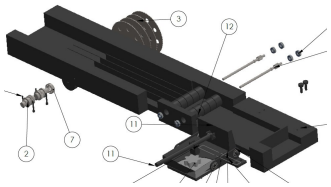
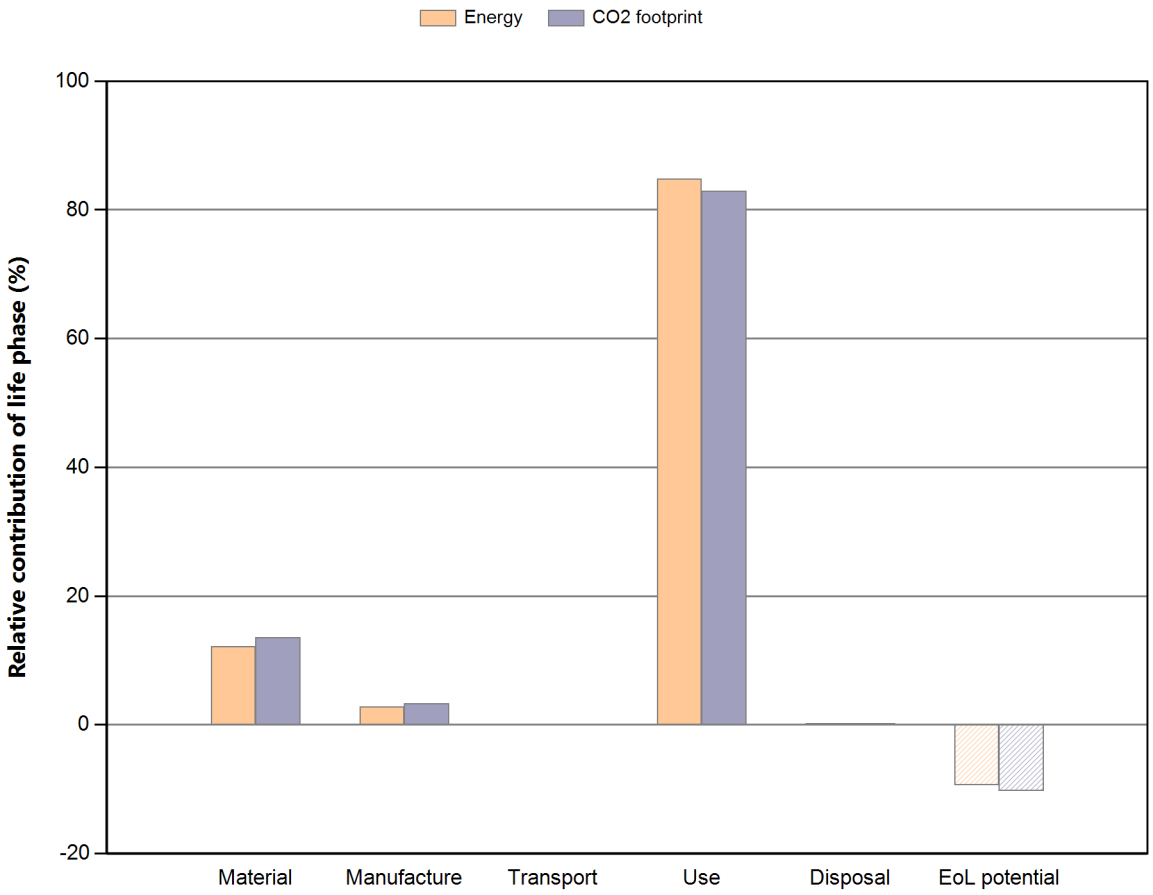
Eco Audit Report



Product name	cutting part
Country of use	The Whole World
Product life (years)	10

Summary:

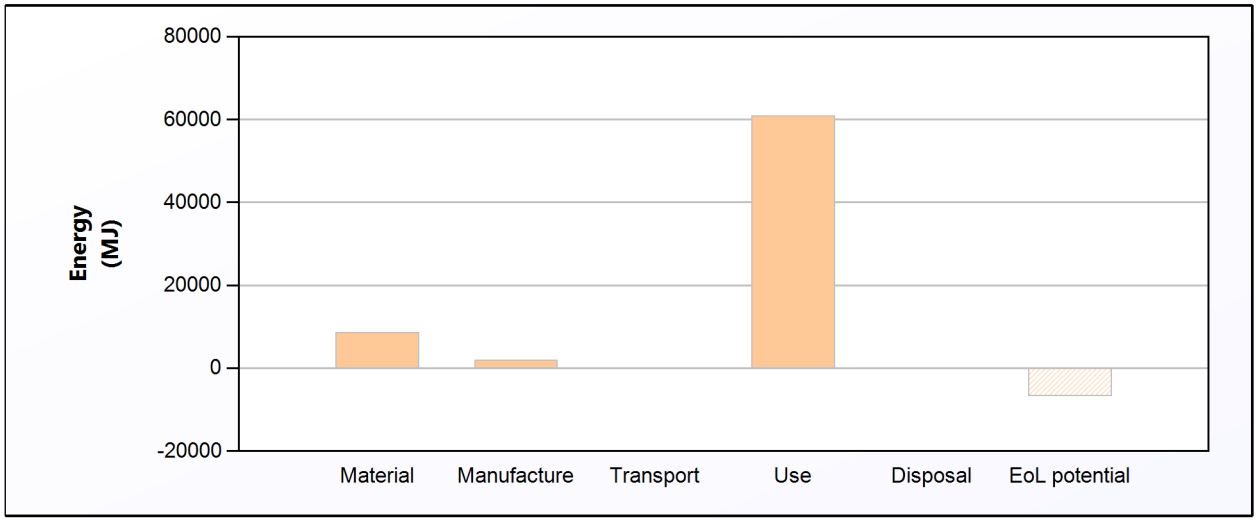


Energy details CO2 footprint details

Phase	Energy (MJ)	Energy (%)	CO2 footprint (kg)	CO2 footprint (%)
Material	8.71e+03	12.1	633	13.6
Manufacture	2.04e+03	2.8	153	3.3
Transport	0	0.0	0	0.0
Use	6.09e+04	84.8	3.87e+03	82.9
Disposal	141	0.2	9.87	0.2
Total (for first life)	**7.18e+04**	**100**	**4.66e+03**	**100**
End of life potential	-6.74e+03		-478	

Energy Analysis

Summary



	Energy (MJ/year)
Equivalent annual environmental burden (averaged over 10 year product life):	7.18e+03

Detailed breakdown of individual life phases

Material:

Summary

Component	Material	Recycled content* (%)	Part mass (kg)	Qty.	Total mass (kg)	Energy (MJ)	%
blade nut	Cast iron, ductile (nodular)	Virgin (0%)	0.048	4	0.19	6.2	0.1
shaft	Stainless steel	Virgin (0%)	0.35	2	0.7	51	0.6
blade	Low alloy steel	Virgin (0%)	0.42	4	1.7	52	0.6
plate	Cast iron, ductile (nodular)	Virgin (0%)	1.4e+02	1	1.4e+02	4.5e+03	52.0
cover cap	Cast iron, ductile (nodular)	Virgin (0%)	12	2	24	7.6e+02	8.7
bolt	Cast iron, ductile (nodular)	Virgin (0%)	0.012	4	0.048	1.6	0.0
ballbearing	Low alloy steel	Virgin (0%)	0.028	2	0.056	1.7	0.0
holder bolt	Cast iron, ductile (nodular)	Virgin (0%)	0.041	4	0.16	5.3	0.1
10mm bearing	Low alloy steel	Virgin (0%)	0.002	6	0.012	0.37	0.0
grinding shaft	Stainless steel	Virgin (0%)	0.16	2	0.31	23	0.3
roller grinder	Aluminum/Silicon carbide composite	Virgin (0%)	2.1	2	4.3	8.5e+02	9.7
motor	Stainless steel	Virgin (0%)	11	3	33	2.4e+03	27.9
Total				**36**	**2e+02**	**8.7e+03**	**100**

*Typical: Includes 'recycle fraction in current supply'

***User-defined material

Manufacture:

Summary

Component	Process	Amount processed	Energy (MJ)	%
blade nut	Casting	0.19 kg	2.1	0.1
shaft	Roll forming	0.7 kg	3.6	0.2
blade	Roll forming	1.7 kg	15	0.7
plate	Casting	1.4e+02 kg	1.5e+03	75.5
cover cap	Casting	24 kg	2.6e+02	12.7
bolt	Casting	0.048 kg	0.53	0.0
ballbearing	Roll forming	0.056 kg	0.49	0.0
holder bolt	Casting	0.16 kg	1.8	0.1
10mm bearing	Roll forming	0.012 kg	0.1	0.0
grinding shaft	Roll forming	0.31 kg	1.6	0.1
roller grinder	Casting	4.3 kg	44	2.1
motor	Roll forming	33 kg	1.7e+02	8.4
Total			**2e+03**	**100**

Transport:

Summary

Breakdown by transport stage

Stage name	Transport type	Distance (km)	Energy (MJ)	%
Total				**100**

Breakdown by components

Component	Mass (kg)	Energy (MJ)	%
blade nut	0.19	0	
shaft	0.7	0	
blade	1.7	0	
plate	1.4e+02	0	
cover cap	24	0	
bolt	0.048	0	
ballbearing	0.056	0	
holder bolt	0.16	0	
10mm bearing	0.012	0	
grinding shaft	0.31	0	
roller grinder	4.3	0	
motor	33	0	
Total	**2e+02**	**0**	**100**

Use:

Summary

Static mode

Energy input and output type	Electric to thermal
Country of use	The Whole World
Power rating (W)	1.5e+03
Usage (hours per day)	1
Usage (days per year)	3.7e+02
Product life (years)	10

Relative contribution of static and mobile modes

Mode	**Energy (MJ)**	**%**
Static	6.1e+04	100.0
Mobile	0	
Total	**6.1e+04**	**100**

Disposal:

Summary

Component	End of life option	Energy (MJ)	%
blade nut	Recycle	0.13	0.1
shaft	Recycle	0.49	0.3
blade	Recycle	1.2	0.8
plate	Recycle	98	69.6
cover cap	Recycle	16	11.7
bolt	Recycle	0.034	0.0
ballbearing	Recycle	0.039	0.0
holder bolt	Recycle	0.11	0.1
10mm bearing	Recycle	0.0084	0.0
grinding shaft	Recycle	0.22	0.2
roller grinder	Re-manufacture	0.85	0.6
motor	Recycle	23	16.6
Total		**1.4e+02**	**100**

EoL potential:

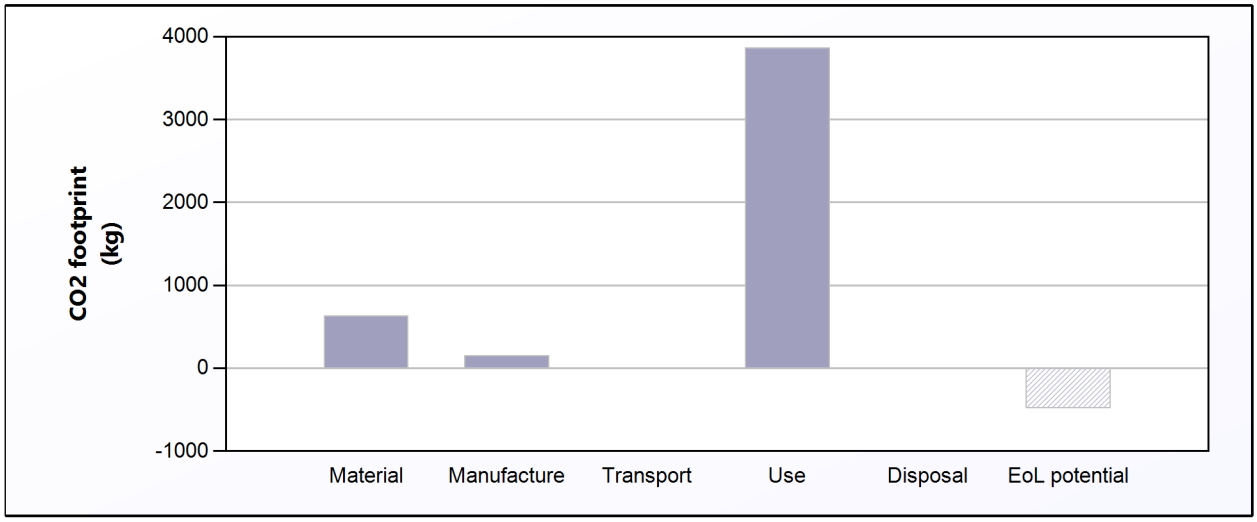
Component	End of life option	Energy (MJ)	%
blade nut	Recycle	-4.6	0.1
shaft	Recycle	-39	0.6
blade	Recycle	-37	0.6
plate	Recycle	-3.3e+03	49.6
cover cap	Recycle	-5.6e+02	8.3
bolt	Recycle	-1.1	0.0
ballbearing	Recycle	-1.2	0.0
holder bolt	Recycle	-3.9	0.1
10mm bearing	Recycle	-0.26	0.0
grinding shaft	Recycle	-18	0.3
roller grinder	Re-manufacture	-8.4e+02	12.4
motor	Recycle	-1.9e+03	28.1
Total		**-6.7e+03**	**100**

Notes:

Summary

CO2 Footprint Analysis

Summary



	CO2 (kg/year)
Equivalent annual environmental burden (averaged over 10 year product life):	466

Detailed breakdown of individual life phases

Material:

Summary

Component	Material	Recycled content* (%)	Part mass (kg)	Qty.	Total mass (kg)	CO2 footprint (kg)	%
blade nut	Cast iron, ductile (nodular)	Virgin (0%)	0.048	4	0.19	0.46	0.1
shaft	Stainless steel	Virgin (0%)	0.35	2	0.7	3.8	0.6
blade	Low alloy steel	Virgin (0%)	0.42	4	1.7	4.2	0.7
plate	Cast iron, ductile (nodular)	Virgin (0%)	1.4e+02	1	1.4e+02	3.3e+02	52.5
cover cap	Cast iron, ductile (nodular)	Virgin (0%)	12	2	24	56	8.8
bolt	Cast iron, ductile (nodular)	Virgin (0%)	0.012	4	0.048	0.11	0.0
ballbearing	Low alloy steel	Virgin (0%)	0.028	2	0.056	0.14	0.0
holder bolt	Cast iron, ductile (nodular)	Virgin (0%)	0.041	4	0.16	0.39	0.1
10mm bearing	Low alloy steel	Virgin (0%)	0.002	6	0.012	0.03	0.0
grinding shaft	Stainless steel	Virgin (0%)	0.16	2	0.31	1.7	0.3
roller grinder	Aluminum/Silicon carbide composite	Virgin (0%)	2.1	2	4.3	52	8.2
motor	Stainless steel	Virgin (0%)	11	3	33	1.8e+02	28.8
Total				**36**	**2e+02**	**6.3e+02**	**100**

*Typical: Includes 'recycle fraction in current supply'

***User-defined material

Manufacture:

Summary

Component	Process	Amount processed	CO2 footprint (kg)	%
blade nut	Casting	0.19 kg	0.16	0.1
shaft	Roll forming	0.7 kg	0.27	0.2
blade	Roll forming	1.7 kg	1.1	0.7
plate	Casting	1.4e+02 kg	1.2e+02	75.5
cover cap	Casting	24 kg	19	12.7
bolt	Casting	0.048 kg	0.04	0.0
ballbearing	Roll forming	0.056 kg	0.036	0.0
holder bolt	Casting	0.16 kg	0.14	0.1
10mm bearing	Roll forming	0.012 kg	0.0078	0.0
grinding shaft	Roll forming	0.31 kg	0.12	0.1
roller grinder	Casting	4.3 kg	3.3	2.1
motor	Roll forming	33 kg	13	8.4
Total			**1.5e+02**	**100**

Transport:

Summary

Breakdown by transport stage

Stage name	Transport type	Distance (km)	CO2 footprint (kg)	%
Total				**100**

Breakdown by components

Component	Mass (kg)	CO2 footprint (kg)	%
blade nut	0.19	0	
shaft	0.7	0	
blade	1.7	0	
plate	1.4e+02	0	
cover cap	24	0	
bolt	0.048	0	
ballbearing	0.056	0	
holder bolt	0.16	0	
10mm bearing	0.012	0	
grinding shaft	0.31	0	
roller grinder	4.3	0	
motor	33	0	
Total	**2e+02**	**0**	**100**

Use:

Static mode

Energy input and output type	Electric to thermal
Country of use	The Whole World
Power rating (W)	1.5e+03
Usage (hours per day)	1
Usage (days per year)	3.7e+02
Product life (years)	10

Relative contribution of static and mobile modes

Mode	**CO2 footprint (kg)**	**%**
Static	3.9e+03	100.0
Mobile	0	
Total	**3.9e+03**	**100**

Disposal:

Summary

Component	End of life option	CO2 footprint (kg)	%
blade nut	Recycle	0.0094	0.1
shaft	Recycle	0.034	0.3
blade	Recycle	0.083	0.8
plate	Recycle	6.9	69.6
cover cap	Recycle	1.2	11.7
bolt	Recycle	0.0024	0.0
ballbearing	Recycle	0.0027	0.0
holder bolt	Recycle	0.008	0.1
10mm bearing	Recycle	0.00059	0.0
grinding shaft	Recycle	0.015	0.2
roller grinder	Re-manufacture	0.06	0.6
motor	Recycle	1.6	16.6
Total		**9.9**	**100**

EoL potential:

Component	End of life option	CO2 footprint (kg)	%
blade nut	Recycle	-0.33	0.1
shaft	Recycle	-2.9	0.6
blade	Recycle	-3.1	0.7
plate	Recycle	-2.4e+02	49.9
cover cap	Recycle	-40	8.4
bolt	Recycle	-0.082	0.0
ballbearing	Recycle	-0.1	0.0
holder bolt	Recycle	-0.28	0.1
10mm bearing	Recycle	-0.022	0.0
grinding shaft	Recycle	-1.3	0.3
roller grinder	Re-manufacture	-51	10.7
motor	Recycle	-1.4e+02	29.3
Total		**-4.8e+02**	**100**

Notes:

Summary