

## CombiTherm Plus

CENTRIFUGAL PUMPS FOR THERMAL OIL OR HOT WATER APPLICATIONS



The SPXFLOW CombiTherm Plus was specifically developed to meet the high standards regarding quality, safety and reliability in the US market while at the same time offering an excellent price/performance ratio. The heavy duty, centerline mounted pumps are designed to handle thermal fluids including mineral or synthetic heat transfer oil up to 660 °F at 360 PSI and hot water or glycol based thermal fluids up to 400 °F at 450 PSI without the need for expensive auxiliary cooling or shaft sealing systems. The optimized air cooling system ensures that the seal temperature does not exceed 220°F, even at process temperatures of up to 660 °F resulting in long seal life and minimal down time.

The hydraulic design of the pumps is based on our proven, modular Combi-range while they are dimensionally interchangeable with pumps of other high-end US pump manufacturers. The maintenance friendly back-pull-out design requires no special tools and offers maximum interchangeability of components in combination with the availability of standard spare part kits for quick repair.

The CombiTherm Plus range comprises 9 sizes in both the thermal oil and hot water versions

SPX FLOW also offers a full line of filters, valves and heat exchangers. To purchase SPX FLOW CombiTherm Plus products please visit < [www.spxflow.com/en/johnson-pump/where-to-buy](http://www.spxflow.com/en/johnson-pump/where-to-buy) >

Based in Charlotte, North Carolina, SPX FLOW (NYSE: FLOW) is a multi-industry manufacturing company with operations in more than 35 markets worldwide. SPX FLOW's innovative, world-class products and highly-engineered solutions are helping to meet the needs of a constantly developing world and growing global population. You'll find our innovative solutions in everything from dairy plants and power plants to oil and gas pipelines, and the power grid. SPX FLOW is really everywhere you look.

We help our customers around the globe expand and enhance their food and beverage, power and energy and industrial production processes. For more information, please visit [www.spxflow.com](http://www.spxflow.com)

# CombiTherm Plus

## Circulation pump for Thermal Oil and Hot Water applications

### PORTS ASME B16.5 300 LBS

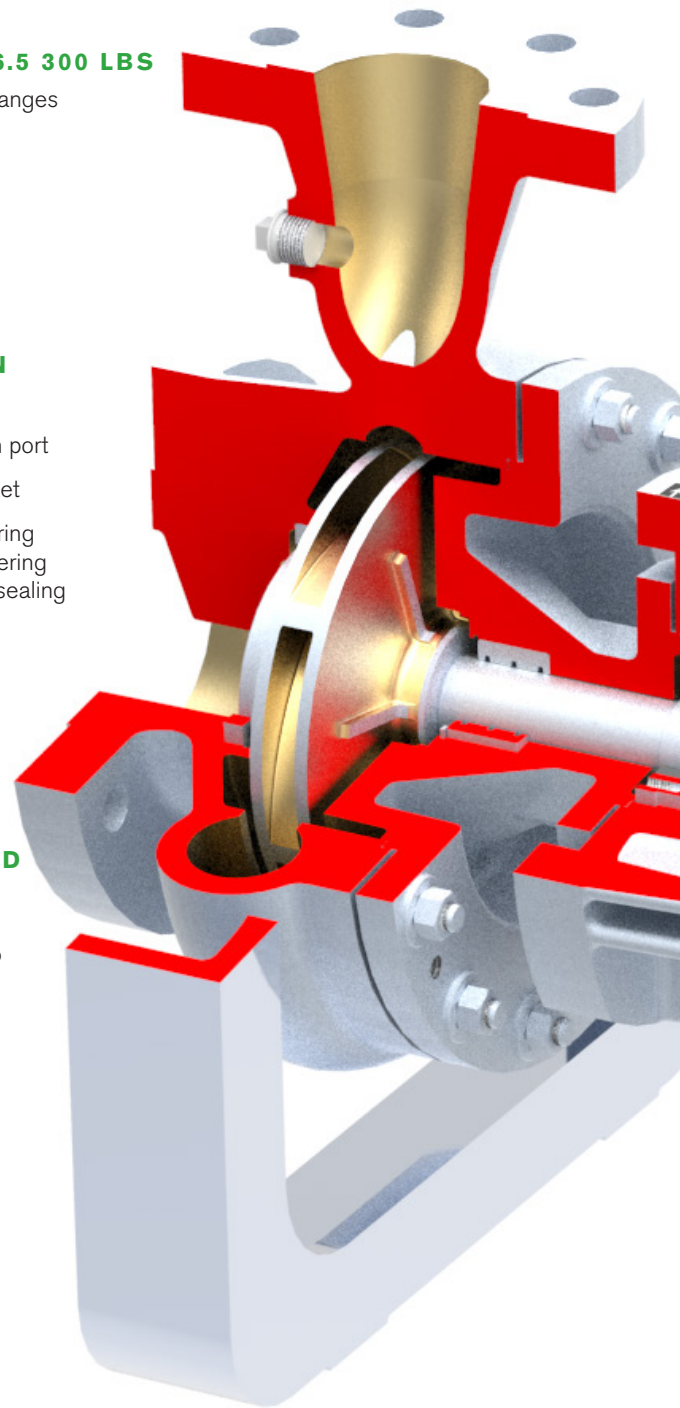
- standard heavy duty flanges

### FRONT END DESIGN

- Wear ring in pump casing
- Anti vortex vane in suction port
- Chambered graphite gasket
- Back vanes and labyrinth ring prevent particles from entering journal bearing and shaft sealing area

### CENTERLINE MOUNTED

- allows thermal expansion without affecting shaft alignment giving longer life to bearings and seals



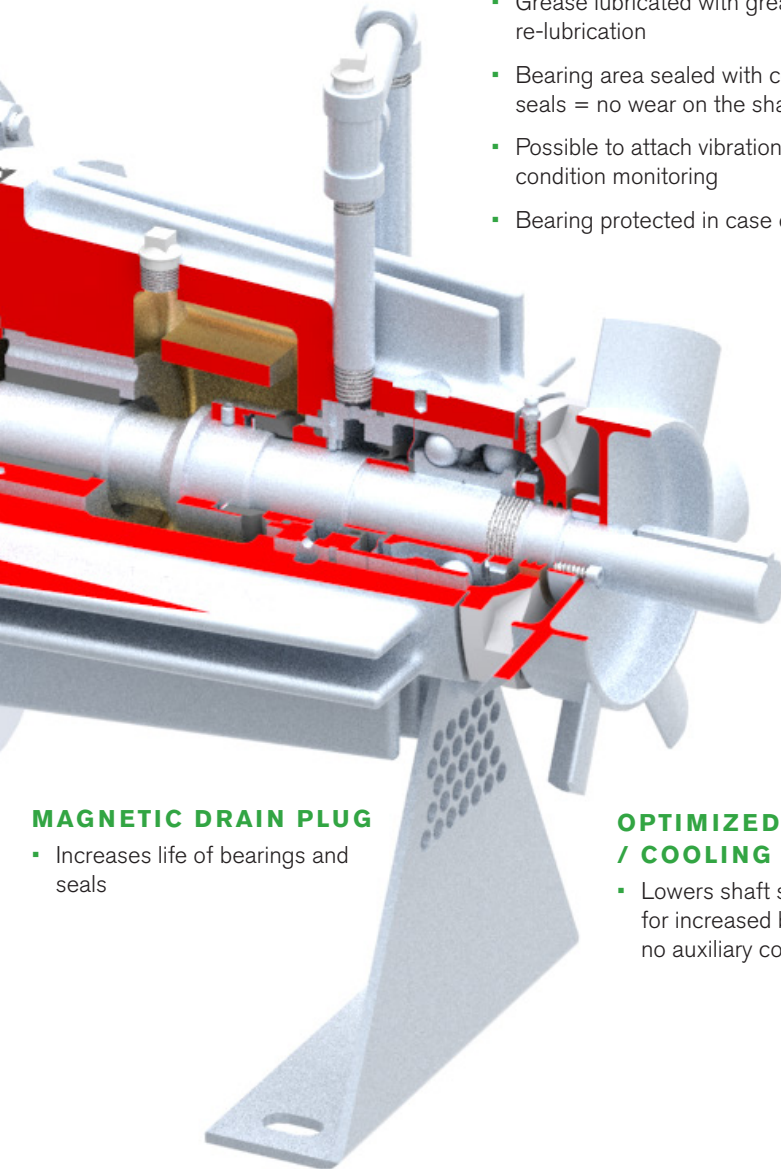
TECHNICAL DATA	HOT OIL	HOT WATER
<b>MAX. FLOW</b>	<b>1450 GPM (330 M<sup>3</sup>/H)</b>	
<b>MAX. SUCTION PRESSURE</b>	<b>145 psi (10 bar)</b>	
<b>MAX. WORKING PRESSURE</b>	<b>360 psi (25 bar) @ 660 °F (350 °C)</b>	<b>450 psi (31 bar) @ 400 °F (205 °C)</b>
<b>MAX. HYDROSTATIC TEST PRESSURE</b>	<b>560 psi (39 bar)</b>	<b>700 psi (48 bar)</b>
<b>MAX. AMBIENT TEMPERATURE</b>	<b>149 °F (65 °C)</b>	
<b>MIN. WORKING TEMPERATURE</b>	<b>12 °F (-11 °C)</b>	
<b>MAX. WORKING TEMPERATURE</b>	<b>660 °F (350 °C)</b>	<b>400 °F (205 °C)</b>
<b>MAX. SPEED</b>	<b>3500 rpm</b>	

## JOURNAL BEARING CARTRIDGE

- Hard-carbon bearing bushing pumped liquid lubricated
- Hardened shaft running surface
- Cartridge design for easy maintenance. No heating required
- Threaded tapped holes (UNC) for easy replacement

## BEARING ARRANGEMENT

- Double row angular contact bearings
- Grease lubricated with grease nipple for re-lubrication
- Bearing area sealed with contact less seals = no wear on the shaft
- Possible to attach vibration sensor for condition monitoring
- Bearing protected in case of seal failure



## MAGNETIC DRAIN PLUG

- Increases life of bearings and seals

## OPTIMIZED COOLING FAN / COOLING FINS

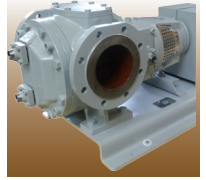
- Lowers shaft sealing temperature for increased bearing and seal life, no auxiliary cooling required

MATERIAL	
PUMP CASING	DUCTILE IRON
IMPELLER, WEAR RING	CAST IRON
MECHANICAL SEAL COVER	DUCTILE IRON
PUMP SHAFT	17% CHROME STEEL
MECHANICAL SEAL MATERIAL	THERMAL OIL CARBON/CERAMIC/VITON®/CrNiMo-STEEL
	HOT WATER CARBON/CERAMIC/EPDM/CrNiMo-STEEL

# Typical product applications

## THERMAL OIL HEAT TRANSFER

OEM systems, maintaining temperature in jacketed equipment



## MARINE AND FLOATING PRODUCTION SYSTEMS

Fuel tank heaters and fuel preheating, cargo and product heating, steam generation



## FOOD

Ovens, fish frying, distillation of fatty acids and glycerine, fat softening, potato chips, milk powder plants



## BITUMEN

Asphalt production, roads and roofing, bitumen tanks

## RUBBER AND PLASTICS

Injection molding, PVC tape, manmade fibers



## CHEMICAL

Agitators, reactors, drying plants, polymerisation, plastics

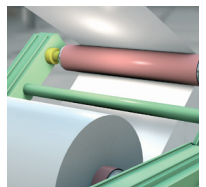
## PAPER AND WOOD

Calender rolls, cardboard, washing machines, driers, floor board and wood panel



## HIGH TEMPERATURE HOT WATER CIRCULATION

Hospitals, heating systems, building heaters

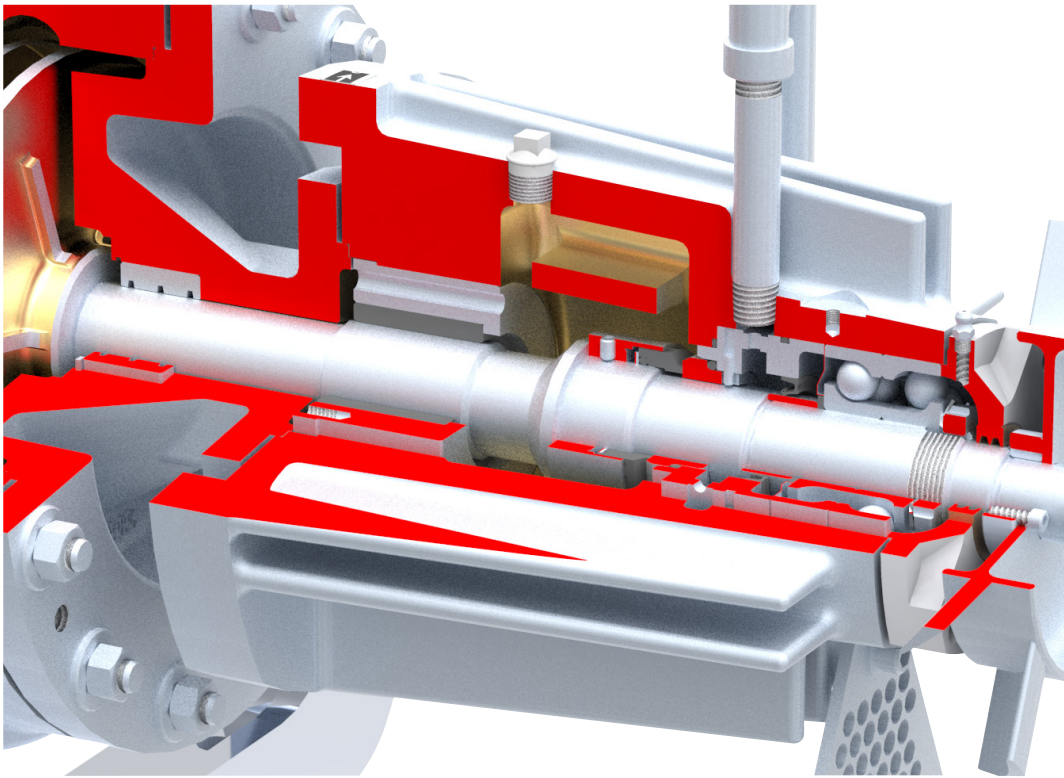


## INDUSTRY

Air emission control systems, boilers and cookers, concrete mixing plants, contiguous flow dryers, cooling/heating systems, galvanic baths, grease liquefiers, ironing presses, powder coating systems, sludge dryers, storage tanks

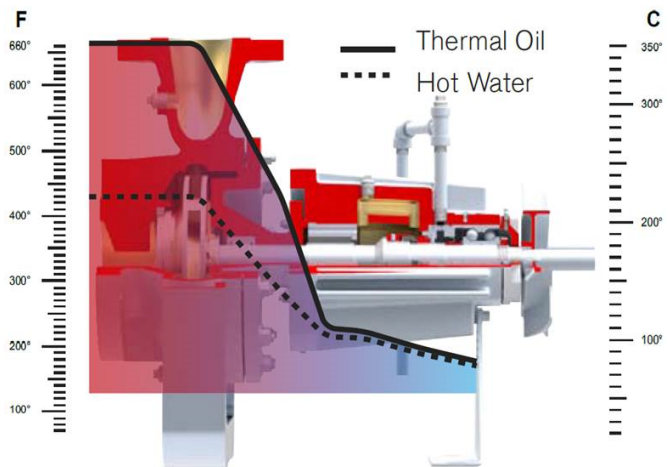


# CombiTherm Plus Hot Oil Pump



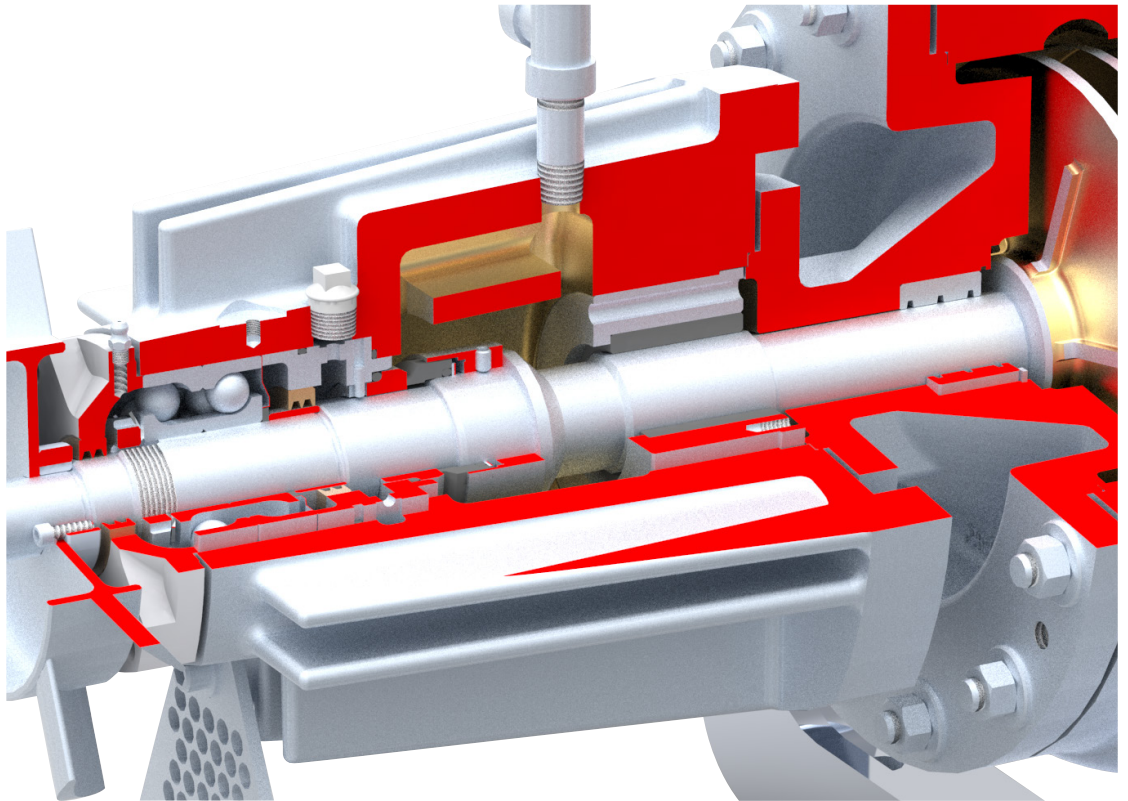
## Shaft sealing arrangement

- Balanced single mechanical seal with Viton® O-rings
- Open quench system with level pot (visual level indication)
- Lip-seal running on hardened shaft sleeve
- Optional leakage detection in overflow piping with PT100
- Outlet to atmosphere between lip-seal and ball bearing to prevent washing out the bearing in case of seal failure (fire hazard)



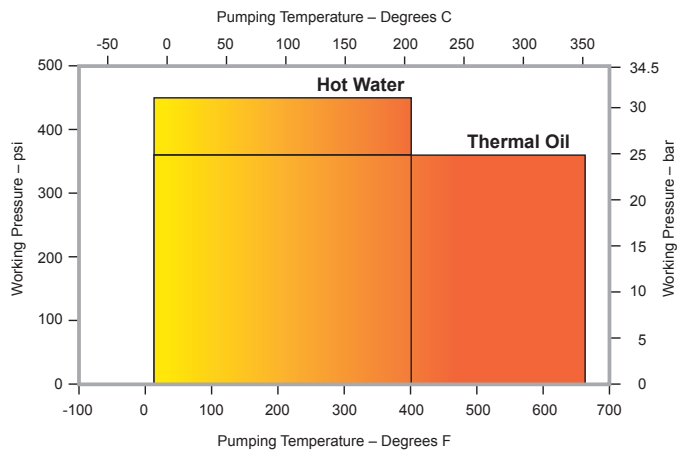
Typical temperature variations along a CombiThermPlus, dropping from a maximum of 660 °F at the impeller to a manageable 220 °F at the seal chamber and 176 °F at the bearings

# CombiTherm Plus Hot Water Pump



## Shaft sealing arrangement

- Balanced single mechanical seal with EPDM O-rings
- Steam eliminator on seal chamber
- Open drain to atmosphere at the bottom between mechanical seal and labyrinth ring
- Bearing protected by contact-less labyrinth seal and NILOS ring
- Outlet to atmosphere between labyrinth ring and ball bearing

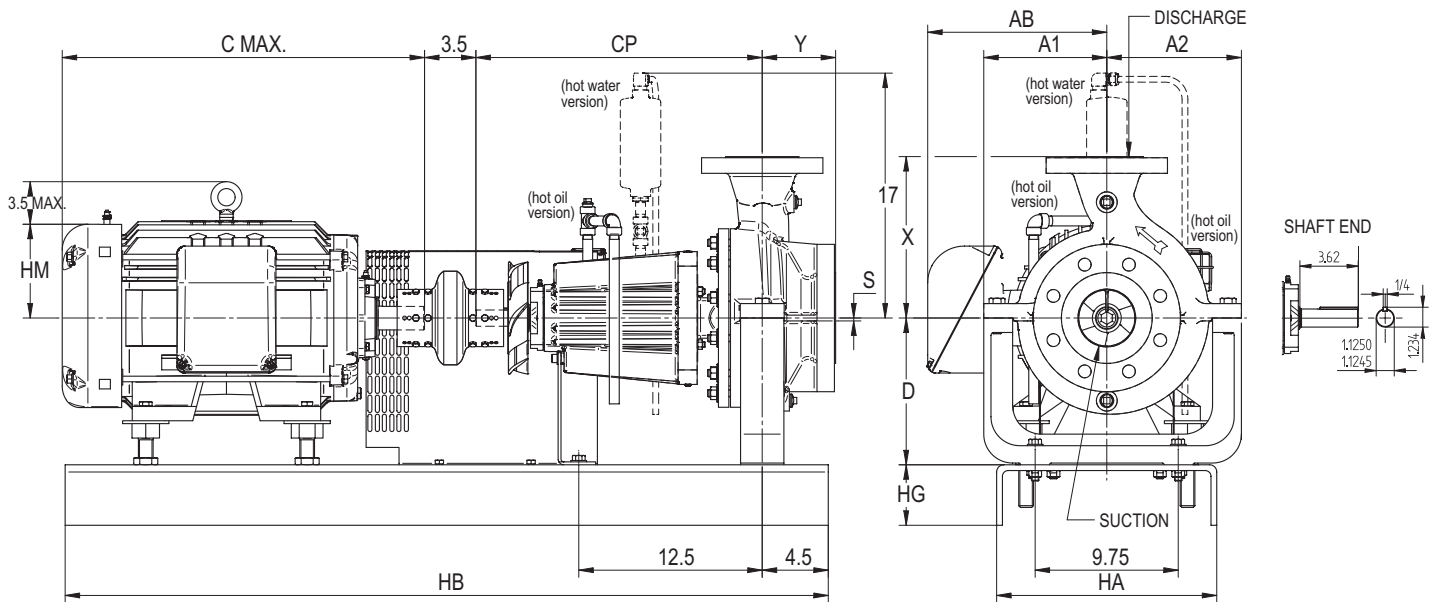


CombiTherm Plus maintains the maximum working pressure throughout the temperature range.



# CombiTherm Plus

## Dimensions – Hot Oil Pump & Hot Water Pump



### FLANGES ACCORDING TO ASME B16.5 300 LBS

PUMP SIZE	SUCTION			DISCHARGE			A1	A2	D	S	X	Y	CP
	SIZE	CLASS	FACE	SIZE	CLASS	FACE							
1 x 3 x 8½	3	300	RF	1	300	RF	8.13	8.13	8.25	0	7.5	4	19.5
1½ x 3 x 8½	3			1½			8.13	8.13	8.25	0	8.5	4	19.5
2 x 3 x 8½	3			2			8.35	9.25	8.25	0	9.5	5	19.5
3 x 4 x 8½	4			3			8.35	9.25	10	0	11	5	19.5
4 x 6 x 8½	6			4			9	10	10/10.5*	0.63	11.5	6	19.5
1½ x 3 x 10	3			1½			9.38	9.38	10	0	9	4	19.5
2 x 3 x 10	3			2			9.38	9.38	10/10.5*	0	9.5	5	19.5
3 x 4 x 10	4			3			9.38	9.88	10/10.5*/11.5**	0	11	5	19.5
4 x 6 x 10	6			4			10.85	12.4	11.5	0.13	12.5	6	19.5

\*motor 405TS

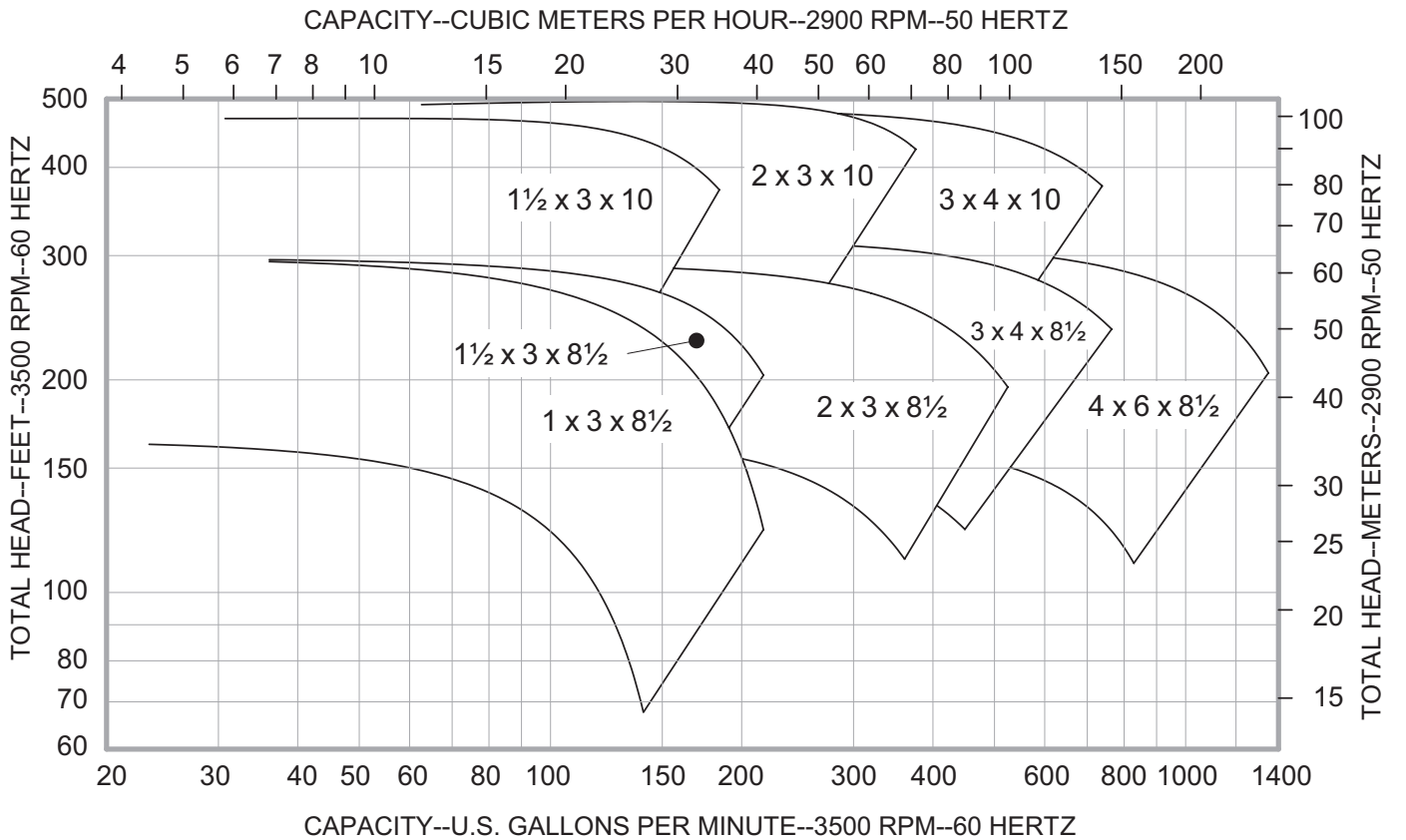
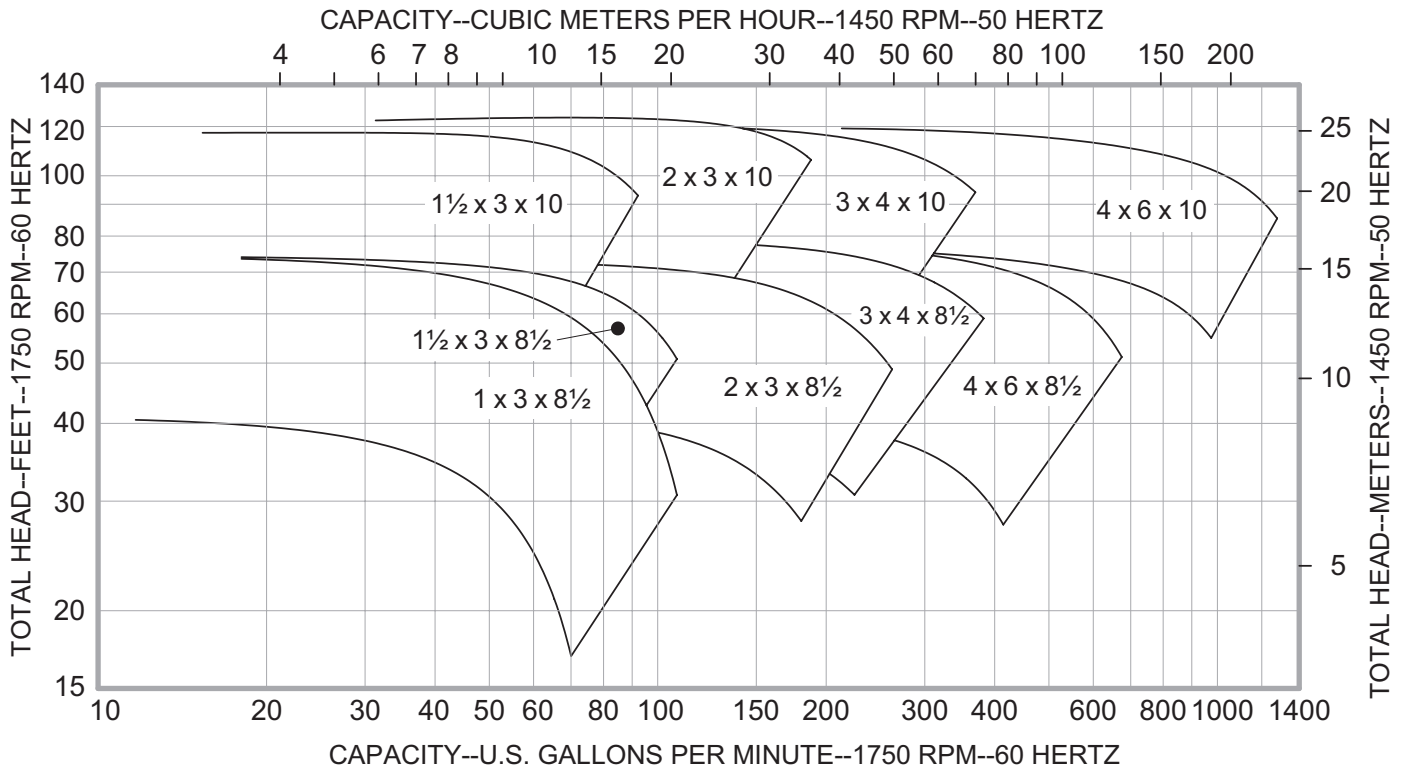
\*\*motor 444TS

NEMA MOTOR	POWER [HP]	SPEED [RPM]	C MAX	AB	HM	HA	HB	HG
145T	1.5	1750	13.346	6.43	4	12	45	3¼
145T	2.0	1750	14.566	6.43	4	12	45	3¼
182T	3.0	1750	16.55	7.565	4.84	12	45	3¼
184T	5.0	1750	18.05	7.565	4.84	12	45	3¼
213T	7.5	1750	19.02	9.22	5.74	12	45	3¼
215T	10	1750	20.52	9.22	5.74	12	45	3¼
215T	10	3500	19.517	9.22	4	12	45	3¼
254T	15	1750	23.213	10.483	6.63	15	52	4½
254T	15	3500	23.213	10.483	4	15	52	4½
256T	20	1750	24.945	10.483	6.63	15	52	4½
256T	20	3500	24.954	10.483	4.84	15	52	4½
284T	25	1750	27.76	12.2	7.06	15	52	4½
284TS	25	3500	25.061	12.2	4.84	15	52	4½

NEMA MOTOR	POWER [HP]	SPEED [RPM]	C MAX	AB	HM	HA	HB	HG
286T	30	1750	27.929	12.2	7.06	15	52	4½
286TS	30	3500	26.557	12.2	5.74	15	52	4½
324T	40	1750	30.28	13.74	7.95	15	52	4½
324TS	40	3500	28.78	13.74	5.74	18	58	4¾
326TS	50	3500	29.616	13.74	6.63	18	58	4¾
364TS	60	3500	32.276	16.016	6.63	18	58	4¾
365TS	75	3500	32.276	16.016	7.06	18	58	4¾
405TS	100	3500	36.732	16.016	7.06	18	58	4¾
444TS	125	3500	41.2	22.68	7.95	18	58	4¾

# CombiTherm Plus

## Capacity Curves – Hot Oil Pump & Hot Water Pump



# CombiTherm Plus

Thermal Oil & Hot Water  
Applications

# SPXFLOW

Your local contact:

[www.spxflow.com/en/johnson-pump/where-to-buy/](http://www.spxflow.com/en/johnson-pump/where-to-buy/)

## SPX FLOW TECHNOLOGY

5885 11th Street

Rockford, Illinois, 601109, USA

Phone: +1 (800) 541 1418

E-Mail: [johnson-pump.americas.industrial@spxflow.com](mailto:johnson-pump.americas.industrial@spxflow.com)

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