001 / L0549405AA,00,,001		660762 as	E-8-2017-05		AA00 001





Wico Ford CX483 Program, USA/ Year 2018

W	CO	СХ	483 Dies										-10-	7/	11 -									XV.	*	
	DATE	2-A	lug-17									- 13	RELE	ASEL	EVEL	DAT	X.				И		Т	П		V.
7504	No. 8	S 50	GRAPHICS	Customer Part #	*	hme	10.00	Nico		nger	Quo	te Da	ă		ACTI	VE D	ita									
Data Received	Row St. No.	Wico Basket	ETCS	Guotomor Furt	Ford Part Number	Annual Volum	ETCS DIE #	LEAD- WEEKS FROM Wiso	1	Part Drawing Nar	RFG Level Drawing Rev	RFG Lovel CAD Rev	ACTAIN DOOR DOOR	ACTIVE CAD Rev	TWE Data Received Date	OK-TG-TGGL DWg Rev	OK TO TOOL CAD Ray	TO-TOOL Date Reserved	100 March	Contraction	March James	material distration (%)	Theories dreed	range off Promissions)	Cost Width (INCH)	PRCh (INCH)
•	•		Z -		•	v	v	•		v	v	•	-		-	v	v	V		v. 5	2 5	-	3 6	3 E		•
yes(661622017)	3	0	1	LJ7B-S224A40/41			E-8-2017-015	28 WEEKS	Reinf Frt Dr Hinge Sd Lwr			21	ileanne)	A53.6.046 A53.6.446	18-Nov-17	A53 & a46	ASS & ARE	Hawartz	TANKS AND AND AND	01 977	50 404	61.70%	22		21,500	4 300
yes(08/16/2017)	2	2	11	LJ7B-S25048/49			E-S-2017-016	28 WEBKS	Reinf Frt Dr He Sd Upr RH/LH	5 - 6		OH .	J. Connect	A44 & A42	24-Jan-18	Acta	AAG 8. A42	25-day-26	WSS-MFD4-A	500,500-GI CLASS 3	278.05	58,00%	2.2	É C	12,000	8 900
yasidert@zotrzy	3		78	LJ7B-S26822-23			E-S-2017-017	Z8 WEEKS	Reinf Dr Hinge Sd Dr Inr		Ē	01	H-am-ol	AIBBAN	24-Jan-18	Arsava	AHEANT	24-up-16	WSS-MTP94.A	100	20, 50	66.50%	22		18.80	3.200
ynapstraterty.	4	9	FE	LJ7B-S20450-51	5	39	E-S-2017-018	28 WEBKS	Reinf RR Dr Hinge Lwr			12	lesment.	A42 & A38	2-Jan-18	A42.6.438	A47 8 A42	2/lah/18	are a contact a count	00 MO	£	260000	2.5		10.80	6.800



Ford Brose Gill C2 Program, USA/ Year 2018

	-	11	D.			Ford C2 Cide Man	L.																							
1	G					Ford C2 Side Mem	IDE	ers																						
14			ATE:		Jan		- 6													L DA										
13	ceived?	Row#	No.	skul #		GRAPHICS		mber #	omnio	ETCS DIE#	Buyoff Book	DIE#	Order#	DM GIII	Number	Que	te D	ata	ACT	IVE		N-max I	-		I AS					
14	Data Rec		SS	Gill Basker		ETCS		Ford Part Number#	Amusi Volume	ETCS	Buyo	Customer DIE #	Gill Purchase Order#	LEAD- WEEKS FROM GIII	Part Drawing N	RFQ Level Drawing Re-	RFQ Level CAD Rev	Data Received Date	ACTIVE Dwg Ray	ACTIVE CAD Rev	TIVE Data Received Date	Blank Materia	Coll Width (mm	Blank Longth(mm	Plich (mm	material uffication (%	Thickness (mm	rance om Dickness(mm	Coll Width (INCH)	Pitch (INCH)
15	*				•		*			-	•		•	•			=	=	*			_		=	-		<u> </u>	, v		-
16	sox		10	1				CUSA 9610463-462 EA DUSA 9610463-462 CD	172,155 ea for 26/27 394,502 ea for 56/57	E-S-2017-009		100			LH_736026-104	05.19.2016	A_01	6-Oct-16	03.09.2014	A 01	10-Jan-17	420 XF CR	1004	200	300	28.30%	1.6	4/-0.08	39.528	11.811
17	sox			1				CU5A 9610462 EA	1,545,273 ea	E-S-2017-010					AL_734239-936		A 01	6-Oct-16	10,10,2016	A 01	10-Jan-17	420 XF HR	970	161	300	33.49%	1.8	+/-0.08	38.189	11,811







JCI VW Tiquan Program, USA/ Year 2016/17 JCI (Adient) GM C1Y Program, USA/ Year 2016/17

JCI JCDX Dala Received	Rowlet	SI. No. II	GRAPHICS	Customer Partit	VW Parl Number M	Arrusi Volume	ETCS DIE	Bug off Book	Customer DIEM	JCI Purchase Order #	LEAD- WEEKS FROM JO
Tor No.	-	*	x	-	_	-	*	-	_	-	(F)
YES ZELMIZZHG	2	1	The state of the s	1-06081822	+-9238+828					MBS.	SL24 WEEKS
NEW DATA, AWAITED	2	2	3	#-0500000000	#252555B		8	- 80		(88)	SL24 WEEKS
YES DREESONS	2	3		8286321+4	\$12053021-4		8			188	SL24 WEEKS
Y EST DER EB 2015	2	4		638223EB	#552232B					NES.	SL24 WEEKS
Y EST DEF EB2016	2	5	S	82857241-4	82857241-4					YES	SL24 WEEKS
YES ZELAKEDTS	3	٠		B2857828-4	82857922++		8	× ×		(88)	SL24 WEEKS

JCI JCDX Data Received?	P.O. ISSUED?	SI. No. *	JCI Basket#	GRAPHICS	Customer Part #	GM Part Number#	Annual Volume	ETCS DIE #	Tool Source DIE *	Customer DIE #	JCI Purchase Order#
*	-	•	-		¥	*	•	 	•	•	•
YES/23FEB2016	4N-2016				2965714		96	3-028			YES
VES/23FEB2016	YES/25-JAN-2016	1			2965719		49896	E-S-2016-028			YES
YES/ 231E82016	AR:2016			1	2965715		00	3-029			yes
YES/23FEB2016	YES/01-MAR:2016	2			2985718		176000	E-S-2016-029		3	YES



JCI Ford U55x Program, USA/ Year 2016/17

JCH JCDC Data Received.	Brind	23. No. 6	ACI Bestor 6	GRAPHICS	Customer Part #	Ford Plat Number 6	Armed Volume	ETCS DIE:
,T	-	~	¥	•	•	·	*	*
BHOCKNOWN FRESH	2		11		3250149	1250149	3600	28-2016-001
(10000000) 5534,	2			1	3250141	111052	9	Esa
VES SOMEON	2	92	15		3259244	103501	0000	Esamene.
YES ZELAWEDE	2	300 9 00 750	13	R	3315960	33159811	HESS	E-S-2016-000
VEST 10FEB2010	•			4	3270728	DAUCH.		G-CEM
BLOCKS 101 ESSY	,	5040	13	3	3270729	STATES.	HOURS.	E-S-2016-1114

ACLUCIO Deta Paratonifi	Book	23. Ph. 6	JCI Bestor 6	GRAPHICS ETCS	Customer Part #	Ford Plat Number 6	Austral Volume	ETCS DIE	Dayoff Bank
Ţ	-	¥	¥	•	v	¥	¥	¥	7
	•	21	**		3258119	ASSESSION.	ROIL	ES:2016(721	
YES ZEMMOND	*	22	16		3257068	AMAGERICA AND	1000	E-S-2016-022	查
YES SSAMOUN	×	29	16		3290538	ASM GRANGES GA	-	E-S-2016-023	-
VESS (IRANVARIO		24		9	Saustr	THEORY HATE		ES:2016/224	
VEST 21, AMERICA	2	8:		Oph Oph	3408183/ 3408184		зионскания		E-S-2016-005
VERS 21,0042000	2	5	14	OD'S	3408195/ 3408196		34(0)56234(0)190		



Magna GM C1Y Program, USA/ Year 2015

STAUS ACTIVE Cam-Slide ITEM# PART DESCRIPTION Magna PART IMAGE PART# 3rd row Back Frame ACR60057 BACK PANEL - 60% C1Y 3rd row Back Frame ACR60603 BACK PANEL- 40% C1Y 2nd Row ACR61778 BACK PANEL- 40% Back Frame 2nd Row ACR61171 BACK PANEL- 60% TS C1YX Back Frame 2nd Row U-BRACKET - 40% IB ACR60763 Stanchion DRITALL 2nd Row ACR61675 U Bracket 60% IB Stanchion

Magna GM C1XX Program, USA/ Year 2014/15

GSI Tool Count	ETCS TOOL IN	ETCS	Customer Partit	CM Parl Number	Arrest Volume	ETCS DIE	Tool Source DIER	Customer DIE #	Purchase Order #	Volumel Year M
-		•	•	¥	¥	v	*	*	-	~
27	140205		ACREBIA ACRETEE	ACR58147	641,315	140205				
28	140215		AC RODE24	AC REDEZ4	09240	140215				
30	140235		ACREDED? ACREDEDS	AC REDIZ?	424,175	140235				
33	140265	ON SURE	AC RESHER	AC R59467	124,315	140333		600		
34	140275	CHICAGO MICEO	ACRES613	AC RSS613	44,415	140275				



EXTRUSION DIE FOR BKT, SEAT BELT



- ❖ 36 STATIONS EXTRUSION PROGRESSIVE DIE
- ❖ EXTRUSION WALL THICKNESS IS 2 x MATL. THICKNESS
- **❖** MATERIAL : 340XF, t = 2.0 mm
- ❖ DIE INCLUDES COOLING CIRCULATION
- NO IN-DIE TAP (DIE SIZE WAS CONSTRAINT)





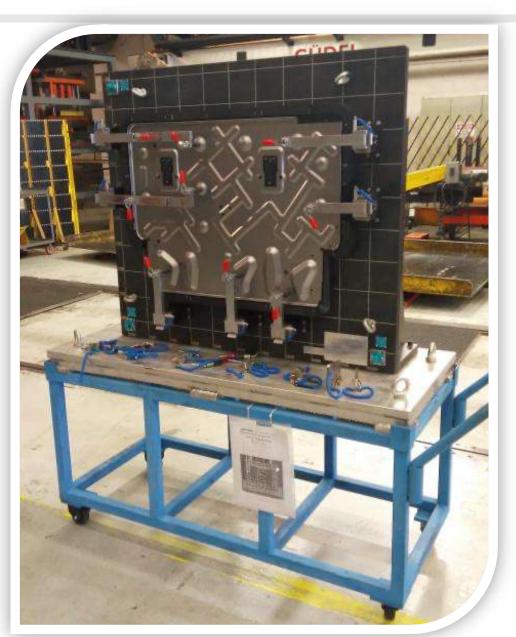
Checking Fixture Design & Build



Program – 2014 Ford CD4.2 GAGE FOR 60% Back Panel Stamper: Guelph Tool



Checking Fixture Design & Build



Program – 2016 GM C1Y GAGE FOR 60% Back Panel Stamper: ODM

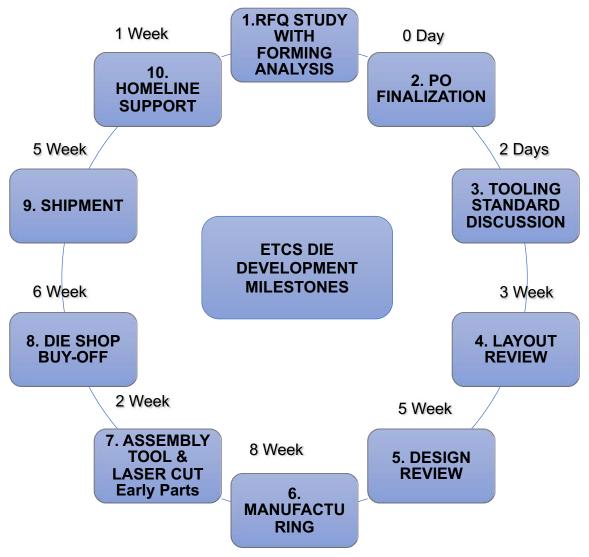


Die Build – Quick Delivery & Prototyping Support

- Early Part Requirements: To meets customer early parts requirements, ETCS
 uses a combination of Production Die Form Details and Laser Cut to support
 the customer in early build requirements at a fraction of the prototype cost.
- Prototype Parts: ETCS has capability to build prototype dies in USA at its facility as well.
- Upfront Engineering: ETCS Engineering center in Warren, Mi works in close coordination with the customer tooling team to prepare the layout & manufacturing feasibility using formability simulation. This support is provided at pre and post sourcing stage.
- Project Management: ETCS maintains a quick delivery timeline using its
 Design & Project Management Centers in MI & India as well as a follow-up
 office in China. We work with our JV Die Shops & Gage Shops in China &
 India to support our customers.



Die Build – Quick Delivery & Prototyping Support



^{*} Stage 7: For Early Part builds, a reusable small die set is used to fix all the stations on it & to produce Proto parts with laser cut. This way, the prototype build timing (around 12 weeks ~16 weeks) is also maintained, and the cost impact is about 10% over the actual cost of the Production die.









Thank You!

Ravi Kapur
President and CEO



CONTACT NUMBERS:

(248)-763-9467



Email Address:

ravi@etcsinc.com ravi@chippewaplastics.com

Address:

ETCS, Inc. ETCS Tool & Die LLC 21275 Mullin Ave, Warren, MI 48089