

product contract

at a glance...

- touchscreen and cooking surface are durable, lasting at least 10 years before replacements are needed
- touchscreen and cooktop are sealed around the edges and scratch & water-resistant for easy cleaning after use
- user-interface indicates stove's hot spots for no less than 20 minutes after elements have turned off
- in the case of failure, electronics reliably fail in non-recoverable way less than 1% of the time
- user interface is visible to user, screen has dimensions of at least 4" x 6" and is inclined at an angle between 3 to 17 degrees
- a majority of metal pots and pans can be sensed by stove (aluminum, steel, etc.)
- fireproof insulation rated to at least 2600 degrees Fahrenheit
- cooking space is large enough (at least 20" x 20") to fit at least 4 average-sized pots & pans
- intuitive user interface, with 4 or less steps to heat or cool items, and only 1 step to turn off the entire stovetop
- each heating element can sense when it is partially covered by a pot or pan with a resolution of at least 1/4 of the element's area
- cooking surface material has a thermal conductivity of less than 2 W/(m-K), allowing heat to be contained in desired locations
- non-cooktop surfaces are cool and safe to touch, never going above 100 degrees Fahrenheit when stovetop is in use
- stovetop cooks food in same amount of time (1:1 ratio) as a traditional stovetop



Product Contract

Team Silver

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Product Description

A electric stovetop containing an array of burner elements to provide more versatile heating.

Intended Customers

Homeowners and contractors that purchase high-end appliances (age 30-60)

Market

Large Appliances

Customer Needs	Product Attributes	Specifications	Owner
Stovetop			
Can hold at least 4 average-sized pots	Size	Cooking surface has dimensions of at least 20" x 20"	S. Mellott
Durable cook surface	Impact resistance	Stovetop surface withstands at least 100MPa in 3-point bending	T. Green
	Scratch resistance	Stovetop surface has a Vickers hardness of at least 200kg*mm ²	J. Franklin
	Material life span	Surface lasts at least 10 years before replacement	S. Mellott
Cleanable cook surface	Water resistant	Sufficient sealing around the edges of the cooktop for damp sponge cleaning	M. Carvajal
Contains heat to specified location	Thermal conductivity of cooktop	Surface material has conductivity less than 2 W/m-K	N. Sharpe
Fast cook speeds	Time to boil water	3 minutes to boil 2L of water (same as traditional stove)	H. Mohamed

Power Electronics			
Reliable electronics	Failure rate	Stovetop fails in recoverable way <1% of time	M. Bollini
		Stovetop fails in safe, nonrecoverable way <0.1% of time	M. Bollini
Safe for the user to operate	Fire proof	Insulation rated to at least 2600 Farenheit	N. Sharpe
		Wiring does not short/spark on case	S. Mellott
		Non-cooktop surfaces remain below 100 degrees Farenheit while stovetop is in use	S. Mellott
	Indicates when stovetop is hot	UI indicates hot zones of stovetop for at least 20 minutes after elements are turned off	S. Mellott
Sensing			
Can sense a pot quickly	Time to sense	Stovetop recognizes a pot has been placed in less than 1 second	L. Johnson
Can sense a pot accurately	Resolution of sensing for each element	Stovetop recognizes the fraction of each burner element covered to an accuracy of at least 25% element	L. Johnson
Can sense a variety of pots and pans	Range of pot sizes sensed	Stovetop can sense pots as small as one 2" by 2" burner element and as large as the entire stovetop surface	L. Johnson
	Range of pot materials sensed	All metal pots can be sensed by stovetop	L. Johnson

Industrial Design & User Interface			
Attractive design	External appearance	Stovetop does not extend farther than 0.5" above countertop	S. Reed
		Similar in color and shape to existing high-end kitchen appliances	S. Reed
Has intuitive user interface	Self-explanatory layout	UI is easily navigated by >80% of tested users within targeted user group	S. Reed
	Easily accessible stove functions	Any heating/cooking function is within 4 or less UI layers/steps	S. Reed
		1 step function to turn off entire stove	S. Reed
		Knob is comfortable to use by 95% of tested users	S. Reed
	Visibility	Interface screen has dimensions of at least 4" by 6"	J. Doyle
		UI set between 3 and 17 degrees from horizontal	J. Doyle
Cleanable UI	Water resistance	Sufficient sealing around the LCD screen for damp sponge cleaning	J. Doyle
Durable UI	Impact resistance	Surface withstands an impact from 2kg mass dropped from 12"	J. Doyle
	Thermal resistance	UI withstands temperatures up to 150 degrees Fahrenheit	J. Doyle
	Scratch resistance	Screen material hardness greater than 70 on Rockwell Hardness M Scale	J. Franklin
	Life span	UI remains functional for at least 10 years	J. Doyle