



SAMPLE COST BREAK DOWN

REAR VIEW MIRROR

PART ID NUMBER-RVMSA2CP1
PART NAME -MIRROR COVER

Part Information :	
Part Number :	RVMSA2CP1
Part Description :	Mirror Cover
Annual Volume (#) :	1,50,000
Commodity :	Plastics
Process Name :	Injection Molding
Current Supplier Name :	-
Current Manufacturing Country :	INDIA
Delivery Country :	INDIA
BOM Qty (No's)	1
Part Complexity :	Low
Lot size (#) :	12,500
Supply Chain Model :	Buy
Packaging Type :	No Packing
HS Code :	N/A
Inco Terms :	EX-W
Payment Terms :	60 Days

Runner Volume Estimation

Sprue Length (mm)	165.00
Sprue Dia (mm)	4.50
Sprue Volume (mm3)	2,624.21

Runner Length (mm)	45.00
Runner Dia (mm)	3.00
Runner Volume (mm3)	318.09

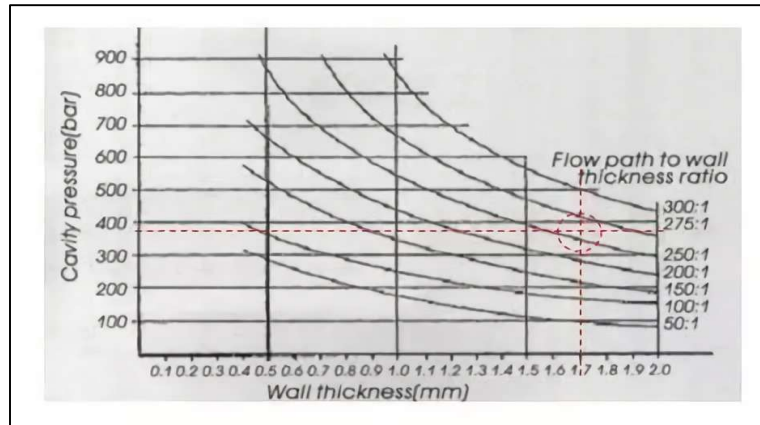
Gate Length (mm)	20.00
Avg Gate Dia (mm)	2.50
Number Of Gates	2.00
Gate Volume (mm3)	196.35

Total Runner Volume (mm3)	3,138.65
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Material Density (kg/m3)	1,040.00
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Runner Weight (g)	4.00
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Injection Molding Tonnage recommendation	
Number of cavities-Nos	2
Part projected area-mm2	12927
Runner projected area-mm2	135
Min wall thickness-mm	1
Max length of flow-mm	178
Flow path/wall thickness Ratio-	178
Cavity pressure theoretical-bar	300
Viscosity grade (Material Flowability)-1 - 1.9	1
Cavity pressure actual-Kg/cm2	306
Safety factor-	1.20
Shot projected area-mm2	25989
Clamping tonnage-Ton	95



Injection Time	
Injection Rate (kg/hr)	130
Shot Weight (g)	154
Injection Time (s)	5.69

Cooling Time	
Avg Wall Thickness (mm)	1.50
Co Efficient Of Thermal Conductivity (W/mC)	0.35
Specific Heat (J/gC)	1.25
Thermal Diffusivity (mm^2/s)	0.30
Melt Density (kg/mm3)	936
Injection Temperature (C)	235
Ejection Temperature (C)	120
Mold Temperature (C)	65
Cooling Time (s)	1.64

Other Time Factors	
Pressure Holding Time	5
Slide / Lifter Mechanism (s)	4
Dry Cycle Time (s)	3
Ejection Time (s)	1
Insert Pick & Place Time	5
Total Cycle Time (s)	25.33

Material Information 1:	
Category :	Plastic
Family :	PP
Description/Grade :	PP + 20%GF
Density (g/cc) :	1.04
Material:	PP GF20%
Material price (₹/Kg) :	₹ 120.00
Scrap price (₹/Kg) :	₹ 30.00
Part Envelope Length (mm)	178.00
Part Envelope Width (mm)	100.00
Part Envelope Height (mm)	46.18
Part Surface Area (mm^2)	25,854.00
Part Volume (mm3):	72,115.38
Cavities	2.00
Runner & Gating:	Cold Runner, Cashew Edge
Finish Part Weight: gms	75.00
Runner & Sprue Weight: gms	-
Shot Weight:	150.00
Regrind:	No
Scrap weight per shot(g) :	-
Utilisation %	100.00%
Scrap Recovery %	90.00%
Gross Material cost Per Part (₹) :	₹ 9.0000
Scrap Rec Cost Per Part (₹) :	₹ -
Net RM Cost Per Part:	₹ 9.0000

Total Material Cost	₹ 9.0000
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Manufacturing Information 1:	
Process Type :	Injection Molding
Recommended Force : (Ton)	95 Ton
Selected Tonnage (Ton) :	110 Ton
Machine Name :	Generic Injection Molding Machine
M/c Automation :	Auto
No Of Cavities	2.00

Cycle Time (sec) :	25.33
Setup Time (min/piece) :	0.01
Total tool loading time (min)	120.00
# of Direct Labors :	1.00

# of Skilled Labors :	-
# of QA Inspector :	1.00
Direct Labor Rate /hr	102.00
Skilled Labor Rate /hr	115.00
QA Inspector Rate /hr:	115.00
Sampling Rate (%)	1%
Inspection time (min) :	5.00
Yield (Net Good Parts) (%) :	95%
Machine hour Rate (₹) :	120.00
Machine Cost (₹) :	₹ 0.4221
Setup Cost (₹) :	₹ 0.0355
Labor Cost (₹) :	₹ 0.3588
Inspection Cost (₹) :	₹ 0.0958
Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ 0.3924
Net Process cost (₹) :	₹ 1.3046

Total Process Cost	₹ 1.3046
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Over Heads	
Material OH 5%	₹ 0.4593
Machine OH 3%	₹ 0.0127
Labor OH 2%	₹ 0.0072
Profit 8%	₹ 0.8393

Total OH	₹ 1.3184
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Summary	
Material Cost	₹ 9.1860
Process Cost	₹ 1.3046
OH	₹ 1.3184
Total Part Cost	₹ 11.8090

Tool Information	
Estimated Tool Size: (L*W*H) mm	400X388X580
Tool Cost: Estimated	13 Lakh INR
No Of Shots	5,00,000
Mold Utilisation For 5 Year Program	75%

Part Description	
Length	100
Width	178
Height	46.18
No Of Cavities	2
Mold Base Legth	400
Mold Base Width	338

Units Index	
Dimensions	mm
Weight	kg
Currency	INR

Mold Material Estimate					
Line Item	L	W	H	Qty	Weight
Core Plate	400	338	136.18	1	144.53
Cavity Plate	400	338	136.18	1	144.53
Core Back Plate	400	338	45	1	47.76
Top Plate	400	388	25	1	30.46
Bottom Plate	400	388	25	1	30.46
Ejector Plate	400	308	25	1	24.18
Ejector Back Plate	400	308	30	1	29.01
Spacer Block	400	80	180	2	90.43
Core Insert	320	298	96.18	1	72.00
Cavity Insert	320	298	96.18	1	72.00
Lifter / Slide	150	150	100	1	17.66
Runner Plate	400	388	25	1	30.46

Mold RM Cost Estimate				
Line Item	Material	Cost/Kg	Weight	Cost
Mold Base	C45	350	629	2,20,150
Electrodes	Copper	1,200	25	30,000
Cavity	H13	750	79	59,398
Core	H13	750	79	59,398
Sub Inserts	H13	750	19	14,572
Standard Parts		1	1,50,000	1,50,000
Total				₹ 5,33,518

Mold Manufacturing Cost Estimate				
Line Item	MHR	Cost/Kg	Weight	Cost
Generic Machining	400	24	24	19,200
Core / Cavity Mach	500	120	120	1,20,000
Electrodes Machin	500	24	24	24,000
Slide / Lift Machin	500	48		24,000
Base Machining	500	8	8	8,000
EDM	400	80	80	64,000
Wire Cut	400	18	180	79,200
Polishing	400	36	36	28,800
Soptting	500	18	18	18,000
Assembly	400	48		19,200
Grain / Texture				80,000
Hardening	225	89		20,005
Trail	5000	3		15,000
Total				₹ 5,19,405

OH & Profit		
Line Item	%	Cost
OH	10%	1,05,292
Profit	10%	1,05,292
RM For Trial	156	7,800
Total		₹ 2,18,385

Estimated Mold Size (L X W X H)	400 X 388 X 580
Estimated Mold Cost	₹ 12,71,308

PART ID NUMBER-RVMSA1CP1
PART NAME -MIRROR ARM

Field Header	Field name	Field Value
Part Information :	Part Number :	RVMSA1CP1
	Part Description :	Mirror Arm
	Annual Volume (#) :	1,50,000
	Commodity :	Metal Forming
	Process Name :	Hot Forging +Machininh +Thread Rolling + Bending
	Current Supplier Name :	-
	Current Manufacturing Country :	INDIA
	Delivery Country :	INDIA
	BOM Qty (No's)	1
	Part Complexity :	Low
	Lot size (#) :	12,500
	Supply Chain Model :	Buy
	Packaging Type :	No Packing
	HS Code :	N/A
	Inco Terms :	EX-W
	Payment Terms :	60 Days

Material Information 1:	Category :	Ferrous
	Family :	Steel
	Description/Grade :	1,080.00
	Density (g/cc) :	7.85
	Material price (₹/Kg) :	₹ 70.00
	Scrap price (₹/Kg) :	₹ 17.50
	Part Envelope Length (mm) :	160.00
	Part Envelope Width (mm) :	55.00
	Part Envelope Height (mm) :	18.00
	Net weight (g) :	112.00
	Area (mm^2) :	6,079.01
	Volume (mm^3) :	14,267.52
	Rod Stock Diameter (mm) :	9.85
	Rod Stock Length (mm)	6,000.00
	Start & End Scrap Length (mm)	5.00
	Part Stock Length (mm)	190.00
	Part Allowance (mm)	1.00
	Part Stock Length (mm)	191.00
	Parts Per Rod (Pcs)	31.00
	Rod Weight (g)	3,587.26
	Scrap weight per part(g) :	3.72
	Net weight per part (g) :	112.00
	Gross weight per part (g) :	115.72
	Utilisation %	97%
	Scrap Revoverly %	90%
	Gross Material cost (₹) :	₹ 8.10
	Scrap Rec Cost (₹) :	₹ 0.06
	Net Material cost (₹) :	₹ 8.04

Total Material Cost	₹ 8.04
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Manufacturing 1 :	Process Type :	Material Composition Analysis
	Machine Name :	XRF Gun
	M/c Automation :	Manual
	Cycle Time / Batch (min) :	5.00
	Cycle Time / Piece (sec) :	0.02
	Setup Time / Batch (min) :	2.00

Cost Drivers :	Setup Time / Piece (min):	0.00
	# of Direct Labors :	1.00
	# of Skilled Labors :	-
	# of QA Inspector :	-
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	-
	Inspection time (min) :	-
	Yield (Net Good Parts) (%) :	100%
	Machine hour Rate (₹) :	₹ 400.00
	Machine Cost (₹) :	₹ 0.0027
	Setup Cost (₹) :	₹ 0.0013
	Labor Cost (₹) :	₹ 0.0007
	Inspection Cost (₹) :	₹ -
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ -
	Net Process cost (₹) :	₹ 0.0047
Manufacturing 2 :	Process Type :	Saw Cutting
Cost Drivers :	Machine Name :	Bandsaw
	M/c Automation :	Semi Auto
	Stock length (mm) :	191.00
	Stock width (mm) :	9.85
	Stock height (mm) :	9.85
	Cycle Time (sec) :	6.35
	Setup Time (min/piece) :	0.07
	Cutting Area (mm^2):	76.20
	Cutting Speed (mm^2/sec)	12.00
	Total tool loading time (min)	15.00
	Rod loading/Unloading time (min)	808.00
	# of Direct Labors :	0.50
	# of Skilled Labors :	-
	# of QA Inspector :	-
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	-
	Yield (Net Good Parts) (%) :	100%
	Machine hour Rate (₹) :	₹ 60.00
	Machine Cost (₹) :	₹ 0.11
	Setup Cost (₹) :	₹ 0.12
	Labor Cost (₹) :	₹ 0.09
	Inspection Cost (₹) :	₹ -
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ -
	Net Process cost (₹) :	₹ 0.32
Manufacturing 3 :	Process Type :	Stock Heating
	Machine Name :	Localised Induction Heating Apparatus
	M/c Automation :	Auto
	Cycle Time (sec) :	83.74
	Setup Time (min/piece) :	0.01
	Furnace Power (KW):	220.00
	Production rate (Kg/Hr)	600.00
	Part Gross Weight (g):	115.72
	Specific Heat of Material (J/Kg C)	420.00
	Initial Temperature (C.):	23.00
	Final Temperature (C.)	850.00

Cost Drivers :	Furnace Efficiency	0.80
	Hardening Time Per Part (min)	1.40
	# of Direct Labors :	0.50
	# of Skilled Labors :	-
	# of QA Inspector :	1.00
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	2.00
	Yield (Net Good Parts) (%) :	100%
	Machine hour Rate (₹) :	₹ 180.00
	Machine Cost (₹) :	₹ 4.19
	Setup Cost (₹) :	₹ 0.04
	Labor Cost (₹) :	₹ 1.19
	Inspection Cost (₹) :	₹ 0.02
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ -
	Net Process cost (₹) :	₹ 5.43
Manufacturing 4 :	Process Type :	Closed Die Hot Forging
Cost Drivers :	Recommended Force : (Ton)	0.97
	Selected Tonnage (T) :	10 TON
	Machine Name :	
	M/c Automation :	Manual
	No of hits required (nos):	2.00
	Cycle Time (sec) :	30.00
	Stock Loading/Unloading time (min)	0.33
	Setup Time (min/piece) :	0.01
	Total tool loading time (min)	120.00
	Part Envelope Length (mm) :	17.60
	Part Envelope Width (mm) :	17.60
	Part Envelope Height (mm) :	17.60
	Initial height Of Stock (mm):	30.00
	strength co-efficient, K (Mpa):	530.00
	Strain hardening exponent,n	0.26
	forging shape factor	6.00
	Part Area (mm^2)	2,854.54
	Flash Area (mm^2)	285.45
	Strain	0.41
	Flow stress (Mpa):	402.18
	Force required (Kn):	7,577.05
	Theoretical Force : (Ton)	0.77
	# of Direct Labors :	2.00
	# of Skilled Labors :	-
	# of QA Inspector :	1.00
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	2.00
	Yield (Net Good Parts) (%) :	95%
	Machine hour Rate (₹) :	₹ 150.00
	Machine Cost (₹) :	₹ 1.25
	Setup Cost (₹) :	₹ 0.06
	Labor Cost (₹) :	₹ 1.70
	Inspection Cost (₹) :	₹ 0.02
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ 0.46
	Net Process cost (₹) :	₹ 3.48

Manufacturing 5 :	Process Type :	CNC Machining
	Machine Name :	Generic 2 Axis Turn Center
	M/c Automation :	Semio Auto
	Cycle Time (sec) :	65.85
	Stock Load/Unload Time (sec) * X2	20.00
	Setup Time (min/piece) :	0.01
	Operation : 1	Turning (A)
	Workpiece Initial dia (mm):	17.60
	Workpiece Final dia (mm):	9.85
	Length of Cut (mm):	17.60
	Cutting Speed (m/min)	45.00
	Feed per revolution (mm/rev):	0.50
	Depth of cut (mm):	0.50
	Spindle RPM	813.55
	No. of passes (no.)	7.50
	Tool Travel Time (sec)	0.03
	Machining Time (min):	0.39
	Machining Time (sec):	23.42
	Operation : 2	Threading (B)
	Workpiece Initial dia (mm):	9.85
	Workpiece Final dia (mm):	8.50
	Length of Cut (mm):	35.00
	Cutting Speed (m/min)	20.00
	Feed per revolution (mm/rev):	0.35
	Depth of cut (mm):	0.50
	Spindle RPM	646.07
	No. of passes (no.)	2.00
	Tool Travel Time (sec)	0.03
	Machining Time (min):	0.37
	Machining Time (sec):	22.43
	# of Direct Labors :	1.00
	# of Skilled Labors :	-
	# of QA Inspector :	1.00
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	2.00
	Yield (Net Good Parts) (%) :	98%
	Machine hour Rate (₹) :	₹ 180.00
	Machine Cost (₹) :	₹ 3.29
	Setup Cost (₹) :	₹ 0.05
	Labor Cost (₹) :	₹ 1.87
	Inspection Cost (₹) :	₹ 0.02
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ 0.23
	Net Process cost (₹) :	₹ 5.45
Manufacturing 6 :	Process Type :	Bending
	Machine Name :	40 TON Hydraulic Press
	M/c Automation :	Semi Auto
	Ultimate Tensile Strength Of Material : (Mpa)	440.00
	Bending line length : (mm)	100.00
	Shoulder width : (mm)	20.00
	Bending coeffecient :	1.33
	Theoretical Force : (Ton)	28.94
	Cycle Time (sec) :	8.00
	Setup Time (min/piece) :	0.00
	# of Direct Labors :	1.00

Cost Drivers :	# of Skilled Labors :	-
	# of QA Inspector :	0.50
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	2.00
	Yield (Net Good Parts) (%) :	98%
	Machine hour Rate (₹) :	₹ 120.00
	Machine Cost (₹) :	₹ 0.27
	Setup Cost (₹) :	₹ 0.02
	Labor Cost (₹) :	₹ 0.23
	Inspection Cost (₹) :	₹ 0.01
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ 0.13
	Net Process cost (₹) :	₹ 0.65
Manufacturing 7 :	Process Type :	Age Hardening
Cost Drivers :	Machine Name :	Induction Furnace
	M/c Automation :	Auto
	Cycle Time (sec) :	45.86
	Setup Time (min/piece) :	0.01
	Set up %:	0.01
	Furnace Power (KW):	220.00
	Production rate (Kg/Hr)	600.00
	Part Weight (g):	112.00
	Specific Heat of Material (J/Kg C)	420.00
	Initial Temperature (C.):	32.00
	Final Temperature (C.)	500.00
	Furnace Efficiency	0.80
	Hardening Time Per Part (min)	0.76
	# of Direct Labors :	0.50
	# of Skilled Labors :	-
	# of QA Inspector :	1.00
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	2.00
	Yield (Net Good Parts) (%) :	100%

	Machine hour Rate (₹) :	₹	150.00
	Machine Cost (₹) :	₹	1.91
	Setup Cost (₹) :	₹	0.03
	Labor Cost (₹) :	₹	0.65
	Inspection Cost (₹) :	₹	0.02
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹	-
	Net Process cost (₹) :	₹	2.61
Manufacturing 8 :	Process Type :	Phosphating - 7 Tank Process	
Cost Drivers :	Machine Name :	Dip Type	
	M/c Automation :	Semi Auto	
	Coating Thickness (micrometers):		15.00
	Surface Area (mm^2):		6,079.01
	Plating cost / sqin (₹):	₹	0.06
	Cost/Part (₹):	₹	0.52
Manufacturing 9 :	Process Type :	Powder Coating	
Cost Drivers :	Machine Name :	Dip Type	
	M/c Automation :	Semi Auto	
	Coating Thickness (micrometers):		70.00
	Surface Area (mm^2):		6,079.01
	Costing Coat / sqin (₹):	₹	0.08
	Cost/Part (₹):	₹	0.79
Total Process Cost		₹	19.25
Overheads	Material OH 5%	₹	0.40
	Machine OH 3%	₹	0.33
	Labor OH 2%	₹	0.11
	Profit 8%	₹	2.18
Total OH		₹	3.03
Summary	Material Cost	₹	8.04
	Process Cost	₹	19.25
	OH	₹	3.03
	Total Part Cost	₹	30.32

Tooling Estimate Program Life					
Tool Type	Tool Cost (INR)	Tool Life (Pcs/Tool)	Program Volume (5 Years Estimate)	Tool Required For Program Life	Total Tooling For Program Life (INR)
Band Saw Blade	₹ 2,500.00	30,000	7,50,000	25	₹ 62,500.00
Forging Die	₹ 1,50,000.00	50,000		15	₹ 22,50,000.00
Thread Roller - M10	₹ 50,000.00	1,00,000		7	₹ 3,75,000.00
Bending Die	₹ 1,00,000.00	2,50,000		3	₹ 3,00,000.00
Total Tooling Investment					₹ 29,87,500

PART ID NUMBER-RVMSA1CP4
PART NAME -ADAPTER

Field Header	Field name	Field Value
Part Information :	Part Number :	RVMSA1CP4
	Part Description :	M10 Mirror Adapter
	Annual Volume (#) :	1,50,000
	Commodity :	Metal Forming + Machining
	Process Name :	Cold Forming + Turning
	Current Supplier Name :	-
	Current Manufacturing Country :	INDIA
	Delivery Country :	INDIA
	BOM Qty (No's)	1
	Part Complexity :	Low
	Lot size (#) :	12,500
	Supply Chain Model :	Buy
	Packaging Type :	No Packing
	HS Code :	N/A
	Inco Terms :	EX-W
	Payment Terms :	60 Days

Material Information 1:	Category :	Ferrous
	Family :	Steel
	Description/Grade :	1,080.00
	Density (g/cc) :	7.85
	Material price (₹/Kg) :	₹ 70.00
	Scrap price (₹/Kg) :	₹ 17.50
	Part Envelope Length (mm)	71.15
	Part Envelope Width (mm)	13.92
	Part Envelope Height (mm)	13.92
	Net weight (g) :	56.00
	Area (mm^2) :	12,114.25
	Volume (mm^3) :	7,133.76
	Wire Coil Diameter (mm) :	13.65
	Wire Coil Length (mm)	2,00,000.00
	Start & End Scrap Length (mm)	20.00
	Part Stock Length (mm)	71.15
	Part Allowance (mm)	0.50
	Part Stock Length (mm)	71.65
	Parts per Coil	2,791.00
	Coil Weight (g)	2,29,633.17
	Scrap weight per part(g) :	26.28
	Net weight per part (g) :	56.00
	Gross weight per part (g) :	82.28
	Utilisation %	68%
	Scrap Recovery %	90%
	Gross Material cost (₹) :	₹ 5.76
	Scrap Rec Cost (₹) :	₹ 0.41
	Net Material cost (₹) :	₹ 5.35

Total Material Cost	₹ 5.35
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Manufacturing 1 :	Process Type :	Material Composition Analysis
	Machine Name :	XRF Gun
	M/c Automation :	Manual
	Cycle Time / Batch (min) :	5.00
	Cycle Time / Piece (sec) :	0.02
	Setup Time / Batch (min) :	2.00
	Setup Time / Piece (min):	0.00

Cost Drivers :	# of Direct Labors :	1.00
	# of Skilled Labors :	-
	# of QA Inspector :	-
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	-
	Inspection time (min) :	-
	Yield (Net Good Parts) (%) :	100%
	Machine hour Rate (₹) :	₹ 400.0000
	Machine Cost (₹) :	₹ 0.0027
	Setup Cost (₹) :	₹ 0.0013
	Labor Cost (₹) :	₹ 0.0007
	Inspection Cost (₹) :	₹ -
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ -
	Net Process cost (₹) :	₹ 0.0047
Manufacturing 2 :	Process Type :	Cold Heading
Cost Drivers :	Workpiece Stock Diameter (mm):	13.65
	Workpiece Stock Length (mm):	71.65
	No Of Hits Requires (No.):	4.00
	Machine Name :	Header + Wire Decoiling machine
	M/c Automation :	Semi Auto
	Cycle / (min) :	120.00
	Cycle Time (sec) :	30.00
	Setup Time (min/piece) :	0.01
	Total tool loading time (min)	60.00
	Coil loading/Unloading time (min)	100.00
	# of Direct Labors :	0.25
	# of Skilled Labors :	-
	# of QA Inspector :	1.00
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	2.00
	Yield (Net Good Parts) (%) :	98%
	Machine hour Rate (₹) :	₹ 120.00
	Machine Cost (₹) :	₹ 1.00
	Setup Cost (₹) :	₹ 0.03
	Labor Cost (₹) :	₹ 0.21
	Inspection Cost (₹) :	₹ 0.02
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ 0.11
	Net Process cost (₹) :	₹ 1.38
Manufacturing 3 :	Process Type :	Zone Annealing
Cost Drivers :	Machine Name :	Induction Furnace
	M/c Automation :	Auto
	Cycle Time (sec) :	22.93
	Setup Time (min/piece) :	0.00
	Set up %:	0.01
	Furnace Power (KW):	220.00
	Production rate (Kg/Hr)	600.00
	Part Weight (g):	56.00
	Specific Heat of Material (J/Kg C)	420.00
	Initial Temperature (C.):	32.00
	Final Temperature (C.)	500.00
	Furnace Efficiency	0.80

	Hardening Time Per Part (min)	0.38
	# of Direct Labors :	0.50
	# of Skilled Labors :	-
	# of QA Inspector :	1.00
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	2.00
	Yield (Net Good Parts) (%) :	100%
	Machine hour Rate (₹) :	₹ 150.00
	Machine Cost (₹) :	₹ 0.96
	Setup Cost (₹) :	₹ 0.01
	Labor Cost (₹) :	₹ 0.32
	Inspection Cost (₹) :	₹ 0.02
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ -
	Net Process cost (₹) :	₹ 1.31
	Manufacturing 4 :	
	Process Type :	CNC Machining
	Machine Name :	Generic 2 Axis Turn Center
	M/c Automation :	Semio Auto
	Cycle Time (sec) :	90.84
	Stock Load/Unload Time (sec) X2	20.00
	Setup Time (min/piece) :	0.01
	Diameter of Hole (mm):	8.50
	Depth Of Hole (mm):	30.00
	Cutting Speed (m/min):	35.00
	Feed per revolution (mm/rev)	0.20
	Spindle RPM:	815.87
	Tool Travel Time (sec)	0.03
	Machining Time (min):	0.24
	Machining Time (sec):	14.13
	Operation : 3	Tapping (A1)
	TAP Size: M10	10.00
	Depth Of Hole (mm):	30.00
	Cutting Speed (m/min):	25.00
	Feed per revolution (mm/rev)	0.20
	Spindle RPM:	582.76
	Tool Travel Time (sec)	0.03
	Machining Time (min):	0.32
	Machining Time (sec):	18.99
	Operation : 1	Turning (A)
	Workpiece Initial dia (mm):	13.65
	Workpiece Final dia (mm):	10.00
	Length of Cut (mm):	14.00
	Cutting Speed (m/min)	35.00
	Feed per revolution (mm/rev):	0.50
	Depth of cut (mm):	0.50
	Spindle RPM	815.87
	No. of passes (no.)	7.00
	Tool Travel Time (sec)	0.03
	Machining Time (min):	0.30
	Machining Time (sec):	17.86
	Operation : 1	Grooving (A)
	Workpiece Initial dia (mm):	13.65
	Workpiece Final dia (mm):	13.15
	Length of Cut (mm):	1.00
	Cutting Speed (m/min)	35.00

Cost Drivers :

Feed per revolution (mm/rev):		0.10
Depth of cut (mm):		0.50
Spindle RPM		815.87
No. of passes (no.)		1.00
Tool Travel Time (sec)		-
Machining Time (min):		0.01
Machining Time (sec):		0.81
Operation : 2	Threading (B)	
Workpiece Initial dia (mm):		10.00
Workpiece Final dia (mm):		8.50
Length of Cut (mm):		13.70
Cutting Speed (m/min)		20.00
Feed per revolution (mm/rev):		0.25
Depth of cut (mm):		0.59
Spindle RPM		636.38
No. of passes (no.)		3.00
Tool Travel Time (sec)		0.03
Machining Time (min):		0.32
Machining Time (sec):		19.05
# of Direct Labors :		1.00
# of Skilled Labors :		-
# of QA Inspector :		1.00
Direct Labor Rate /hr	₹	102.00
Skilled Labor Rate /hr	₹	115.00
QA Inspector Rate /hr:	₹	115.00
Sampling Rate (%)		1%
Inspection time (min) :		2.00
Yield (Net Good Parts) (%) :		98%
Machine hour Rate (₹) :	₹	180.00
Machine Cost (₹) :	₹	4.54

	Setup Cost (₹) :	₹	0.05
	Labor Cost (₹) :	₹	2.57
	Inspection Cost (₹) :	₹	0.02
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹	0.23
	Net Process cost (₹) :	₹	7.41
Manufacturing 5 :	Process Type :	Age Hardening	
Cost Drivers :	Machine Name :	Induction Furnace	
	M/c Automation :	Auto	
	Cycle Time (sec) :		66.80
	Setup Time (min/piece) :		0.01
	Set up %:		0.01
	Furnace Power (KW):		150.00
	Production rate (Kg/Hr)		250.00
	Part Weight (g):		56.00
	Specific Heat of Material (J/Kg C)		420.00
	Initial Temperature (C.):		32.00
	Final Temperature (C.)		600.00
	Furnace Efficiency		0.80
	Hardening Time Per Part (min)		1.11
	# of Direct Labors :		0.50
	# of Skilled Labors :		-
	# of QA Inspector :		1.00
	Direct Labor Rate /hr	₹	102.00
	Skilled Labor Rate /hr	₹	115.00
	QA Inspector Rate /hr:	₹	115.00
	Sampling Rate (%)		1%
	Inspection time (min) :		2.00
	Yield (Net Good Parts) (%) :		100%
	Machine hour Rate (₹) :	₹	150.00
	Machine Cost (₹) :	₹	2.78
	Setup Cost (₹) :	₹	0.04
	Labor Cost (₹) :	₹	0.95
	Inspection Cost (₹) :	₹	0.02
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹	-
	Net Process cost (₹) :	₹	3.79
Manufacturing 6 :	Process Type :	Plating - Black Oxide	
Cost Drivers :	Machine Name :	Dip Type	
	M/c Automation :	Semi Auto	
	Coating Thickness (micrometers):		15.00
	Surface Area (mm^2):		12,114.25
	Plating cost / sqin (₹):	₹	0.08
	Cost/Part (₹):	₹	1.56
Total Process Cost		₹	15.45

Overheads	Material OH 5%	₹	0.27
	Machine OH 3%	₹	0.28
	Labor OH 2%	₹	0.08
	Profit 8%	₹	1.66

Total OH	₹	2.29
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Summary	Material Cost	₹	5.35
	Process Cost	₹	15.45
	OH	₹	2.29
	Total Part Cost	₹	23.09

Tooling Estimate					
Tool Type	Tool Cost (INR)	Tool Life (Pcs/Tool)	Program Volume (5 Years Estimate)	Tool Required For Program Life	Total Tooling For Program Life (INR)
Heading Die	₹ 1,00,000.00	2,50,000	7,50,000	3	₹ 3,00,000.00
Drill Bits	₹ 2,000.00	12,500		60	₹ 1,20,000.00
Single Point Turning Tool	₹ 2,000.00	12,500		60	₹ 1,20,000.00
Threading Tool	₹ 2,500.00	15,000		50	₹ 1,25,000.00
CNC Turning Center - Programming Cost					₹ 5,000.00
			Total Tooling Investment		₹ 6,70,000

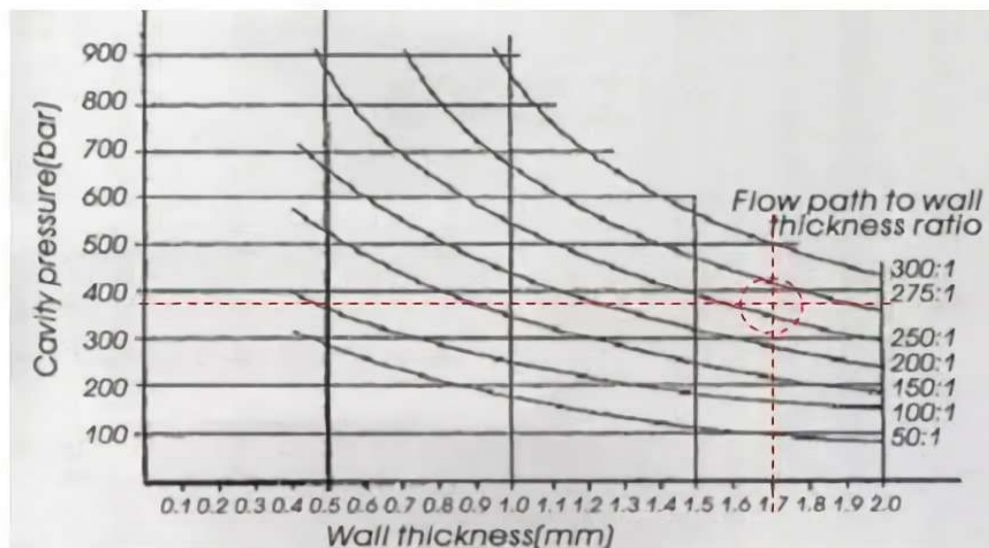
PART ID NUMBER-RVMSA1CP2
PART NAME -RUBBER BOOT

Part Information :	
Part Number :	RVMSA1CP2
Part Description :	Rubber Boot
Annual Volume (#) :	1,50,000
Commodity :	Rubber
Process Name :	Compression Molding
Current Supplier Name :	-
Current Manufacturing Country :	INDIA
Delivery Country :	INDIA
BOM Qty (No's)	1
Part Complexity :	Low
Lot size (#) :	12,500
Supply Chain Model :	Buy
Packaging Type :	No Packing
HS Code :	N/A
Inco Terms :	EX-W
Payment Terms :	60 Days

Material Information 1:	
Category :	Polymer
Family :	Rubber
Description/Grade :	EPDM
Density (g/cc) :	0.86
Material:	EPDM Shore 40D
Material price (₹/Kg) :	₹ 226.00
Scrap price (₹/Kg) :	₹ 56.50
Part Envelope Length (mm)	40.22
Part Envelope Width (mm)	39.18
Part Envelope Height (mm)	39.18
Part Surface Area (mm^2)	-
Part Volume (mm3):	18,604.65
Cavities	8.00
Runner & Gating:	-
Finish Part Weight: gms	16.00
Runner, Sprue, Flash Weight: gms	2.56
Shot Weight:	130.56
Regrind:	No
Scrap weight per shot(g) :	0.32
Utilisation %	98.04%
Scrap Recovery %	90.00%
Gross Material cost Per Part (₹) :	₹ 3.6883
Scrap Rec Cost Per Part (₹) :	₹ 0.0163
Net RM Cost Per Part:	₹ 3.6720

Total Material Cost	₹ 3.6720
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Injection Molding Tonnage recommendation		
Number of cavities	Nos	8
Part projected area	mm ²	1194.5906
Runner projected area	mm ²	0
Min wall thickness	mm	3.43
Max length of flow	mm	40.22
Flow path/wall thickness Ratio		12
Cavity pressure theoretical	bar	90
Viscosity grade (Material Flowability)	1 - 1.9	1
Cavity pressure actual	Kg/cm ²	91.8
Safety factor		1.20
Shot projected area	mm ²	9556.7249
Clamping tonnage	Ton	11



Cycle Time (s)	
Mold Cleaning Time	10
Charge Loading Time	16
Stroke Actuation Time	5
Pressure Holding Time	5
Part Removing Time	5
Total Cycle Time (s)	41.00

Manufacturing Information 1:		
Process Type :	Compression Molding	
Recommended Force : (Ton)	11 Ton	
Selected Tonnage (Ton) :	30 Ton	
Machine Name :	Generic Compression Molding Machine	
M/c Automation :	Auto	
No Of Cavities		8.00
Cycle Time (sec) :		41.00
Setup Time (min/piece) :		0.01
Total tool loading time (min)		120.00
# of Direct Labors :		1.00
# of Skilled Labors :		-
# of QA Inspector :		1.00
Direct Labor Rate /hr		102.00
Skilled Labor Rate /hr		115.00
QA Inspector Rate /hr:		115.00
Sampling Rate (%)		1%
Inspection time (min) :		5.00
Yield (Net Good Parts) (%) :		95%
Machine hour Rate (₹) :		100.00
Machine Cost (₹) :	₹	0.1424
Setup Cost (₹) :	₹	0.0323
Labor Cost (₹) :	₹	0.1452
Inspection Cost (₹) :	₹	0.0958
Yield Cost (Rejected Parts Scrap Rate)	₹	0.1592
Net Process cost (₹) :	₹	0.5749

Total Material Cost	₹	0.5749
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Over Heads		
Material OH 5%	₹	0.1836
Machine OH 3%	₹	0.0043
Labor OH 2%	₹	0.0029
Profit 8%	₹	0.3398

Total OH	₹	0.5305
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Summary		
Material Cost	₹	3.6720
Process Cost	₹	0.5749
OH	₹	0.5305
Total Part Cost	₹	4.7775

Tool Information	
Estimated Tool Size: (L*W*H) mm	400*300*300
Tool Cost: Estimated	10 Lakhs INR
No Of Shots	5,00,000
Mold Utilisation For 5 Year Program	19%

PART ID NUMBER-RVMSA2CP3
PART NAME -MIRROR GLASS

Field Header	Field name	Field Value
Part Information :	Part Number :	RVMSA2CP3
	Part Description :	Reflective Glass
	Annual Volume (#) :	1,50,000
	Commodity :	Glass Fabrication
	Process Name :	CNC Laser Cutting
	Current Supplier Name :	-
	Current Manufacturing Country :	INDIA
	Delivery Country :	INDIA
	BOM Qty (No's)	1
	Part Complexity :	Low
	Lot size (#) :	12,500
	Supply Chain Model :	Buy
	Packaging Type :	No Packing
	HS Code :	N/A
	Inco Terms :	EX-W
	Payment Terms :	60 Days

Material Information 1:	Category :	Others
	Family :	Glass
	Description/Grade :	Silver Mirror Glass
	Density (g/cc) :	2.50
	Material price (₹/Kg) :	₹ 80.00
	Scrap price (₹/Kg) :	₹ 20.00
	Part Envelope Length (mm) :	170.00
	Part Envelope Width (mm) :	92.00
	Part Thickness (mm) :	1.88
	Net weight (g) :	54.00
	Reflective Area (mm^2) :	11,010.00
	Volume (mm^3) :	21,600.00
	Part allowance : (Kerf)	1.00
	Sheet Width (mm) :	1,250.00
	Sheet Length (mm)	2,500.00
	Edge Allowance (mm)	2.00
	Parts per Sheet	196.00
	Sheet Weight (g)	14,687.50
	Scrap weight per part(g) :	20.94
	Net weight per part (g) :	54.0000
	Gross weight per part (g) :	74.9362
	Utilisation %	72%
	Scrap Recovery %	90%
	Gross Material cost (₹) :	₹ 5.99
	Scrap Rec Cost (₹) :	₹ 0.38
	Net Material cost (₹) :	₹ 5.62

Total Material Cost	₹ 5.6180
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Manufacturing 1 :	Process Type :	Laser Cutting
	Laser cutting machine	Generic Glass Laser Cutting
	M/c Automation :	Auto
Cost Drivers :	Cutting Length : (mm)	524.00
	No of Starts (Piercings) : (Count)	1.00
	Cutting Speed : m/min	3.00
	Cutting Time : (min)	0.17
	Piercing Time : (min)	0.02
	Total Time : (sec)	11.68
	Setup Time (min/piece) :	0.05
	Sheet loading time (min)	640.00
	# of Direct Labors :	0.50
	# of Skilled Labors :	-
	# of QA Inspector :	1.00
	Direct Labor Rate /hr	₹ 102.00
	Skilled Labor Rate /hr	₹ 115.00
	QA Inspector Rate /hr:	₹ 115.00
	Sampling Rate (%)	1%
	Inspection time (min) :	5.00
	Yield (Net Good Parts) (%) :	100.0%
	Machine hour Rate (₹) :	₹ 800.00
	Machine Cost (₹) :	₹ 2.5956
	Setup Cost (₹) :	₹ 0.7262
	Labor Cost (₹) :	₹ 0.1655
	Inspection Cost (₹) :	₹ 0.0479
	Yield Cost (Rejected Parts Scrap Rate) (₹)	₹ -
	Net Process cost (₹) :	₹ 3.5351

Total Process Cost	₹ 3.5351
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Overheads	Material OH 5%	₹ 0.28
	Machine OH 3%	₹ 0.08
	Labor OH 2%	₹ 0.00
	Profit 8%	₹ 0.73

Total OH	₹ 1.09
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Summary	Material Cost	₹ 5.62
	Process Cost	₹ 3.54
	OH	₹ 1.09
	Total Part Cost	₹ 10.25