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Pump Performance Monitoring

📄 Assets Config

📄 Models training

📄 Asset Analysis

📄 Report

Centrifugal Pump



Centrifugal pumps are a sub-class of dynamic axisymmetric work-absorbing turbomachinery. Centrifugal pumps are used to transport fluids by the conversion of rotational kinetic energy to the hydrodynamic energy of the fluid flow. The rotational energy typically comes from an engine or electric motor. The fluid enters the pump impeller along or near to the rotating axis and is accelerated by the impeller, flowing radially outward into a diffuser or volute chamber (casing), from where it exits.

Common uses include water, sewage, petroleum and petrochemical pumping; a centrifugal fan is commonly used to implement a vacuum cleaner. The reverse function of the centrifugal pump is a water turbine converting potential energy of water pressure into mechanical rotational energy.

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Pump Performance Monitoring

📄 Assets Config

📄 Models training

📄 Asset Analysis

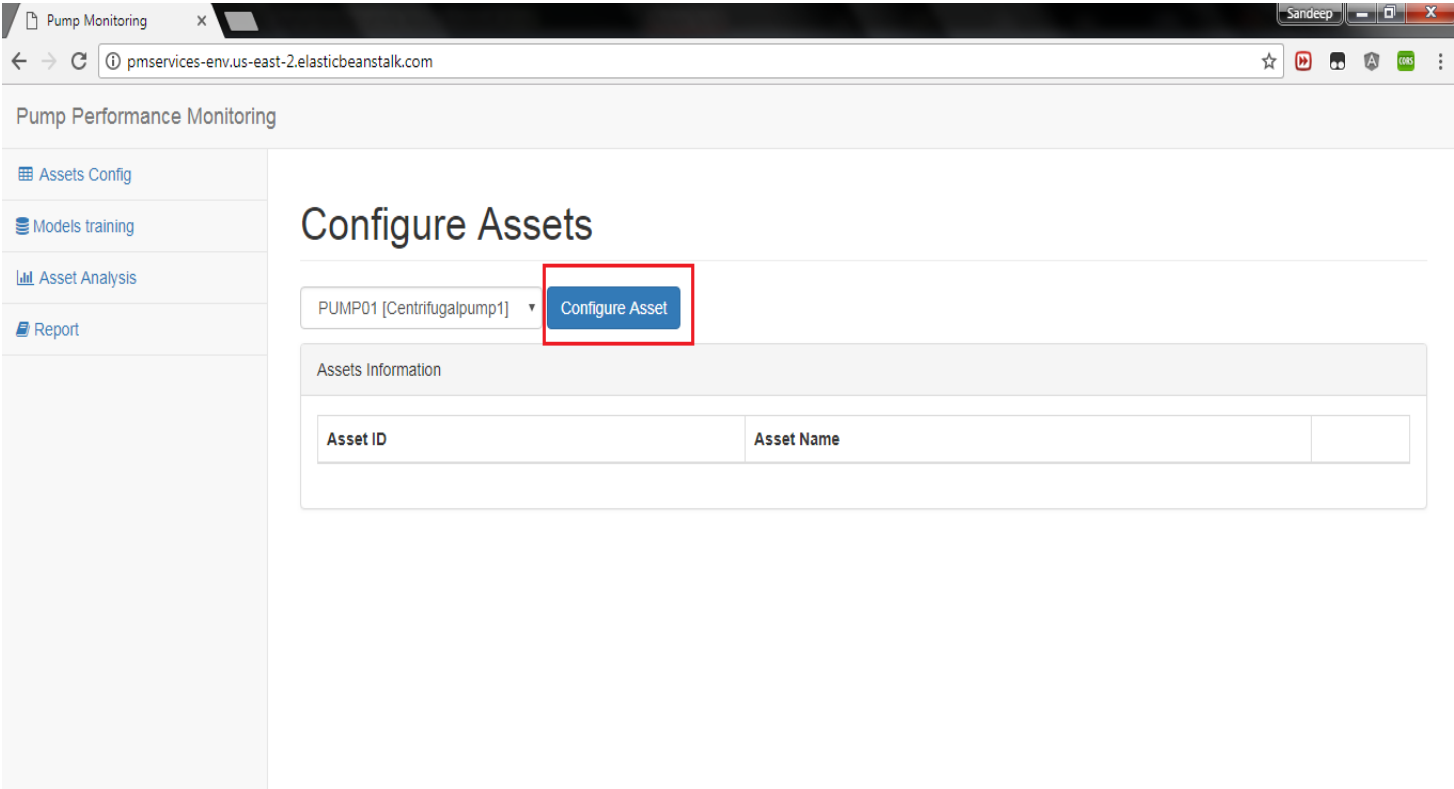
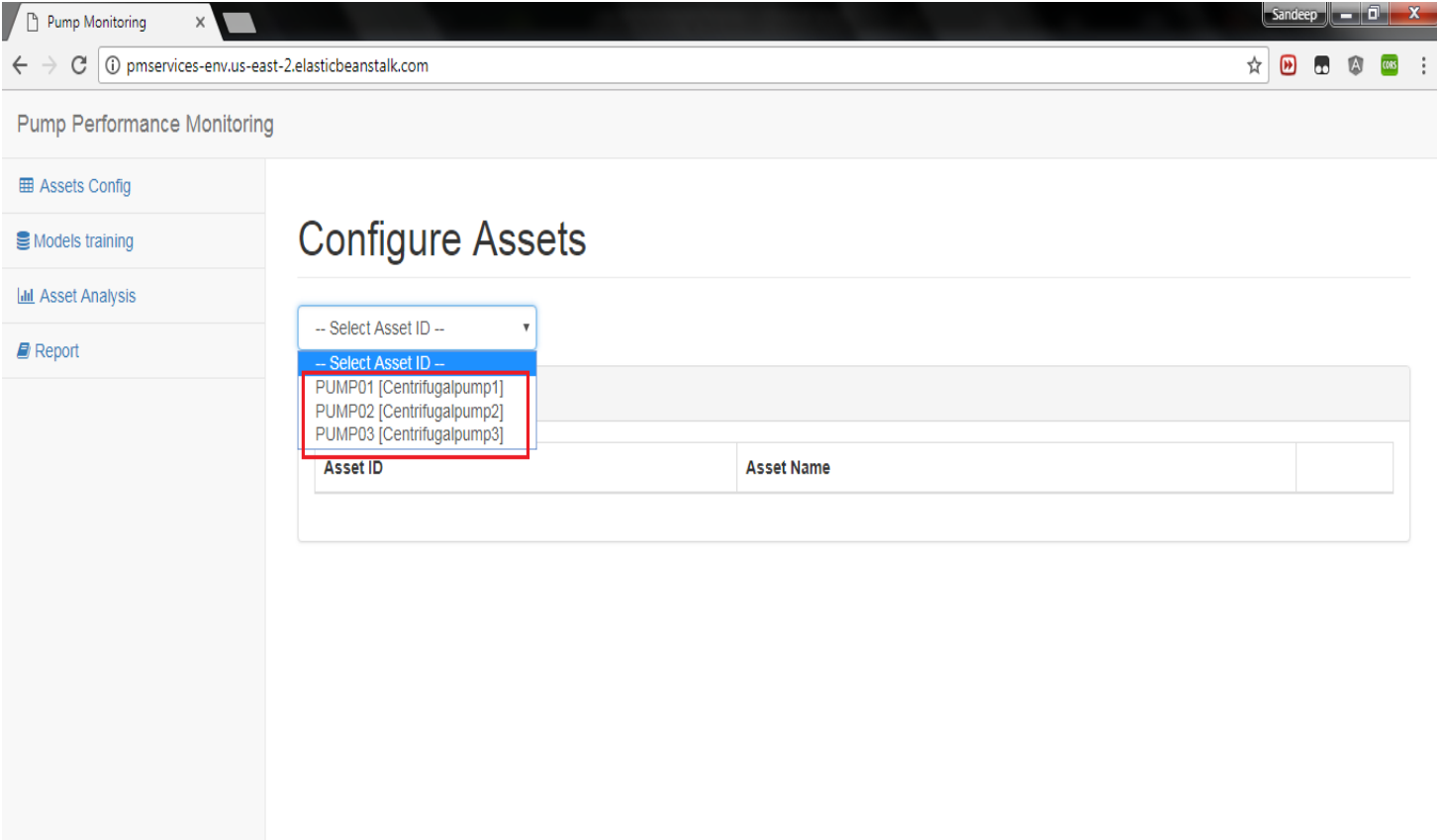
📄 Report

Configure Assets

-- Select Asset ID --

Assets Information

Asset ID	Asset Name	
----------	------------	--



Asset ID	PUMP01
Asset Name	Centrifugalpump1
Rated Power (KW)	5
M. Efficiency (%)	96
M. Rated speed(rpm)	1495
Min Rated F.(gpm)	132
Fluid density(g/cm^3)	1
Threadhold limit(%)	10
S. Diameter(Inch.)	1.5
D. Diameter(Inch.)	1
Elevation Difference(ft.)	5

Close

Save changes

Pump Performance Monitoring

- Assets Config
- Models training
- Asset Analysis
- Report

Configure Assets

-- Select Asset ID --

Success! Asset PUMP01 configured successfully
Success! For Asset ID PUMP01, notification sent to KPI Calculation app

Assets Information		
Asset ID	Asset Name	
PUMP01	Centrifugalpump1	 

Assets Config

Models training



Asset Analysis

Report

Configure Assets

-- Select Asset ID --

Assets Information

Asset ID	Asset Name	
PUMP01	Centrifugalpump1	 

Asset Information

×

Asset ID	PUMP01
Asset Name	Centrifugalpump1
Rated Power (KW)	5
Efficiency of motor (%)	96
Rated speed of motor(rpm)	1495
Min. rated flow of pump(gpm)	132
Fluid density (g/cm^3)	1
Threadhold limit(%)	10
Suction Diameter(Inch.)	1
Discharge Diameter(Inch.)	1
Elevation Difference(ft.)	5

Close

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Pump Performance Monitoring

Assets Config

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Configure Assets

-- Select Asset ID --

Assets Information

Asset ID	Asset Name	
PUMP01	Centrifugalpump1	<div><div></div><div></div></div>

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Pump Performance Monitoring

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Configure Assets

-- Select Asset ID --

Assets Information

Asset ID	Asset Name	
PUMP01	Centrifugalpump1	<div><div></div><div></div></div>

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Pump Performance Monitoring

Assets Config

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Report

Asset Analysis

-- Select Asset ID --

-- Select Asset ID --

PUMP01

Assets Config

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Report

Asset Analysis

PUMP01

Alarms

1



Blockage



Dry Running



Low Pump Efficiency



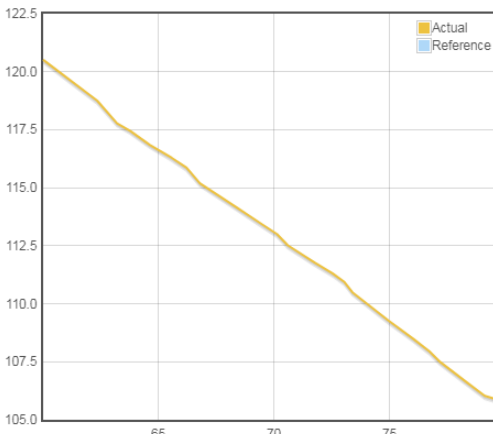
Deviated TDH



Impeler wearing

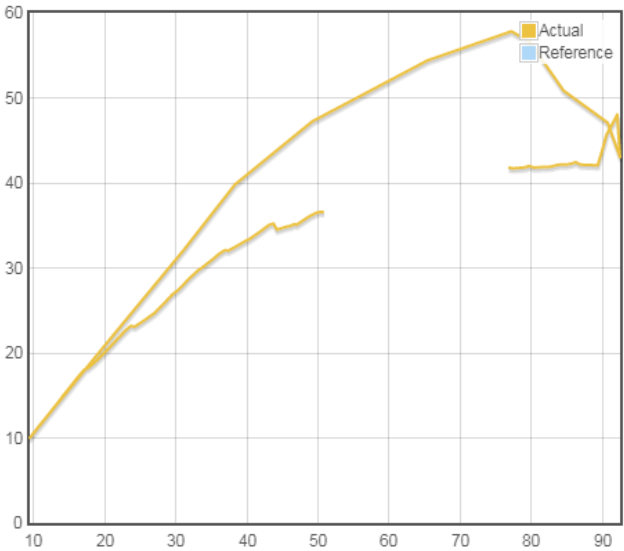
Flow vs. TDH

2



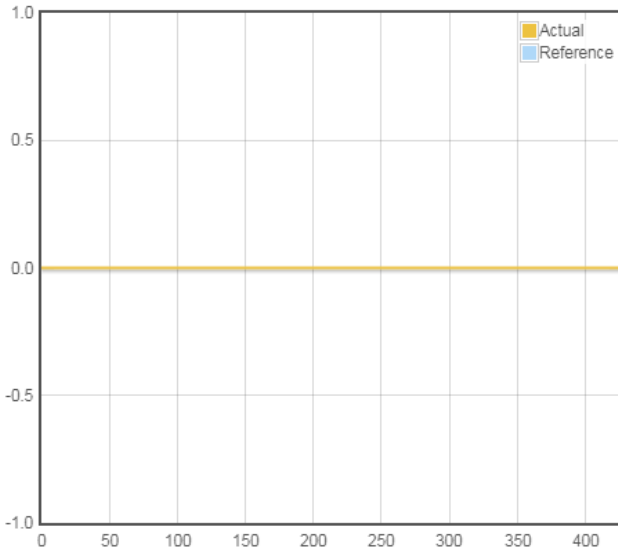
Flow vs. Efficiency

3



Freq vs. Amp

4



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Pump Performance Monitoring

Assets Config

Models training

Asset Analysis

Report

Models Training

-- Select Asset ID --

Interpolations points of characteristics

Flow[gpm]	TDH[ft]	Efficiency[%]
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Pump Performance Monitoring

Assets Config

Models training

Asset Analysis

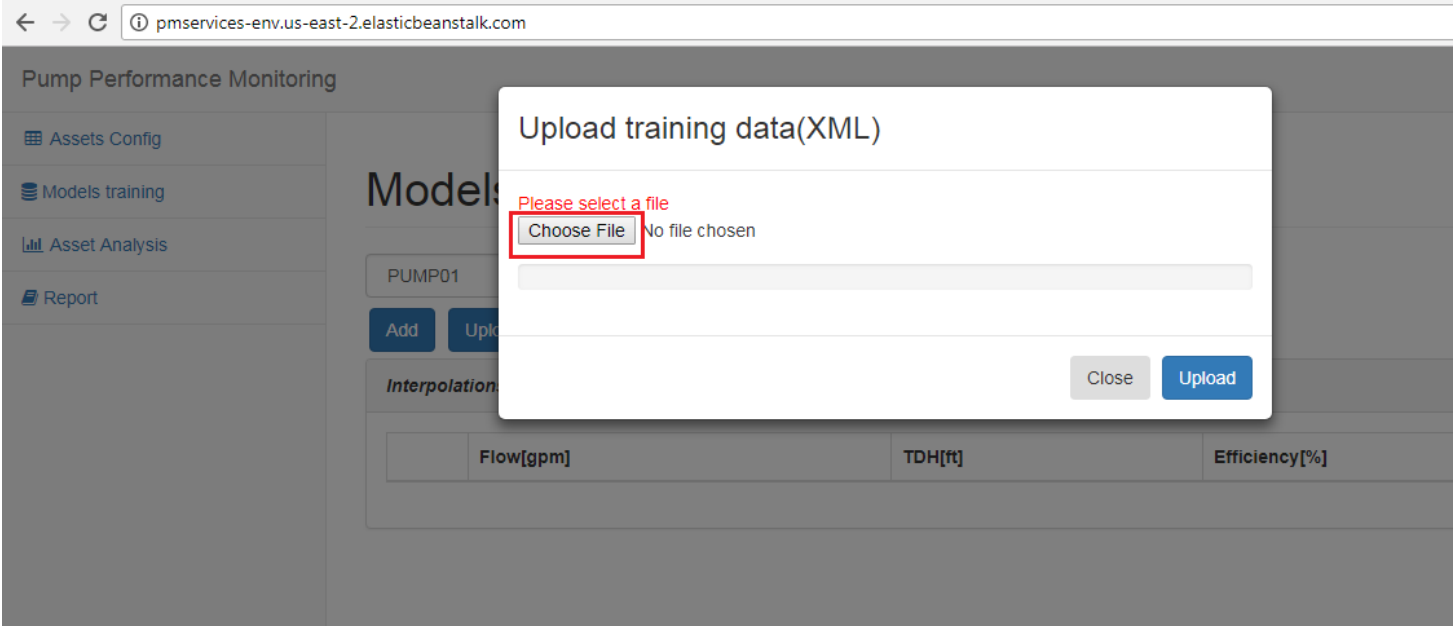
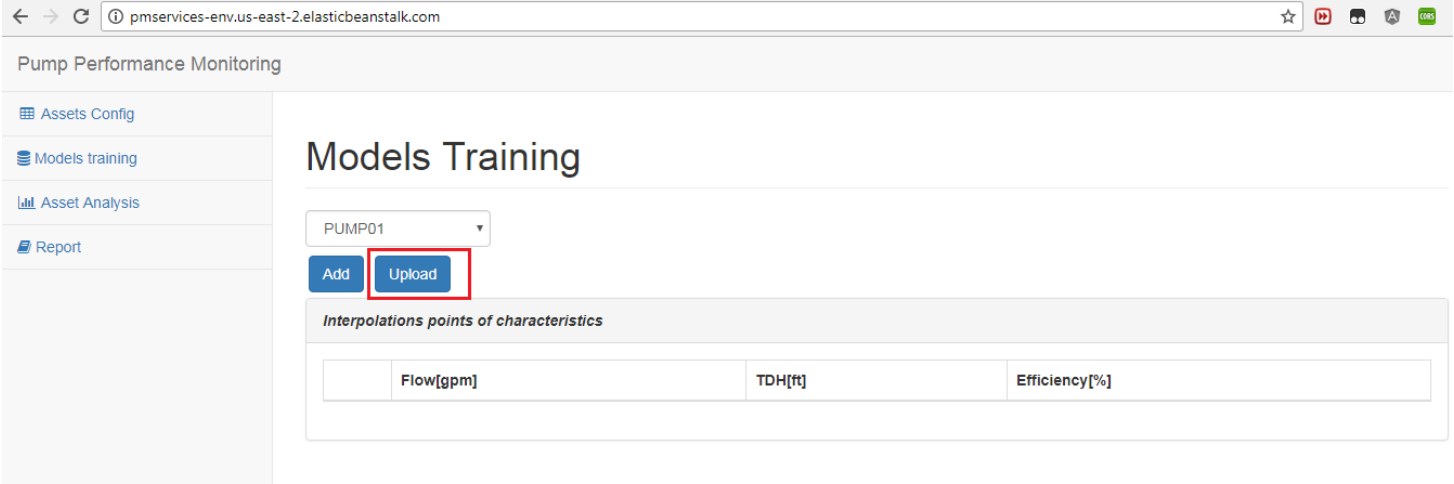
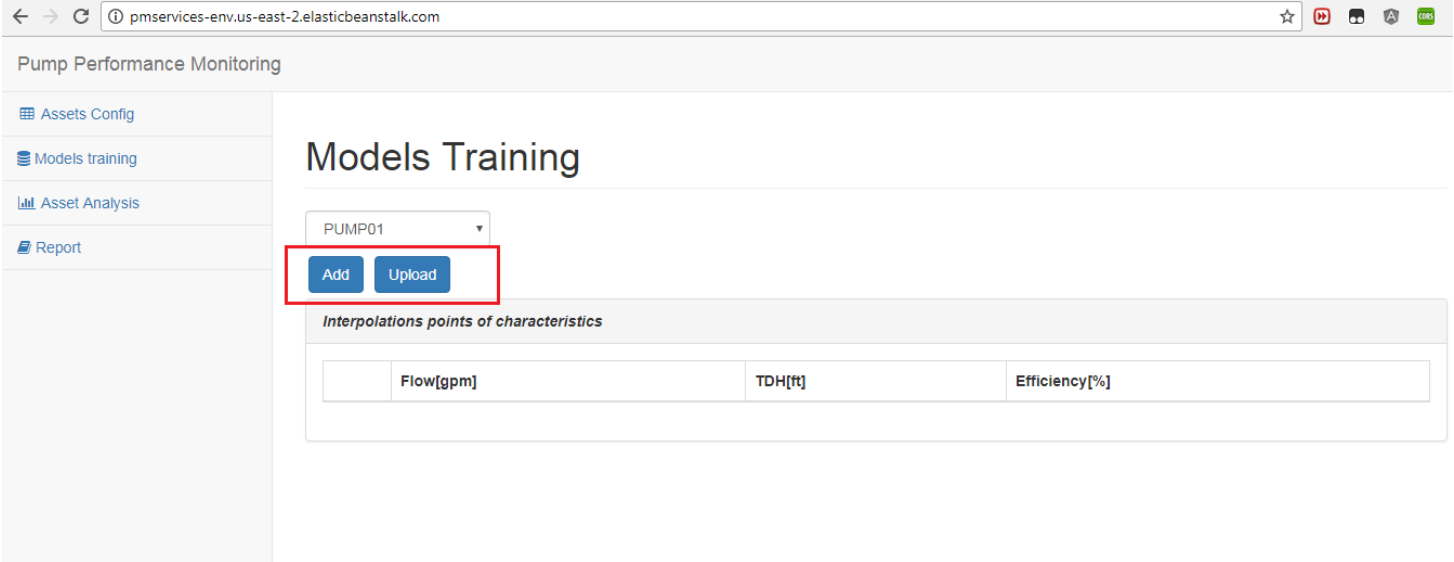
Report

Models Training

-- Select Asset ID --
-- Select Asset ID --
PUMP01

Interpolations points of characteristics

Flow[gpm]	TDH[ft]	Efficiency[%]
-----------	---------	---------------



Upload training data(XML)

Please select a file

Choose File data.xml

Close

Upload

Flow[gpm]

TDH[ft]

Efficiency[%]

Models Training







PUMP01

Add

Upload

Teach

Interpolations points of characteristics

	Flow[gpm]	TDH[ft]	Efficiency[%]
 	13.21	133.038	14
 	6.6	132.972	7
 	19.81	133.924	21
 	0	133.038	0
 	33.02	132.546	30
 	26.42	133.694	26
 	16.23	127.1	27

Assets Config

Models training

Asset Analysis

Report

Models Training

PUMP01

Add

Upload

Teach

Interpolations points of characteristics			
	Flow[gpm]	TDH[ft]	Efficiency[%]
<div><div></div><div>x</div></div>	13.21	133.038	14
<div><div></div><div>x</div></div>	6.6	132.972	7
<div><div></div><div>x</div></div>	19.81	133.924	21
<div><div></div><div>x</div></div>	0	133.038	0
<div><div></div><div>x</div></div>	33.02	132.546	30

Assets Config

Models training

Asset Analysis

Report

Models Training

PUMP01

Add

Upload

Teach

Interpolations points of characteristics			
	Flow[gpm]	TDH[ft]	Efficiency[%]
<div><div></div><div>x</div></div>	13.21	133.038	14
<div><div></div><div>x</div></div>	6.6	132.972	7
<div><div></div><div>x</div></div>	19.81	133.924	21
<div><div></div><div>x</div></div>	0	133.038	0
<div><div></div><div>x</div></div>	33.02	132.546	30

New Record

All fields are required

Flow[gpm] 13.21

TDH[ft] 133.038

Efficiency[%] 14

Close

ADD

New Record

All fields are required

































Flow[gpm]

TDH[ft]





Efficiency[%]

Close

ADD

 	6.6	132.972	7
 	19.81	133.924	21
 	0	133.038	0
 	33.02	132.546	30
 	26.42	133.694	26
 	46.23	127.1	37
 	49.63	130.052	34
 	59.43	120.604	40
 	66.04	116.437	41
 	52.83	124.18	38
 	72.65	111.647	42
 	92.46	96.916	42
 	89.85	101.575	42
 	79.25	106.365	42
 	96.87	164.042	100
 	13.21	133.038	14

Pump Performance Monitoring









-  Assets Config
-  Models training
-  Asset Analysis
-  Report

Models Training

PUMP01 

Interpolations points of characteristics

	Flow[gpm]	TDH[ft]	Efficiency[%]
 	6.6	132.972	7
 	19.81	133.924	21
 	0	133.038	0
 	33.02	132.546	30

Update Record

All fields are required

Flow[gpm]

6.6

TDH[ft]

132.972

Efficiency[%]

7

Close

UPDATE

19.81

133.924

21

Pump Performance Monitoring









- Assets Config
- Models training
- Asset Analysis
- Report

Models Training

PUMP01

AddUploadTeach

Interpolations points of characteristics

	Flow[gpm]	TDH[ft]	Efficiency[%]
 	6.6	132.972	7
 	19.81	133.924	21
 	0	133.038	0
 	33.02	132.546	30

Assets Config

Models training

Asset Analysis

Report

Models Training

PUMP01

Add Upload Teach

Interpolations points of characteristics

	Flow[gpm]	TDH[ft]	Efficiency[%]
 	6.6	132.972	7
 	19.81	133.924	21
 	0	133.038	0
 	33.02	132.546	30
 	26.42	133.694	26
 	46.23	127.1	37

Pump Performance Monitoring

Assets Config

Models training

Asset Analysis

Report




Models Training

PUMP01

Add Upload Teach

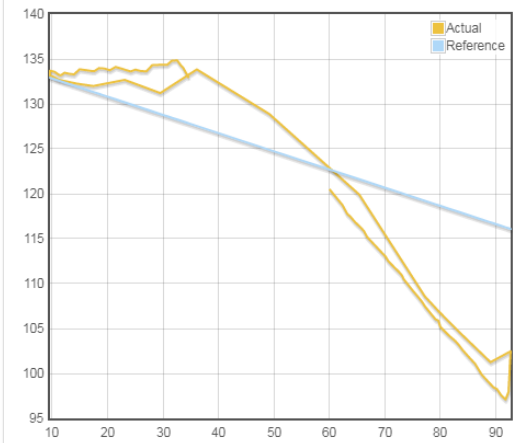
Success! Model trained successfully and notification sent to KPI-Calculation app

Interpolations points of characteristics

	Flow[gpm]	TDH[ft]	Efficiency[%]
 	6.6	132.972	7
 	19.81	133.924	21

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- Blockage
- Dry Running
- Low Pump Efficiency
- Deviated TDH
- Impeler wearing



Assets Config

Models training

Asset Analysis

Report

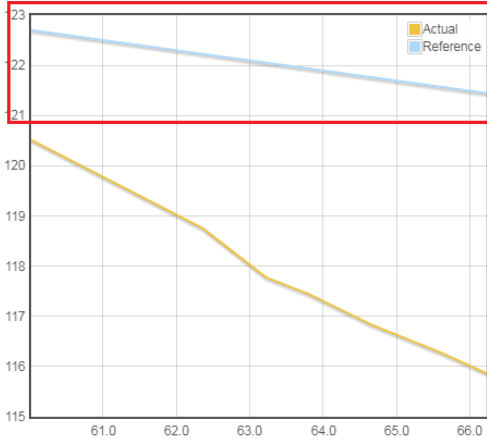
Asset Analysis

PUMP01

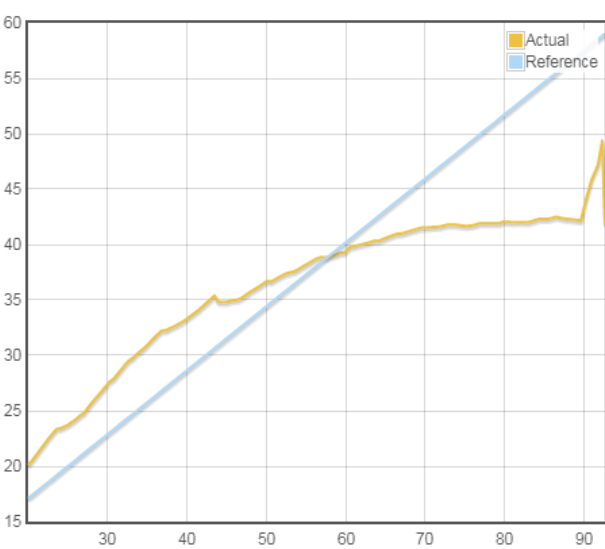
Alarms

- Blockage
- Dry Running
- Low Pump Efficiency
- Deviated TDH
- Impeler wearing

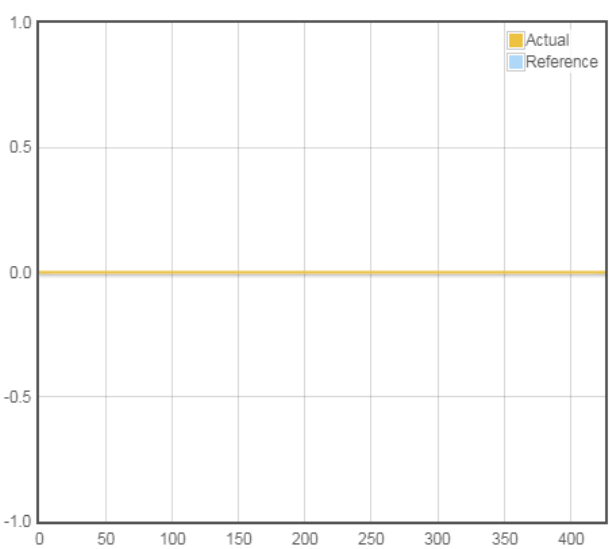
Flow vs. TDH



Flow vs. Efficiency



Freq vs. Amp



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Pump Performance Monitoring

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Asset Analysis

Report

Centrifugal Pump



Centrifugal pumps are a sub-class of dynamic axisymmetric work-absorbing turbomachinery. Centrifugal pumps are used to transport fluids by the conversion of rotational kinetic energy to the hydrodynamic energy of the fluid flow. The rotational energy typically comes from an engine or electric motor. The fluid enters the pump impeller along or near to the rotating axis and is accelerated by the impeller, flowing radially outward into a diffuser or volute chamber (casing), from where it exits.

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Pump Performance Monitoring

Assets Config

Models training

Asset Analysis

Report

Alarms Report

-- Select Asset ID --

-- Select Asset ID --

PUMP01

Pump Performance Monitoring

Assets Config

Models training

Asset Analysis

Report

Alarms Report

PUMP01

From Required!

dd-----yyyy --:-- --

To Required!

dd-----yyyy --:-- --

Show

PUMP01

From 15-Apr-2018 02:00 PM To 15-Apr-2018 03:44 PM

Show Download

Alarms information

Show 10 entries

Type	Status	Date	Flow	M. Input	S.P.	D.P.
EFFICIENCY	Gone	Sun Apr 15 10:08:11 UTC 2018	60.02	22.82	69.58	3.22
EFFICIENCY	Raised	Sun Apr 15 10:08:22 UTC 2018	70.62	26.99	69.04	3.25
EFFICIENCY	Gone	Sun Apr 15 10:08:51 UTC 2018	83.48	31.09	67.92	2.63
EFFICIENCY	Raised	Sun Apr 15 10:08:52 UTC 2018	79.73	29.82	68.21	2.37
EFFICIENCY	Gone	Sun Apr 15 10:09:00 UTC 2018	14.48	5.48	60.38	2.37
EFFICIENCY	Raised	Sun Apr 15 10:09:13 UTC 2018	14.94	5.66	61.24	2.37
EFFICIENCY	Gone	Sun Apr 15 10:09:50 UTC 2018	45.87	17.38	68.2	3.02
EFFICIENCY	Raised	Sun Apr 15 10:10:20 UTC 2018	70.86	26.95	69.01	3.25
EFFICIENCY	Gone	Sun Apr 15 10:10:49 UTC 2018	82.3	31.09	68.01	2.63
EFFICIENCY	Raised	Sun Apr 15 10:10:50 UTC 2018	78.9	29.82	68.28	2.37

Showing 1 to 10 of 21 entries

Previous 1 2 3 Next

Alarms information

Show 10 entries

Type	Status	Date	Flow	M. Input	S.P.	D.P.
EFFICIENCY	Gone	Sun Apr 15 10:08:11 UTC 2018	60.02	22.82	69.58	3.22
EFFICIENCY	Raised	Sun Apr 15 10:08:22 UTC 2018	70.62	26.99	69.04	3.25
EFFICIENCY	Gone	Sun Apr 15 10:08:51 UTC 2018	83.48	31.09	67.92	2.63
EFFICIENCY	Raised	Sun Apr 15 10:08:52 UTC 2018	79.73	29.82	68.21	2.37
EFFICIENCY	Gone	Sun Apr 15 10:09:00 UTC 2018	14.48	5.48	60.38	2.37
EFFICIENCY	Raised	Sun Apr 15 10:09:13 UTC 2018	14.94	5.66	61.24	2.37
EFFICIENCY	Gone	Sun Apr 15 10:09:50 UTC 2018	45.87	17.38	68.2	3.02
EFFICIENCY	Raised	Sun Apr 15 10:10:20 UTC 2018	70.86	26.95	69.01	3.25
EFFICIENCY	Gone	Sun Apr 15 10:10:49 UTC 2018	82.3	31.09	68.01	2.63
EFFICIENCY	Raised	Sun Apr 15 10:10:50 UTC 2018	78.9	29.82	68.28	2.37

Showing 1 to 10 of 21 entries

Previous 1 2 3 Next

Pump Performance Monitoring

Assets Config

Models training

Asset Analysis

Report

Alarms Report

PUMP01

From15-Apr-2018 02:00 PMTo15-Apr-2018 03:44 PM

ShowDownload

Alarms information

Show10entries

Type	Status	Date	Flow	M. Input	S.P.	D.P.
EFFICIENCY	Gone	Sun Apr 15 10:08:11 UTC 2018	60.02	22.82	69.58	3.22
EFFICIENCY	Raised	Sun Apr 15 10:08:22 UTC 2018	70.62	26.99	69.04	3.25
EFFICIENCY	Gone	Sun Apr 15 10:08:51 UTC 2018	83.48	31.09	67.92	2.63

Alarms

Asset ID : PUMP01

1

2

From 15.04.2018 - 08:30 : 00
To : 15.04.2018 - 10:14 : 00

Type	Status	Date	Flow	S. P.	D. P.	M. P. I.
IMPELLER WEAR	Raised	15.04.2018 - 09:42 : 53	60.02	22.82	69.58	3.22
TDH	Gone	15.04.2018 - 10:08 : 11	60.02	22.82	69.58	3.22
EFFICIENCY	Gone	15.04.2018 - 10:08 : 11	60.02	22.82	69.58	3.22
EFFICIENCY	Raised	15.04.2018 - 10:08 : 22	70.62	26.99	69.04	3.25
TDH	Raised	15.04.2018 - 10:08 : 31	78.38	29.72	68.17	3.26
EFFICIENCY	Gone	15.04.2018 - 10:08 : 51	83.48	31.09	67.92	2.63
TDH	Gone	15.04.2018 - 10:08 : 52	79.73	29.82	68.21	2.37
EFFICIENCY	Raised	15.04.2018 - 10:08 : 52	79.73	29.82	68.21	2.37
EFFICIENCY	Gone	15.04.2018 - 10:09 : 00	14.48	5.48	60.38	2.37
EFFICIENCY	Raised	15.04.2018 - 10:09 : 13	14.94	5.66	61.24	2.37
EFFICIENCY	Gone	15.04.2018 - 10:09 : 50	45.87	17.38	68.2	3.02
EFFICIENCY	Raised	15.04.2018 - 10:10 : 20	70.86	26.95	69.01	3.25
TDH	Raised	15.04.2018 - 10:10 : 28	77.86	29.52	68.24	3.26
EFFICIENCY	Gone	15.04.2018 - 10:10 : 49	82.3	31.09	68.01	2.63
EFFICIENCY	Raised	15.04.2018 - 10:10 : 50	78.9	29.82	68.28	2.37
TDH	Gone	15.04.2018 - 10:10 : 51	76.63	28.95	69.18	2.37
EFFICIENCY	Gone	15.04.2018 - 10:10 : 59	12.83	4.76	59.88	2.37
EFFICIENCY	Raised	15.04.2018 - 10:11 : 12	15.64	5.92	61.46	2.37
TDH	Raised	15.04.2018 - 10:11 : 33	32.92	12.39	71.56	2.78
TDH	Gone	15.04.2018 - 10:11 : 34	33.44	16.43	71.43	2.78