



## ABOUT US

TTI is a customer-focused organization that designs, manufactures and delivers technology-driven products to improve our customers' processes. Our team focuses on delivering products that impact your bottom line while respecting the environment, our neighbors and employees. Several members of the TTI team have over 30 years of experience in the filtration industry. TTI's team has delivered world-class Breather, Filtration, and Elastomeric Products products to customers around the Globe in the following industries: Energy, Food & Beverage, Hydraulics, Pharmaceutical and General Industrial.

## PRESIDENT'S MESSAGE FROM TODD YOUNGGREEN

*"As an industry entrepreneur, I set out to create businesses that are the best overall value in the industry. It is our mission at TTI to offer our customers exceptional product quality and performance with unfailing white glove service. As TTI's President, I will make you a promise that our products and services will live up to your expectations. If not, please contact me directly and we'll make it right. I appreciate your interest in the TTI product offering!"*

# TTI PowerGuard™ Housings Brochure

A Brochure Featuring:

- TTI's Company Overview
- PowerGuard™ Housings Datasheets



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## TTI'S EXCLUSIVE PARTNERSHIPS WITH FILTRATION INDUSTRY LEADERS

### Our Product Line History

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

CALL US TODAY FOR CUSTOM REQUESTS  
OR TO FIND SOLUTIONS WITH YOUR CURRENT PROCESS

TTI excels at providing custom solutions  
for OEM's in several different industries.

Give TTI a call at **(303) 585-0132** to discuss how  
you can leverage our know-how to create a custom  
solution for your specific application.

## SERIES 100 SIMPLEX HOUSING

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

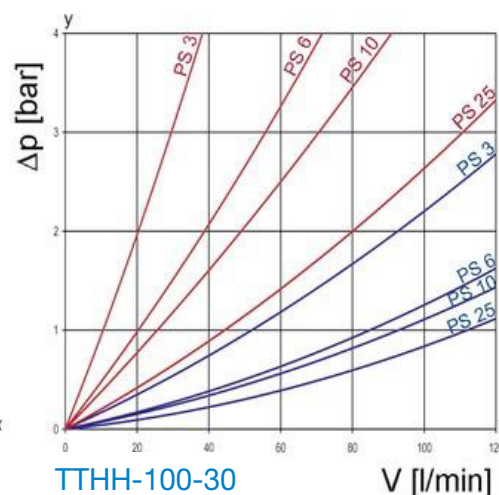
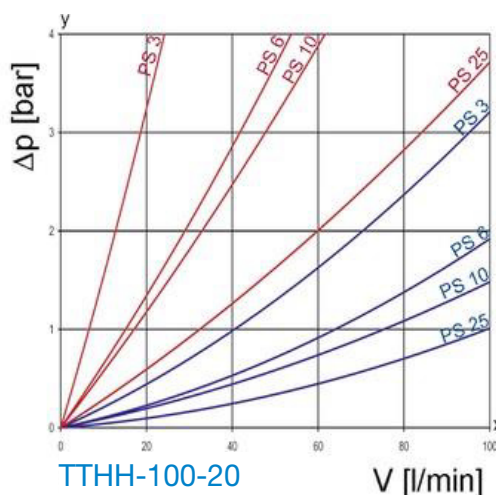
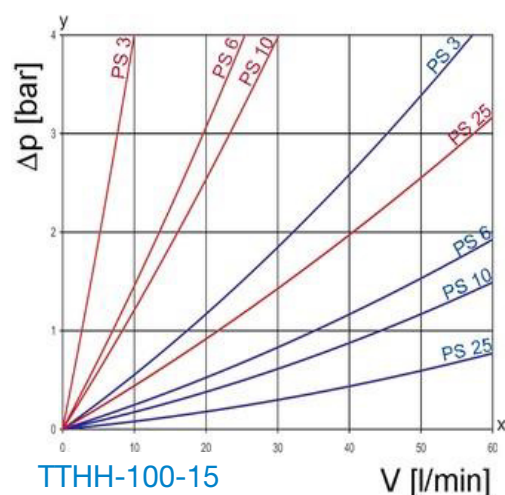


Simplex Aluminum  
PowerGuard Housing

## SPECIFICATIONS

- Nominal working pressure - 900 PSI
- Visual indicator for element change out standard - 32 PSI
- Automatic bypass valve standard - 50 PSI Bypass Valve
- Operating temperature: -22°F to 248°F

## FLOW CHARACTERISTICS



## FLUID VISCOSITY

190 mm<sup>2</sup>/s    33 mm<sup>2</sup>/s



# SERIES 100

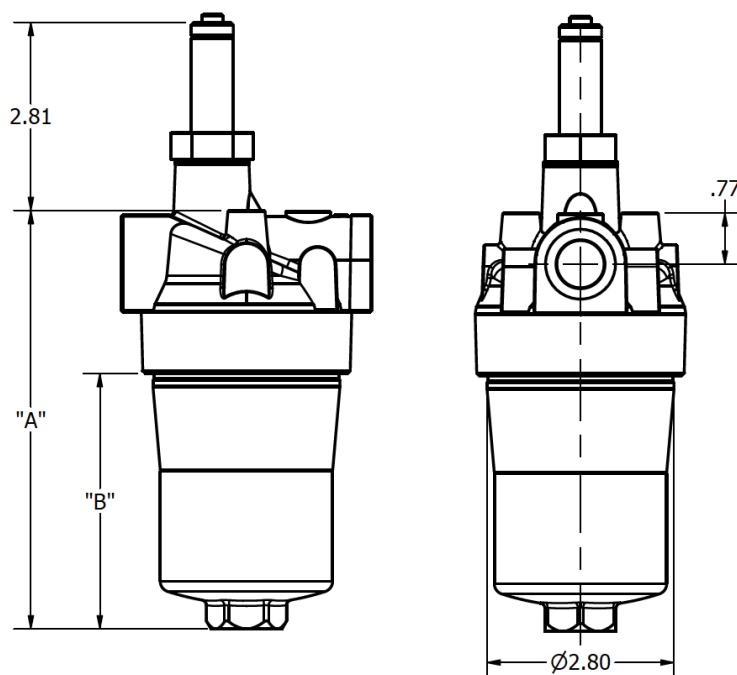
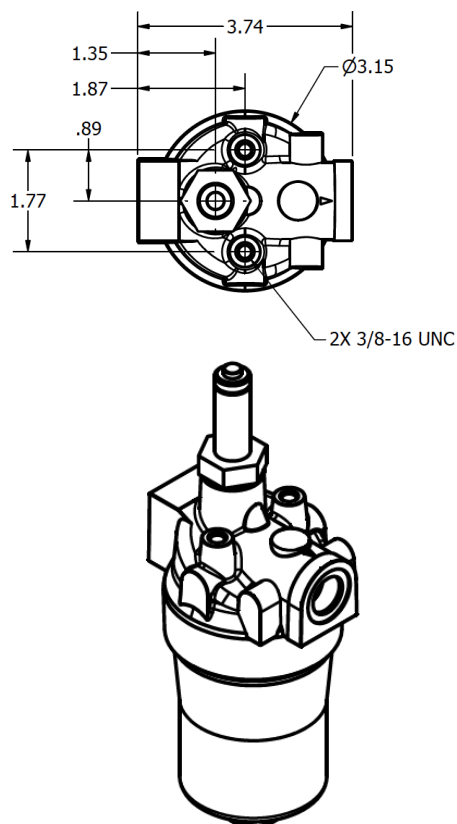
## SIMPLEX HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

PART NUMBER*	"A" Height	"B" Bowl Length	INLET OUTLET
TTHH-100-15-VBB	6.5	4.1	SAE-12
TTHH-100-20-VBB	8.8	6.4	SAE-12
TTHH-100-30-VBB	12.4	10	SAE-12

3 Material Ordering Options:  
V/E/X : Visual / Electrical / None  
B / X: Bypass / None  
B / V: Buna / Viton

For example:  
TTHH-100-15-VBB: Series 100 Housing, 15gpm nominal flow rate, Visual Indicator, Bypass Valve, Buna-N Seals

## SERIES 110 SIMPLEX HOUSING

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

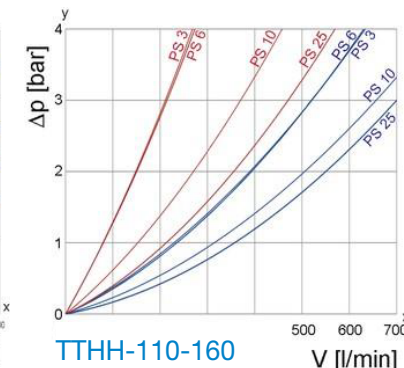
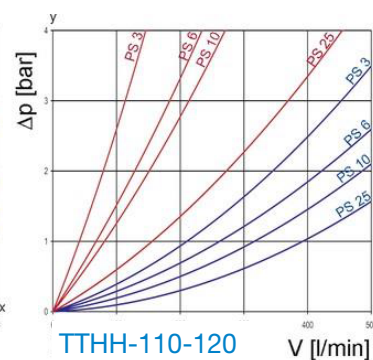
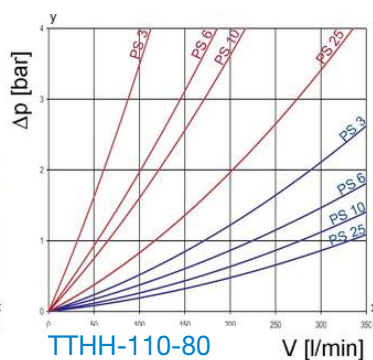
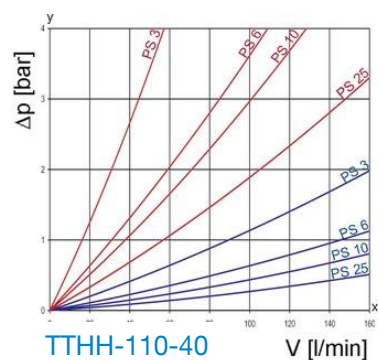


## Simplex Aluminum PowerGuard Housing

## SPECIFICATIONS

- Nominal working pressure - 450 PSI
- Visual indicator for element change out standard - 32 PSI
- Automatic bypass valve standard - 50 PSI Bypass Valve
- Operating temperature: -22°F to 248°F

## FLOW CHARACTERISTICS



## FLUID VISCOSITY

190 mm<sup>2</sup>/s      33 mm<sup>2</sup>/s

# SERIES 110

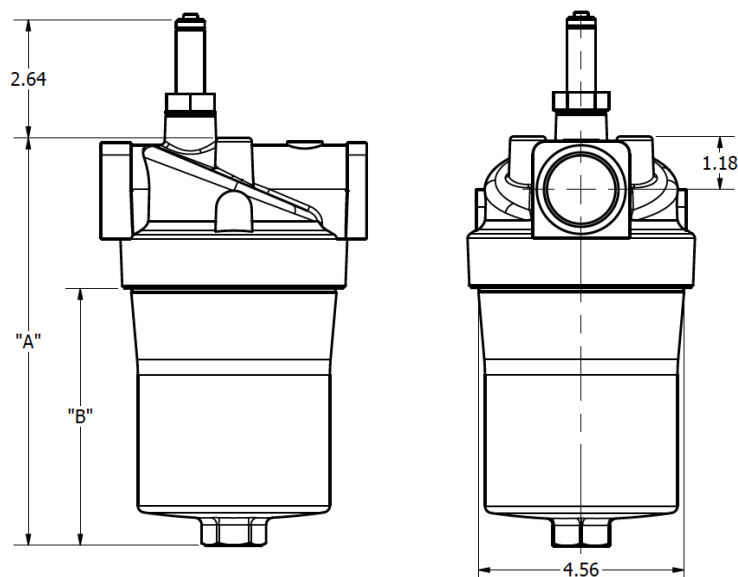
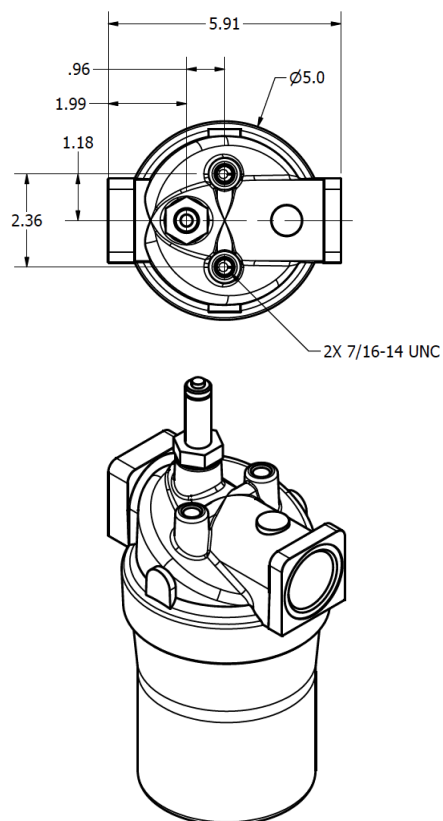
## SIMPLEX HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

PART NUMBER*	"A" Height	"B" Bowl Length	INLET OUTLET
TTHH-110-40-VBB	9.1	5.7	SAE-20
TTHH-110-80-VBB	13.6	10.5	SAE-20
TTHH-110-120-VBB	18.2	14.9	SAE-20
TTHH-110-160-VBB	23.7	20.3	SAE-20

3 Material Ordering Options:  
V/E/X : Visual / Electrical / None  
B / X: Bypass / None  
B / V: Buna / Viton

For example:  
TTHH-110-40-VBB: Series 110 Housing, 40gpm nominal flow rate, Visual Indicator, Bypass Valve, Buna-N Seals

## SERIES 120 SIMPLEX HOUSING

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

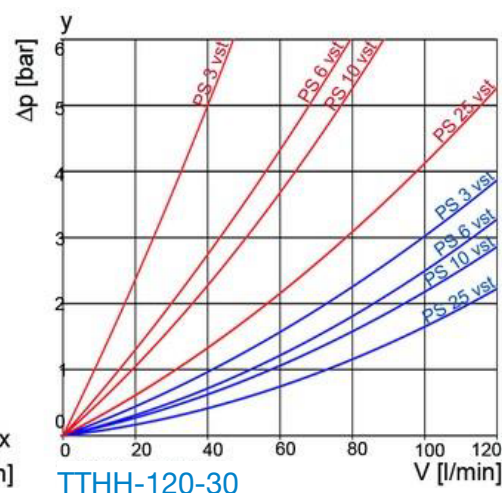
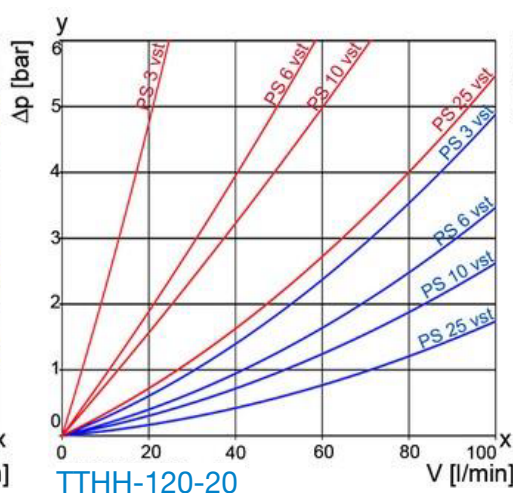
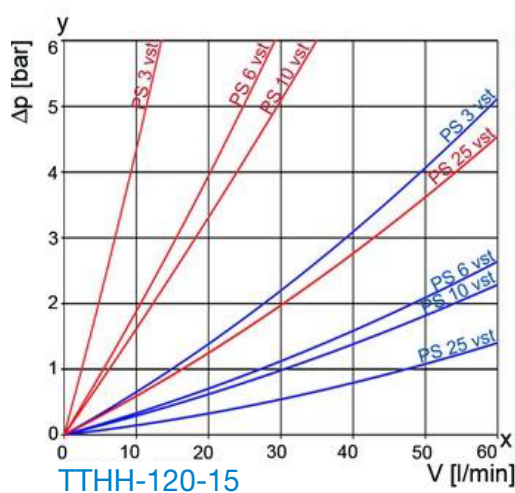


Simplex Steel  
PowerGuard Housing

## SPECIFICATIONS

- Nominal working pressure - 4500 PSI
- Visual indicator for element change out standard - 72 PSI
- Automatic bypass valve standard - 101 PSI Bypass Valve
- Operating temperature: -22°F to 248°F

## FLOW CHARACTERISTICS



## FLUID VISCOSITY

190 mm<sup>2</sup>/s    33 mm<sup>2</sup>/s

# SERIES 120

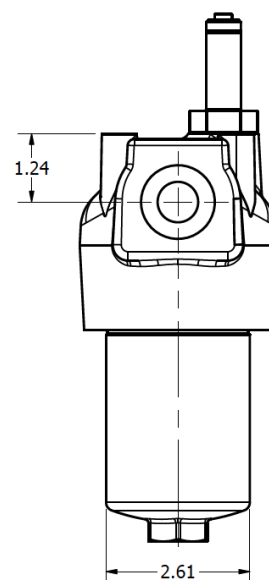
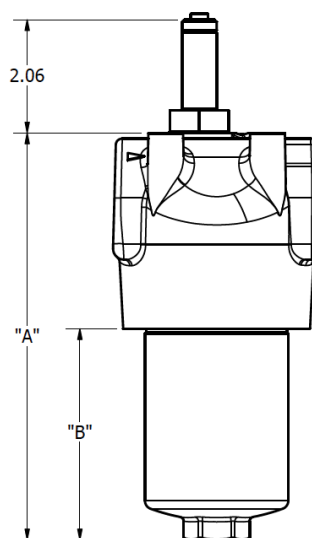
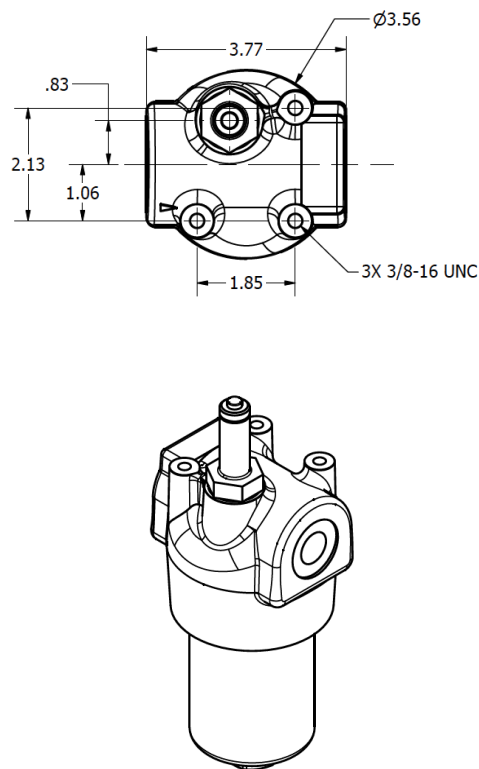
## SIMPLEX HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

PART NUMBER*	"A" Height	"B" Bowl Length	INLET OUTLET
TTHH-120-15-VBB	7.4	3.9	SAE-12
TTHH-120-20-VBB	10.5	6.9	SAE-12
TTHH-120-30-VBB	13.5	9.9	SAE-12

3 Material Ordering Options:  
V/E/X : Visual / Electrical / None  
B / X: Bypass / None  
B / V: Buna / Viton

For example:  
TTHH-120-15-VBB: Series 120 Housing, 15gpm nominal flow rate, Visual Indicator, Bypass Valve, Buna-N Seals



## SERIES 130 SIMPLEX HOUSING

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

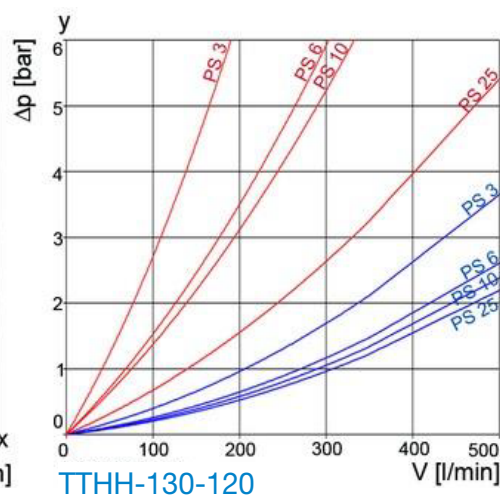
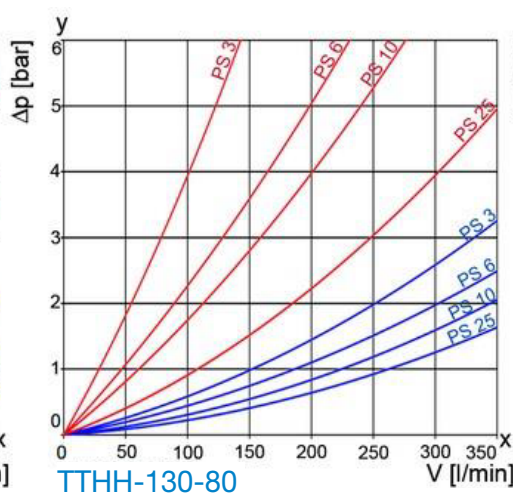
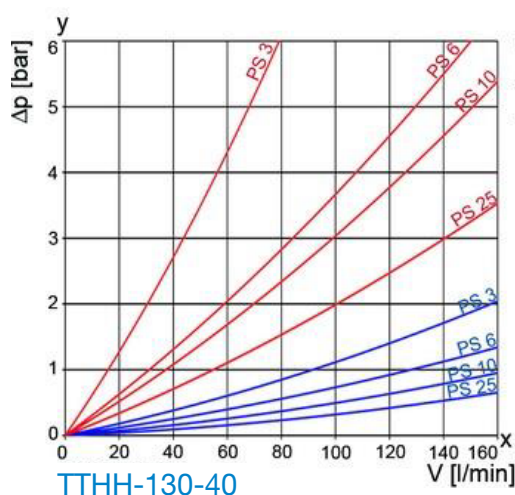


Simplex Steel  
PowerGuard Housing

## SPECIFICATIONS

- Nominal working pressure - 3000 PSI
- Visual indicator for element change out standard - 72 PSI
- Automatic bypass valve standard - 101 PSI Bypass Valve
- Operating temperature: -22°F to 248°F

## FLOW CHARACTERISTICS



## FLUID VISCOSITY

190 mm<sup>2</sup>/s    33 mm<sup>2</sup>/s

# SERIES 130

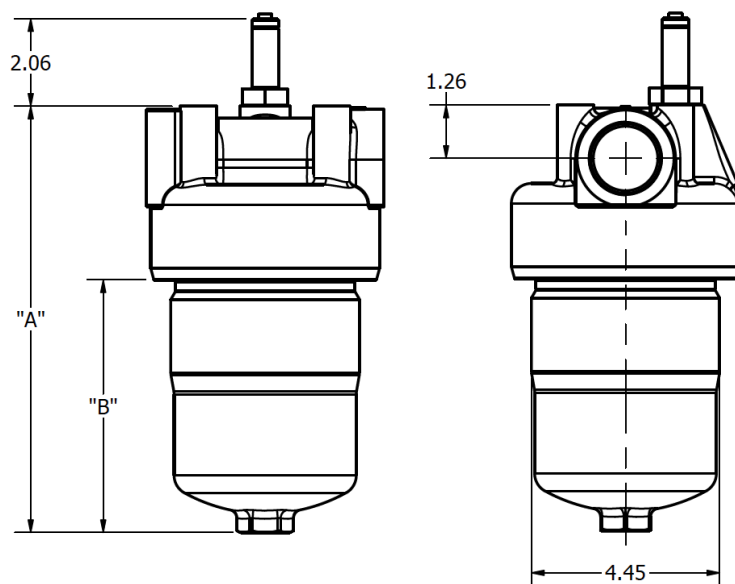
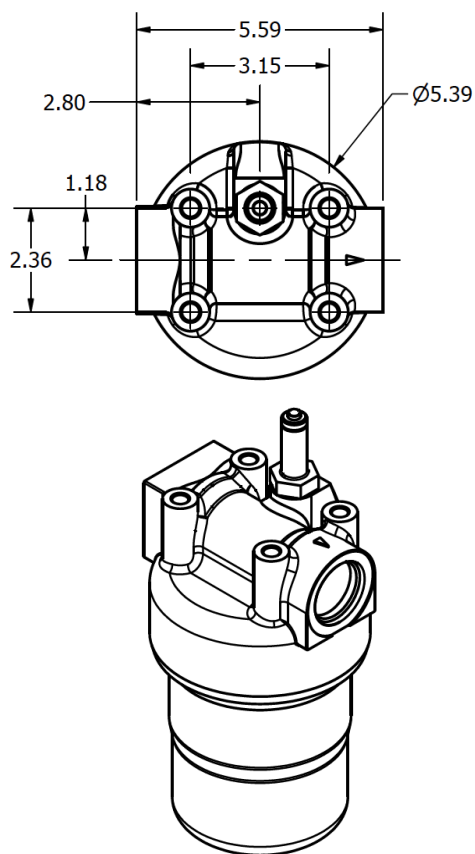
## SIMPLEX HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

PART NUMBER*	"A" Height	"B" Bowl Length	INLET OUTLET
TTHH-130-40-VBB	9.1	5.0	SAE-20
TTHH-130-80-VBB	13.6	9.5	SAE-20
TTHH-130-120-VBB	18.2	14.1	SAE-20

3 Material Ordering Options:  
V/E/X : Visual / Electrical / None  
B / X: Bypass / None  
B / V: Buna / Viton

For example:  
TTHH-130-40-VBB: Series 130 Housing, 40gpm nominal flow rate, Visual Indicator, Bypass Valve, Buna-N Seals

## SERIES 200 DUPLEX HOUSING

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

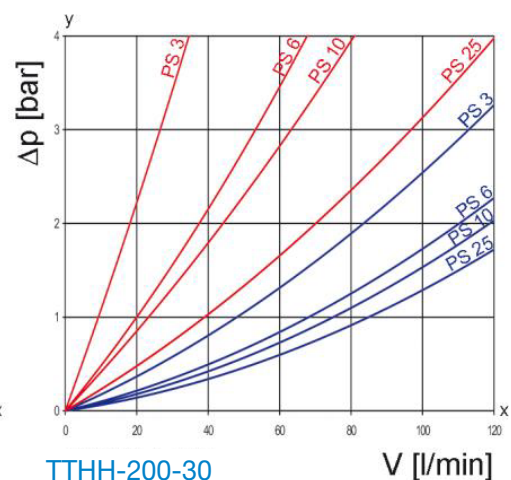
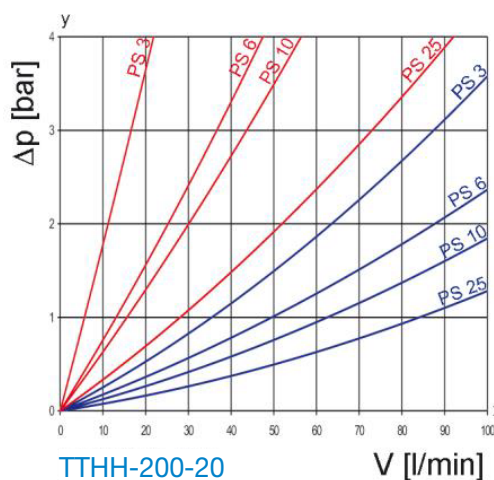
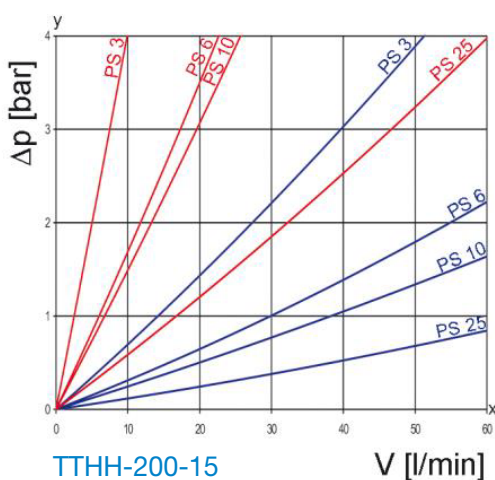
## SPECIFICATIONS

- Nominal working pressure - 900 PSI
- Visual indicator for element change out standard - 32 PSI
- Automatic bypass valve standard - 50 PSI Bypass Valve
- Operating temperature: -22°F to 248°F



Duplex Aluminum PowerGuard Housing

## FLOW CHARACTERISTICS



## FLUID VISCOSITY

190 mm<sup>2</sup>/s    33 mm<sup>2</sup>/s

# SERIES 200

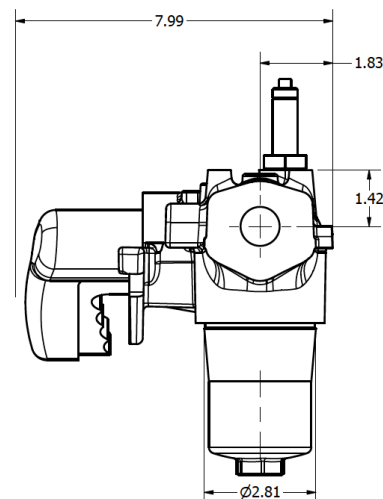
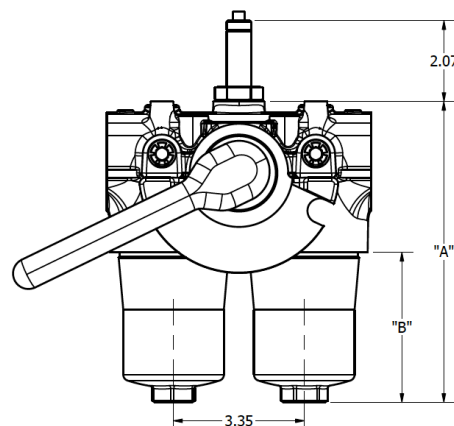
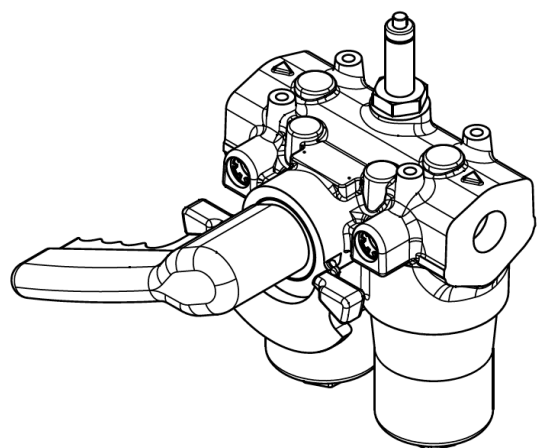
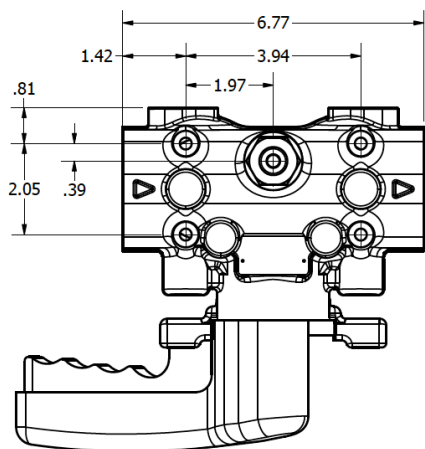
## SIMPLEX HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

PART NUMBER*	"A" Height	"B" Bowl Length	INLET OUTLET
TTHH-200-15-VBB	8.0	4.1	SAE-16
TTHH-200-20-VBB	10.3	6.4	SAE-16
TTHH-200-30-VBB	13.8	10.0	SAE-16

3 Material Ordering Options:  
V/E/X : Visual / Electrical / None  
B / X: Bypass / None  
B / V: Buna / Viton

For example:  
TTHH-200-15-VBB: Series 200 Housing, 15gpm nominal flow rate, Visual Indicator, Bypass Valve, Buna-N Seals



## SERIES 210 DUPLEX HOUSING

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

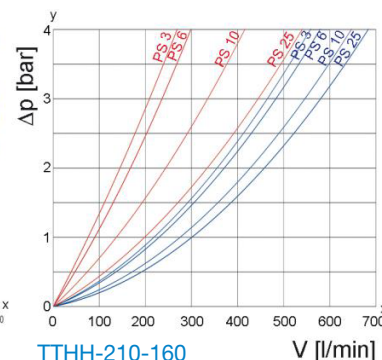
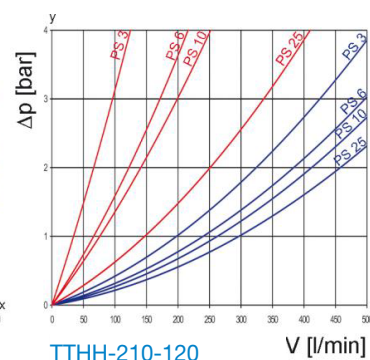
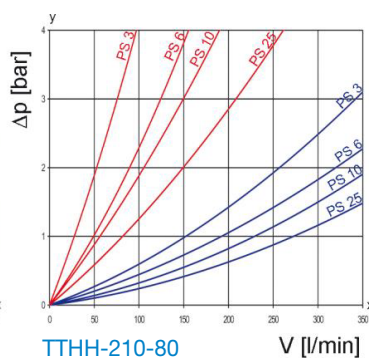
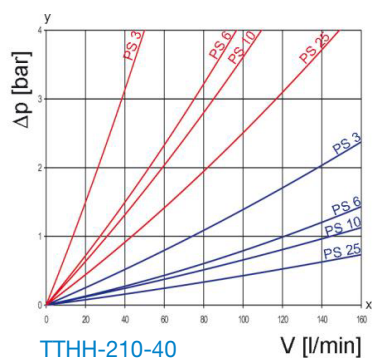
## SPECIFICATIONS

- Nominal working pressure - 450 PSI
- Visual indicator for element change out standard - 32 PSI
- Automatic bypass valve standard - 50 PSI Bypass Valve
- Operating temperature: -22°F to 248°F



Duplex Aluminum PowerGuard Housing

## FLOW CHARACTERISTICS



## FLUID VISCOSITY

190 mm<sup>2</sup>/s    33 mm<sup>2</sup>/s



# SERIES 210

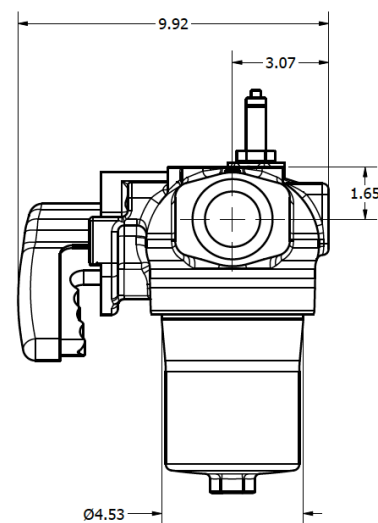
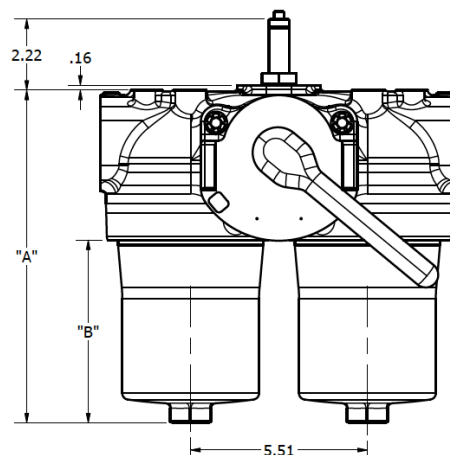
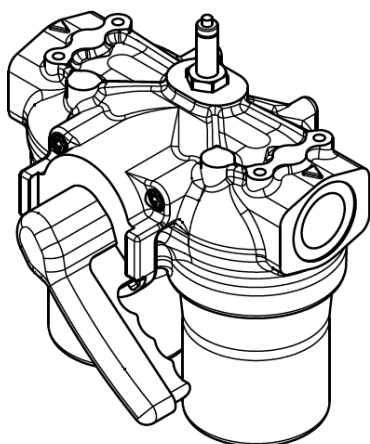
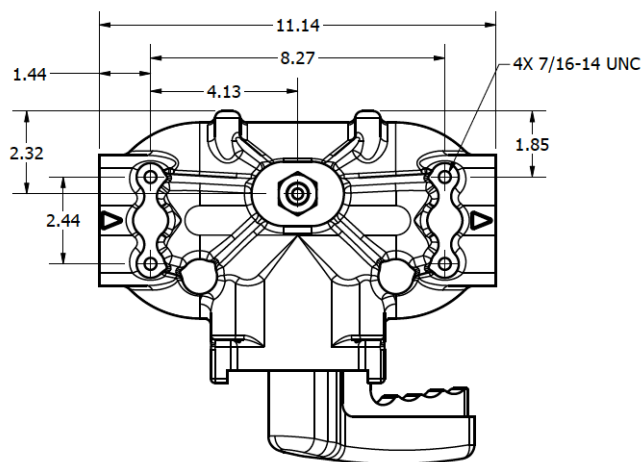
## SIMPLEX HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

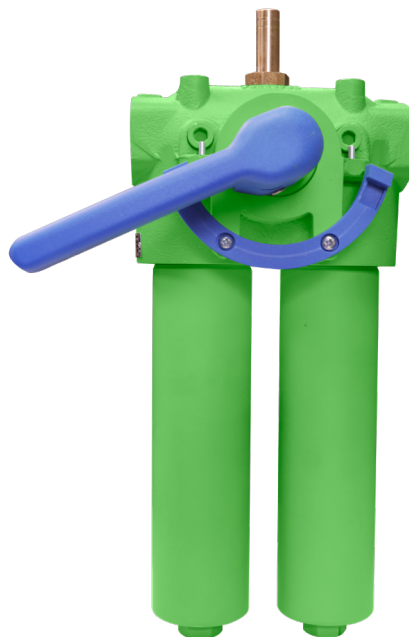
PART NUMBER*	"A" Height	"B" Bowl Length	INLET OUTLET
TTHH-210-40-VBB	10.4	5.7	SAE-24
TTHH-210-80-VBB	15.2	10.5	SAE-24
TTHH-210-120-VBB	19.6	14.9	SAE-24
TTHH-210-160-VBB	25.0	20.3	SAE-24

3 Material Ordering Options:  
V/E/X : Visual / Electrical / None  
B / X: Bypass / None  
B / V: Buna / Viton

For example:  
TTHH-210-40-VBB: Series 210 Housing, 40gpm nominal flow rate, Visual Indicator, Bypass Valve, Buna-N Seals

## SERIES 220 DUPLEX HOUSING

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

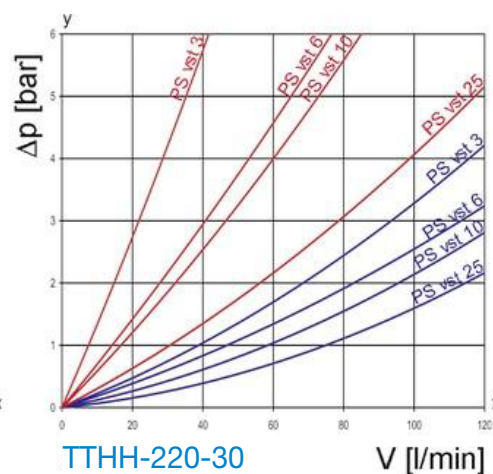
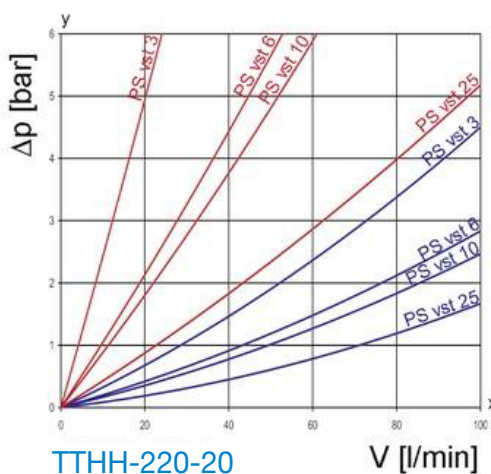
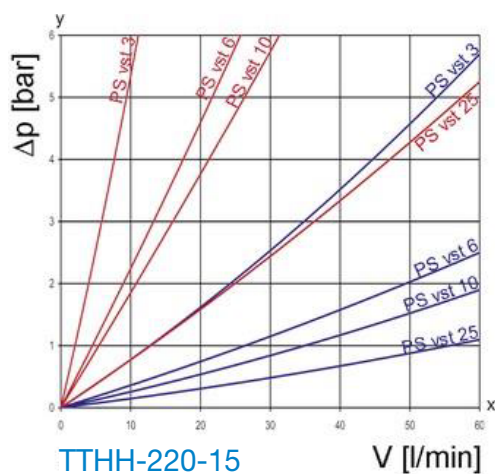


Duplex Steel  
PowerGuard Housing

## SPECIFICATIONS

- Nominal working pressure - 4500 PSI
- Visual indicator for element change out standard - 72 PSI
- Automatic bypass valve standard - 101 PSI Bypass Valve
- Operating temperature: -22°F to 248°F

## FLOW CHARACTERISTICS



## FLUID VISCOSITY

190 mm<sup>2</sup>/s    33 mm<sup>2</sup>/s

# SERIES 220

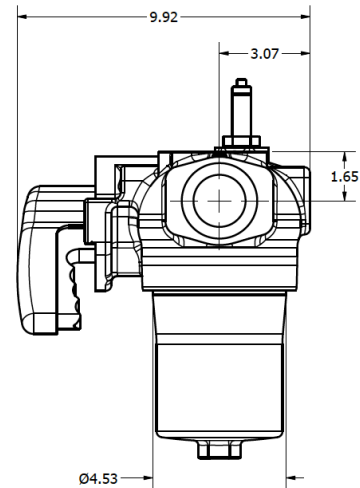
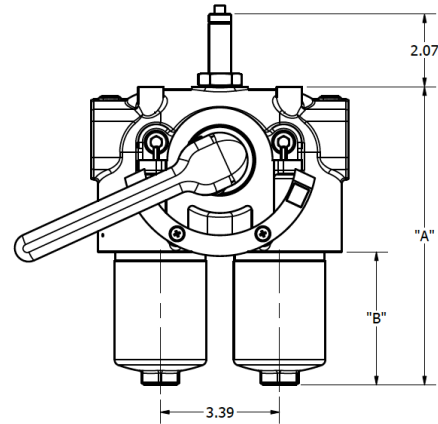
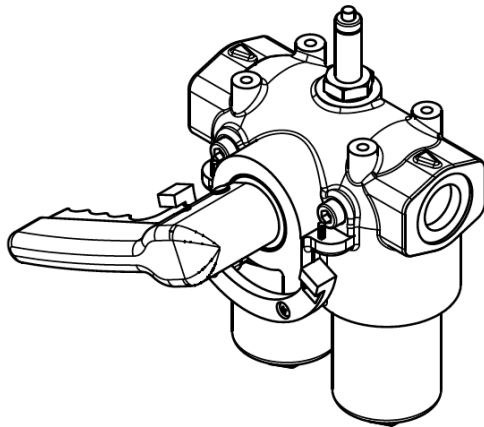
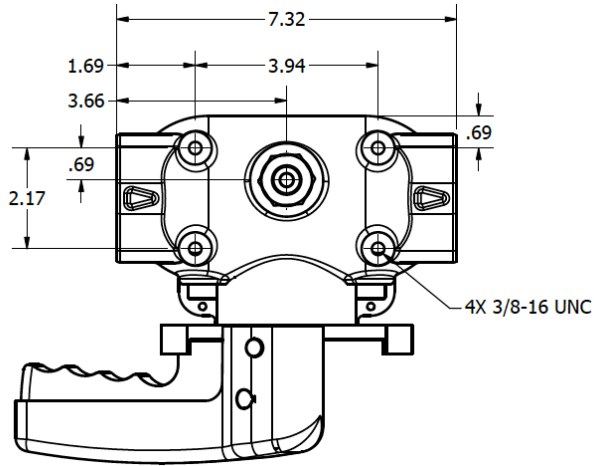
## DUPLEX HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

PART NUMBER*	"A" Height	"B" Bowl Length	INLET OUTLET
TTHH-220-15-VBB	8.6	3.9	SAE-16
TTHH-220-20-VBB	11.6	6.9	SAE-16

3 Material Ordering Options:  
V/E/X : Visual / Electrical / None  
B / X: Bypass / None  
B / V: Buna / Viton

For example:  
TTHH-220-15-VBB: Series 220 Housing, 15gpm nominal flow rate, Visual Indicator, Bypass Valve, Buna-N Seals



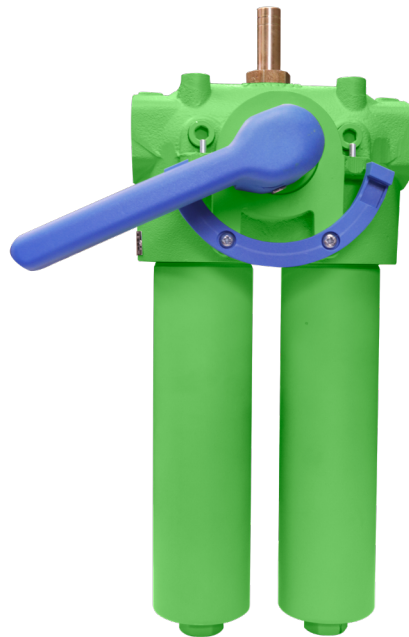
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## SERIES 230 DUPLEX HOUSING

TTI's PowerGuard housing line is manufactured in Germany with premium German components and assembled in the USA. TTI has leveraged the 58 years of Hydraulic manufacturing expertise of [FG Industrial Filtration](#) (Formerly Mahle) to deliver the PowerGuard product line to the North American marketplace. All TTI Housings are available standard with a bypass valve, visual indicator, SAE connections and produced to be highly serviceable. The TTI housing line provides the versatility for intermittent or continual flow operations, while offering a range of flow and pressure ratings compatible with inline pressurized systems and return line filtration.

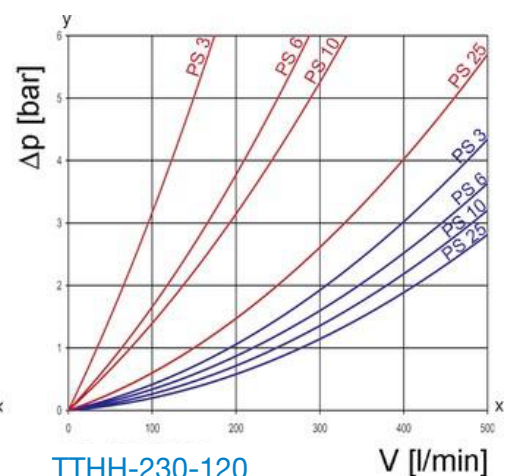
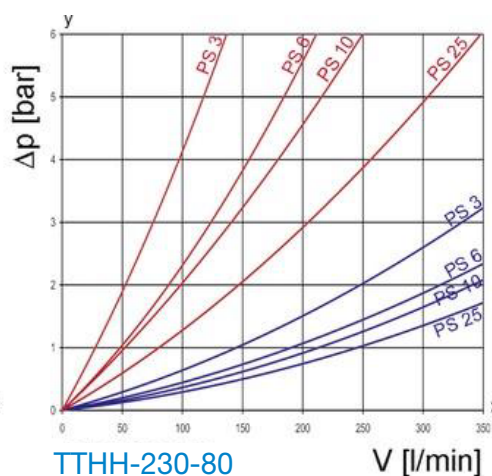
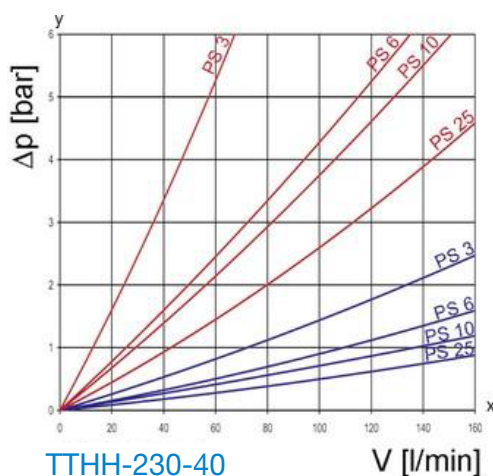


Duplex Steel  
PowerGuard™ Housing

## SPECIFICATIONS

- Nominal working pressure - 3000 PSI
- Visual indicator for element change out standard - 72 PSI
- Automatic bypass valve standard - 101 PSI Bypass Valve
- Operating temperature: -22°F to 248°F

## FLOW CHARACTERISTICS



## FLUID VISCOSITY

190 mm<sup>2</sup>/s    33 mm<sup>2</sup>/s

# SERIES 230

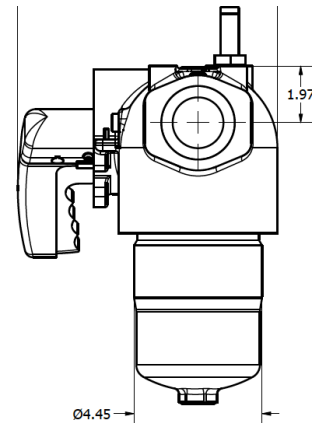
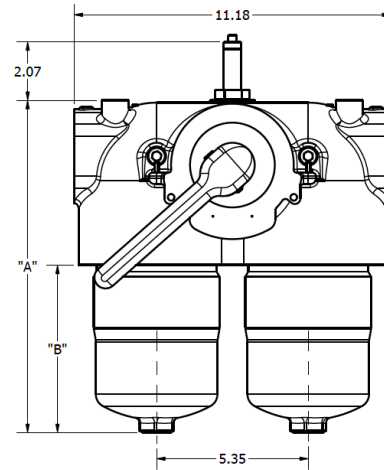
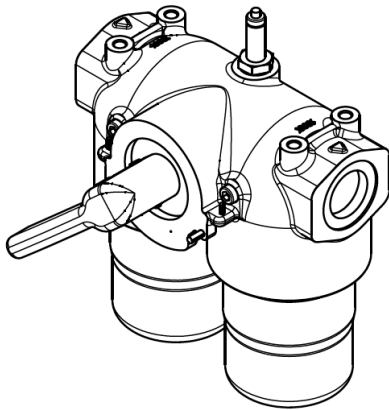
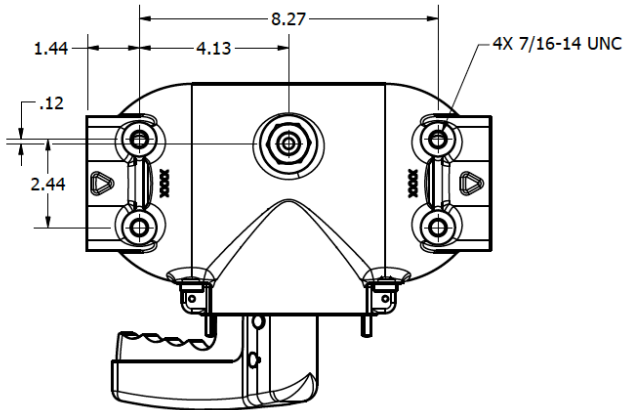
## DUPLEX HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

PART NUMBER*	"A" Height	"B" Bowl Length	INLET OUTLET
TTHH-230-40-VBB	11.9	5.9	SAE-24
TTHH-230-80-VBB	16.8	10.8	SAE-24
TTHH-230-120-VBB	21.4	15.4	SAE-24

3 Material Ordering Options:  
V/E/X : Visual / Electrical / None  
B / X: Bypass / None  
B / V: Buna / Viton

For example:  
TTHH-230-40-VBB: Series 230 Housing, 40gpm nominal flow rate, Visual Indicator, Bypass Valve, Buna-N Seals



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## TTHH626 HOUSING

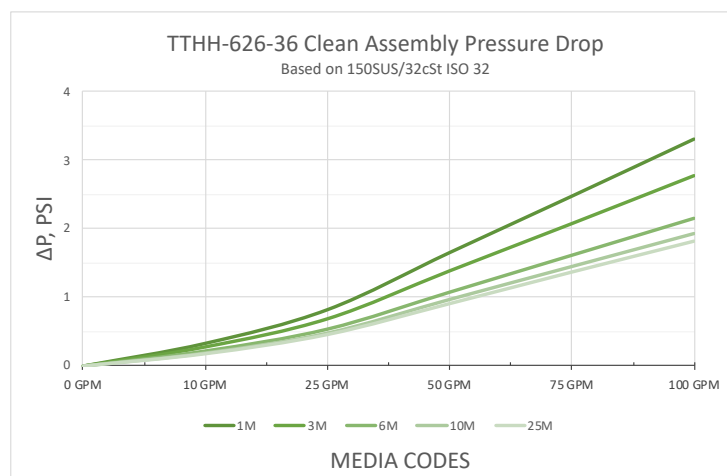
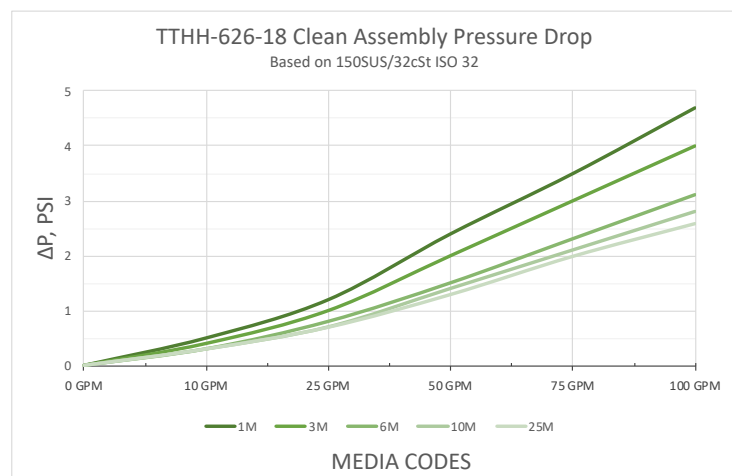
TTI's PowerGuard TTHH626 housing line offers a standard 304 Stainless Steel construction. Features include a double knife edge seal on both the hold down plate and the bottom housing cup to mitigate bypass. The hinge block located on the lid, is a safe and effective component to remove and replace filter elements. There are 2 ports on both the inlet and outlet of the housing, to accommodate differential and sampling gauges.



## SPECIFICATIONS

- 150 PSI working pressure
- 304 Stainless Steel
- Hinged lid for safe, ergonomic filter changeouts
- Double knife edge seal

## FLOW CHARACTERISTICS



# TTHH626

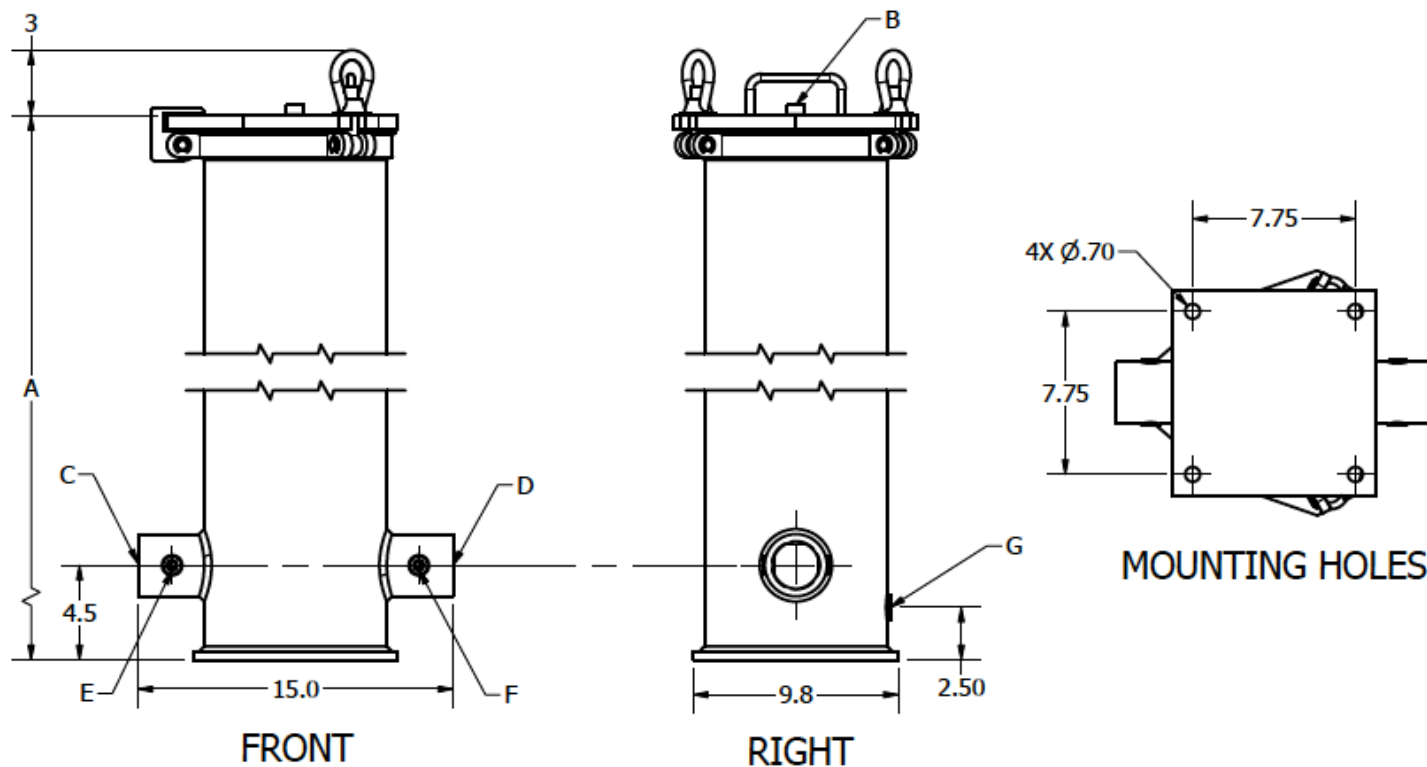
## HOUSING

### Top Applications

- Hydraulic systems – hydraulic oil
- Gas turbines – turbine oil
- Gearbox lube systems – gear oil
- Machine Coolant

### Top Industries

- Power Generation
- Steel Mills
- Pulp & Paper
- Mining



### DIMENSIONS IN INCHES

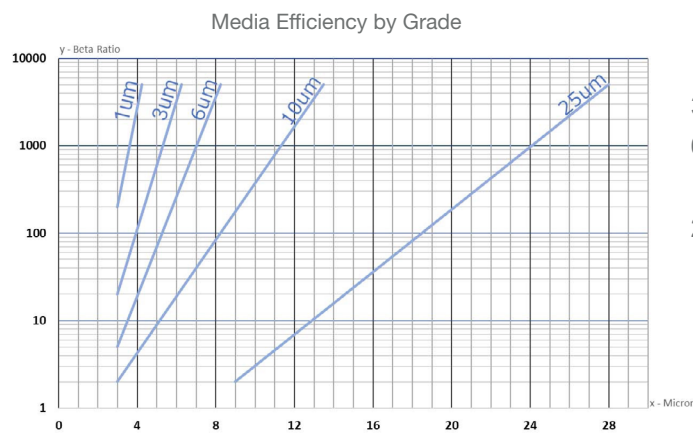
PART NUMBER*	"A Height"	"B Vent Port"	"C Inlet"	"D Outlet"	"E Inlet Sample Port"	"F Outlet Sample Port"	"G Drain Port"
TTHH-626-18-2N	28.0	1/4" FNPT	2" FNPT	2" FNPT	1/4" FNPT	1/4" FNPT	1/2" FNPT
TTHH-626-36-2N	46.0	1/4" FNPT	2" FNPT	2" FNPT	1/4" FNPT	1/4" FNPT	1/2" FNPT

## DUAL PHASE MICROGLASS: FILTER MEDIA SELECTION GUIDE

The filter media is the most critical component through which particulate retention is accomplished. For the multitudes of fluids and applications, TTI has developed and offers a range of filtration media. This allows elements to be manufactured in a broad range of filtration capabilities to suit these applications.

TTI depth filters consist of Dual Phase media for the treatment of oils, lubricants, flame retardant liquids, fuels, and synthetic liquids. Our Dual Phase microglass is available in ratings of 1µm, 3µm, 6µm, 10µm, and 25µm, with high dirt-holding capacity and low pressure drop.

### RETENTION EFFICIENCY PERFORMANCE



Tested according to ISO 16889 (multi-pass test).  
Valid are valid up to 50 psi differential pressure.

1µm	$\beta_{2.8(C)}$	$\geq 1000$
3µm	$\beta_{4.5(C)}$	$\geq 1000$
6µm	$\beta_{7(C)}$	$\geq 1000$
10µm	$\beta_{11(C)}$	$\geq 1000$
25µm	$\beta_{24(C)}$	$\geq 1000$

Filters used in hydraulic or lubrication systems are tasked with reducing particulate contamination to a targeted level of cleanliness over the service life of the element. The ISO 4406 standard presents a means of specifying these goals by way of a universal cleanliness code. The table below reflects our knowledge and experience designing elements and should be considered a starting point as to what you can expect from your system using the selected TTI microglass media. Your performance can vary based on flow rate, viscosity, differential pressure, and contamination level. It is recommended to conduct trials to verify your filtration process meets your performance goals.

### ISO CLEANLINESS CLASSES FOR DUAL PHASE MICROGLASS MEDIA

Filter Media	Projected Cleanliness Codes Per ISO 4406 - 1999, 4µm / 6µm / 14µm
1µm $\beta_{1000}$	13/11/08
3µm $\beta_{1000}$	14/12/09
6µm $\beta_{1000}$	16/13/10
10µm $\beta_{1000}$	17/15/11
25µm $\beta_{1000}$	23/19/13



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