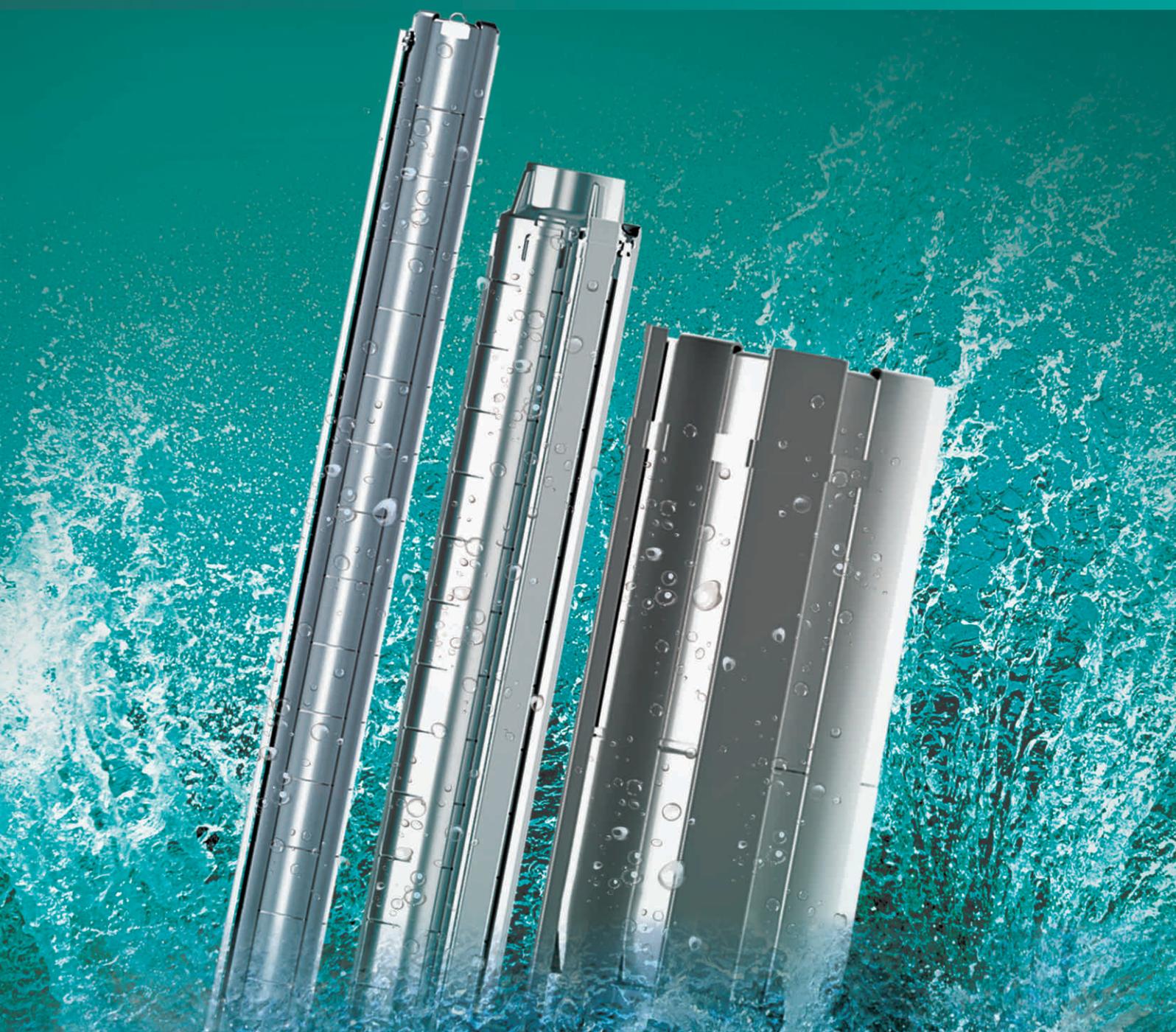




COMPACT, CORROSION-RESISTANT DESIGN WITH PRECISION  
Balanced impellers for maximum hydraulic efficiency.



Products from an ISO 9001 COMPANY



8" SUBMERSIBLE PUMPS - 50 Hz



## INDEX

### **TS SERIES - STAINLESS STEEL SUBMERSIBLE PUMPS**

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## GENERAL DATA

### STAINLESS STEEL SUBMERSIBLE PUMPS > TS / TN / TL SERIES

#### Construction

Tormac stainless steel submersible pumps are ingeniously designed and developed employing latest engineering softwares, high-tech machinery, tools and cutting edge of pumping technology to deliver the best possible hydraulic efficiency. The complete stainless steel construction not only prevents the pumps from corrosion but also exceptionally increases the life-span. The integrated and most modern quality assurance systems used at every stage of the production and flawless workmanship ensure sustained and consistent operation.

All these submersible pumps are multistage single suction centrifugal type, provided with integral check-valve and NEMA standard coupling. These pumps are available with fabricated impellers and diffusers made of AISI 304/316/904L and the shaft is made of AISI 304/316/904L. The integral check valve prevents back flow and reduces the risk of water hammer which paves the way for trouble free performance. The suction screen is designed with utmost care so as not to reduce the inflow of water and at the same time to prevent damage to the pump and clogging due to the entry of sand and other foreign particles.

#### Applications

Fountains  
Irrigation  
Pressure booster systems  
Public, Industrial & Private water supply systems  
Air-conditioning equipments  
Sprinkler systems and Mining  
Farming  
Water plants  
Laboratories

#### Features

Tried and trusted  
Highly efficient  
Wide head and flow range with numerous models  
Good sand resistance capacity, integral check valve  
Corrosion free parts for hygiene  
Low wear and tear  
Perfectly & aesthetically designed and easily serviceable.

## GENERAL DATA

### Pumped Liquids

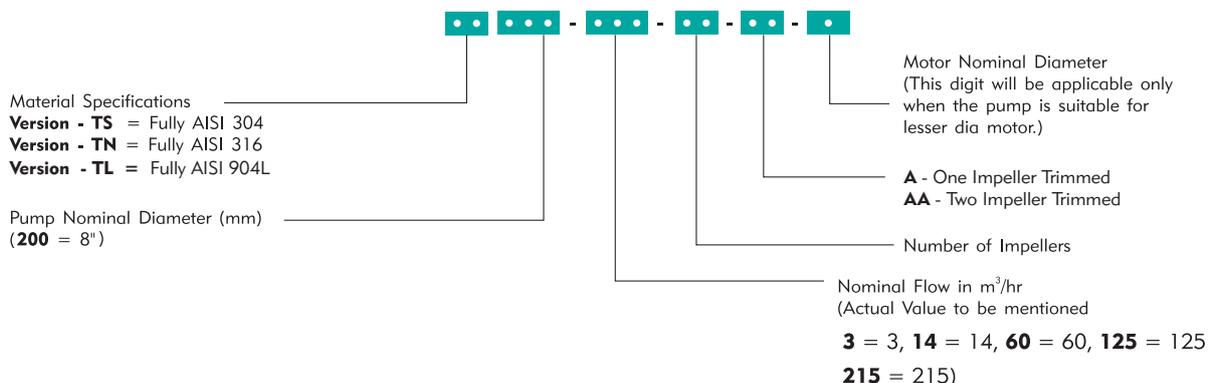
Non-aggressive, non explosive, Pure, cold, fresh water without abrasive particles having the following characteristics.

a) pH	6.5 to 8.5
b) Turbidity	50 ppm silica scale (max.)
c) Kinematic Viscosity	1 mm <sup>2</sup> /s (1cSt) (max.)
d) Hardness (Drinking Water)	300 (max.)
e) Specific gravity	1.004 (max.)
f) Allowable solids	100 ppm (max.)
g) Chlorine ion density	500 ppm (max.)
i) Permissible amount of sand	50 g/m <sup>3</sup> (max.)
h) Temperature (max)	NBR-35°C / Viton-50°C

### Pump Operating Limitations - TS / TN / TL Series

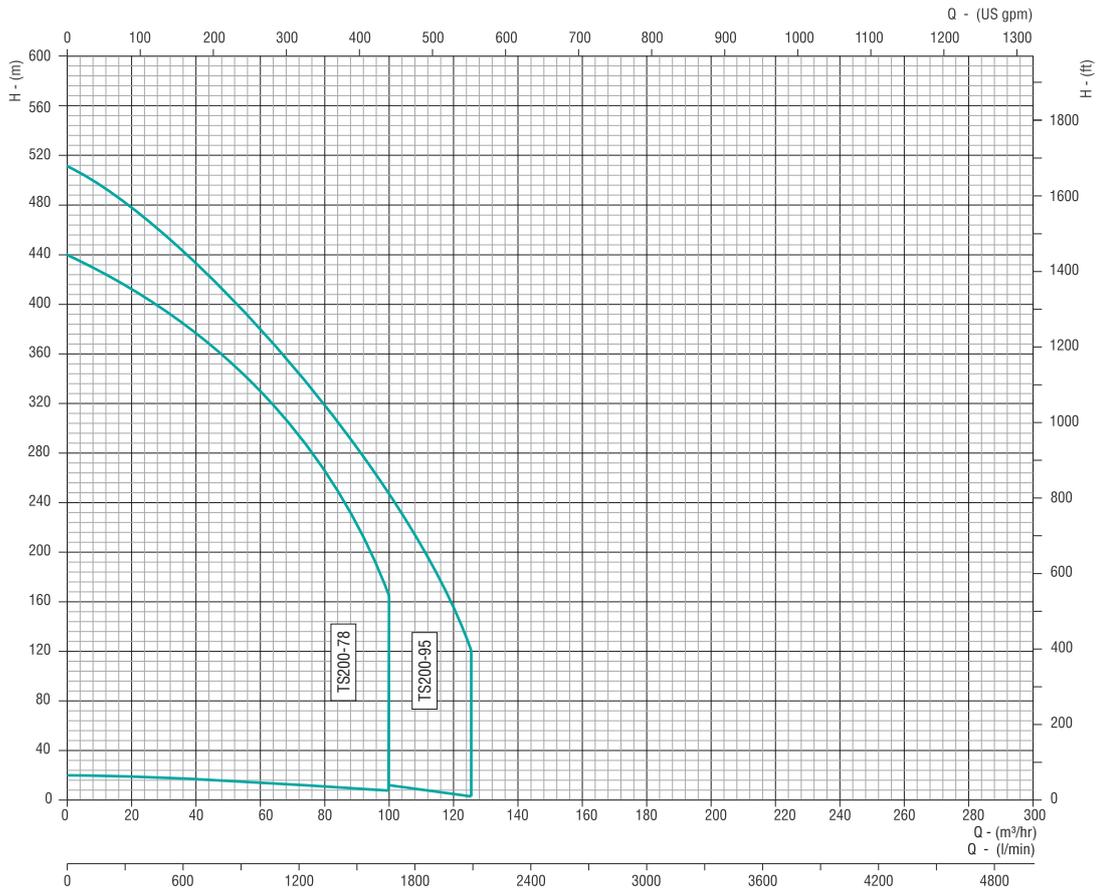
Nominal Diameter		<b>8"</b>
Power Range		5.5kW - 130kW
Speed		2900 rpm
Discharge Range	lpm	330 - 2100
	m <sup>3</sup> /hr	20 - 126
Total Head Range	ft	26.24 - 1700
	m	8 - 518
Delivery size in mm		100 & 125
Max. Operating Pressure		5.2 Mpa (52 bar)
Horizontal Installation		Minimum 30° angle
Shaft Coupling		Splines

### Model Classification Borehole Submersible Pumps



## GENERAL DATA

### Quick Selection > TS Series > Version TS / TN / TL > 8"



Curve tolerance according to ISO 9906:2012, Grade 3B

#### Performance Curve Conditions

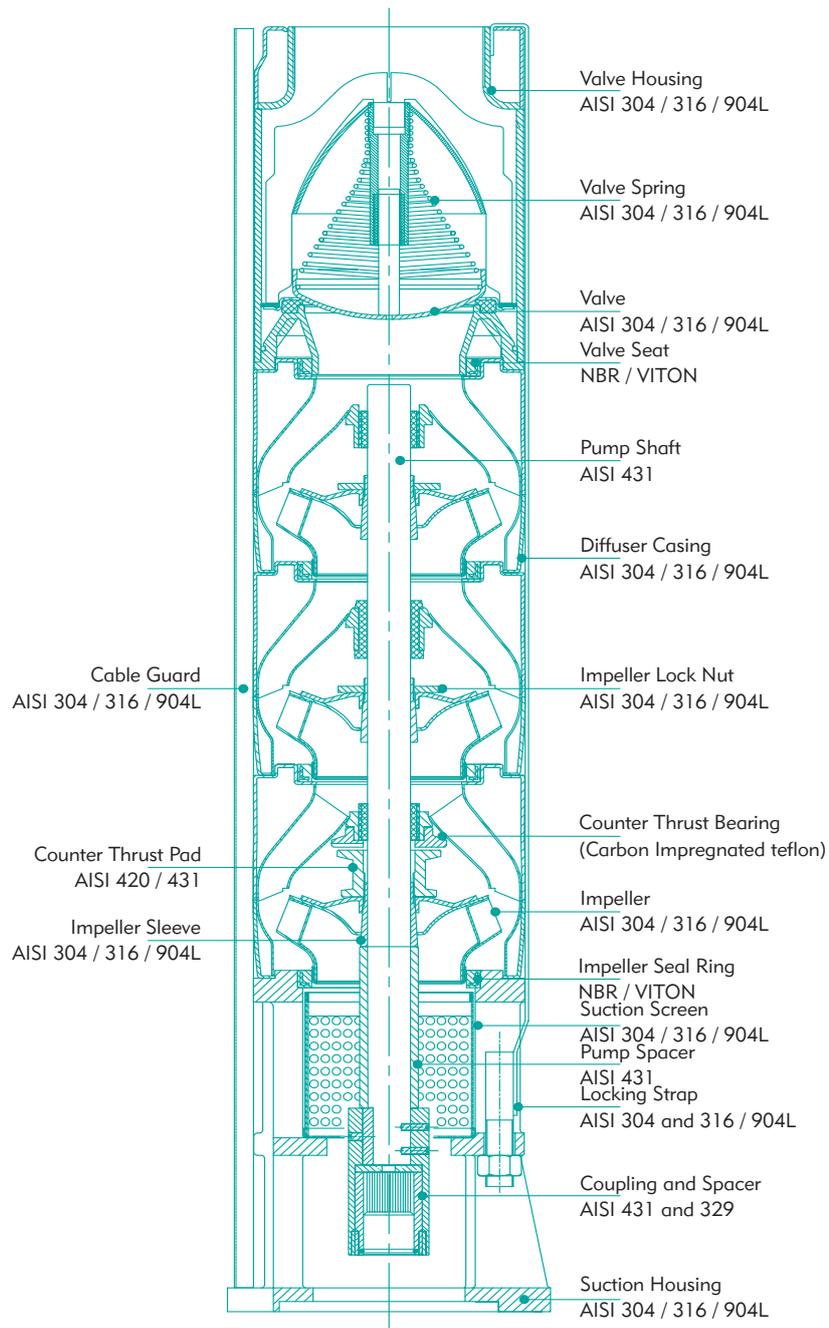
a. The Performance curves show pump performance at rated speed and voltage. (2900 rpm)	e. The head and discharge curves are inclusive of check valve and suction inter-connector losses at the actual speed.
b. The measurements were made with airless water at 20°C. For pumping liquids with a density higher than that of water, motors with correspondingly higher outputs must be used.	f. Efficiency curve: "EFF%" shows pump stage efficiency.
c. Pipe friction losses have not been included in the performance curves and performance tables.	g. Curve tolerance according to ISO : 9906, Annex-A.
d. The bold curves indicate the recommended performance range.	h. The performance are at rated voltage and are only Indicative. Actual discharge depends on availability of water in well, based on strength of water source, height of water column, submergence of pump, etc.,
	i. The given performance are for a specific material of construction of pump.

Available material of construction: TS (AISI 304), TN (AISI 316), TL (AISI 904L).  
The given performance ranges are same for versions TS, TN&TL.

## CONSTRUCTIONAL DATA

**78 - 95 m<sup>3</sup>/hr**

**8" > TS Series > Version TS / TN / TL > Constructional Data of Semi - Axial Flow Pump**



Pump Version - TS = AISI 304 Construction  
 Pump Version - TN = AISI 316 Construction  
 Pump version - TL = AISI 904L Construction  
 NEMA mounting dimensions.

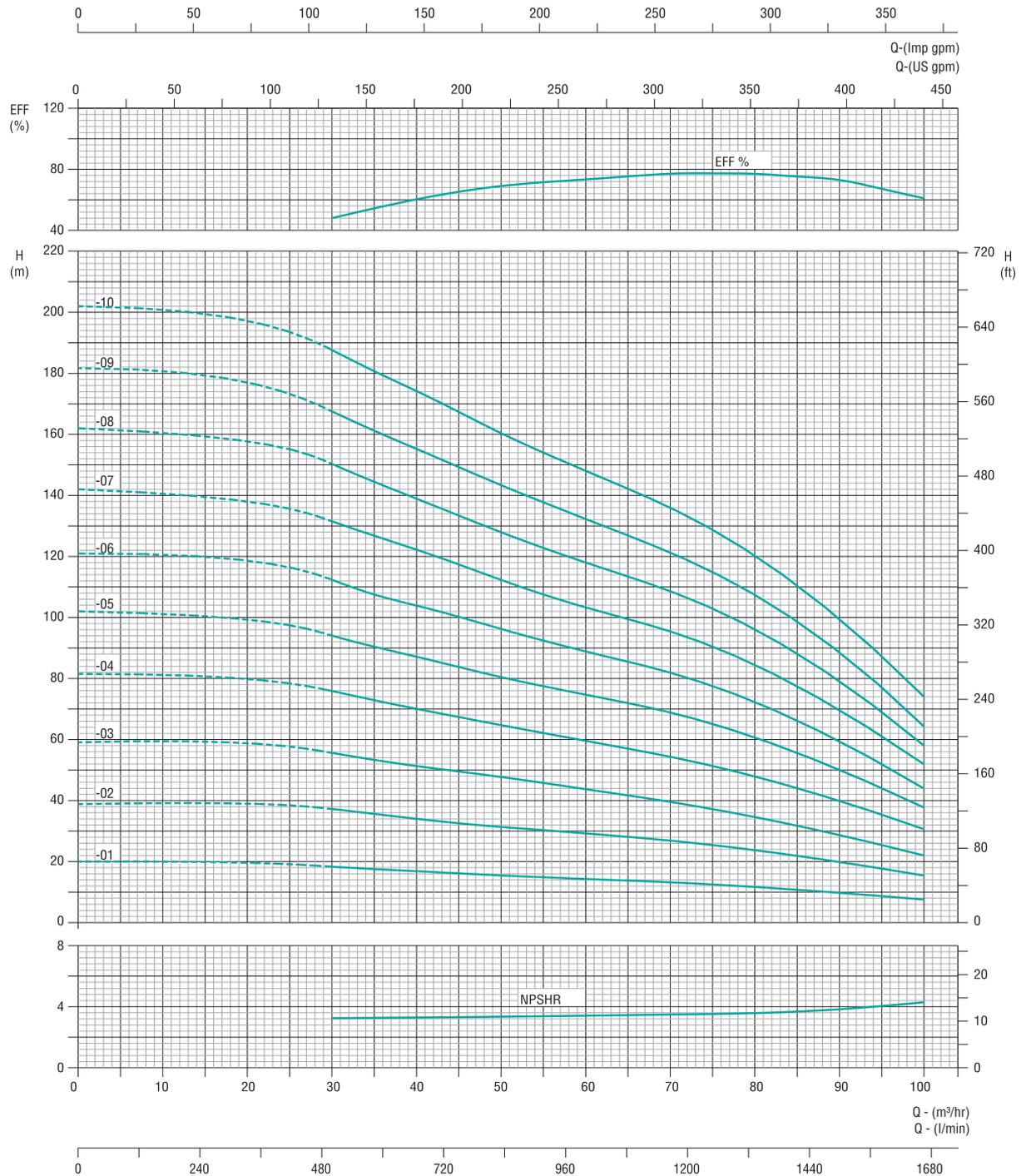
# PERFORMANCE CURVES

## TS / TN / TL SERIES > 8" > 78 m<sup>3</sup>/hr

Model : **TS200-78**

Outlet Size : **4" / 5"**

**2900 rpm**



Curve tolerance according to ISO 9906:2012, Grade 3B

## PERFORMANCE DATA

### TS / TN / TL SERIES > 8" > 78 m<sup>3</sup>/hr

Model : **TS200-78**

Outlet Size : **4" / 5"**

**2900 rpm**

Pump Model*	Power		lpm m <sup>3</sup> /hr	0	333.3	500	666.6	833.3	1000	1299.8	1333	1666
	kW	HP		0	20	30	40	50	60	78	80	100
TS200-78-01-6	5.5	7.5	Total Dynamic Head in Meters	20	19.7	18	16.8	15.5	14.2	12	12	7.5
TS200-78-02-6	7.5	10		39	38.5	37	34	31.5	29.5	24	24	15.5
TS200-78-03-6	11	15		59	58	55.5	51.5	47.5	43.7	35	34.5	22
TS200-78-04-6	15	20		81.5	80	76	70	65	59.5	49	48	31
TS200-78-05-6	18.5	25		102	99	94	87	80.5	75	62	60.5	37.5
TS200-78-06-6	22	30		121	118.5	112.5	104	96.5	89	73	72	44
TS200-78-07-6	26	35		142	138	131.5	122.5	112.5	103.5	86	84.5	72
TS200-78-08-6	30	40		162	157.5	150.5	139	128	118	98	96	58
TS200-78-09-6	30	40		182	177	167.5	155	143.5	132.5	109	107	64.5
TS200-78-10	37	50		202	197	188	174	160.5	148	121	120	74

\* For AISI 316 replace TS with TN : Performance Data remains same.  
 \* For AISI 904L replace TS with TL : Performance Data remains same.

### Nett Weights & Dimensions

Pump Model*	Power		Dimensions in mm		Nett Weight (kg)
	kW	HP	D	H	
TS200-78-01-6	5.5	7.5	193	554	22
TS200-78-02-6	7.5	10	193/195	682	26
TS200-78-03-6	11	15	193/195	810	29
TS200-78-04-6	15	20	193/195	938	33
TS200-78-05-6	18.5	25	193/195	1066	37
TS200-78-06-6	22	30	193/195	1194	41
TS200-78-07-6	26	35	193/195	1322	45
TS200-78-08-6	30	40	193/195?	1450	48
TS200-78-09-6	30	40	193/195	1578	52
TS200-78-10	37	50	193/195	1706	56

Pump Height(H) and Weight(Kg) are approximate.



All performance data is based on rated input.

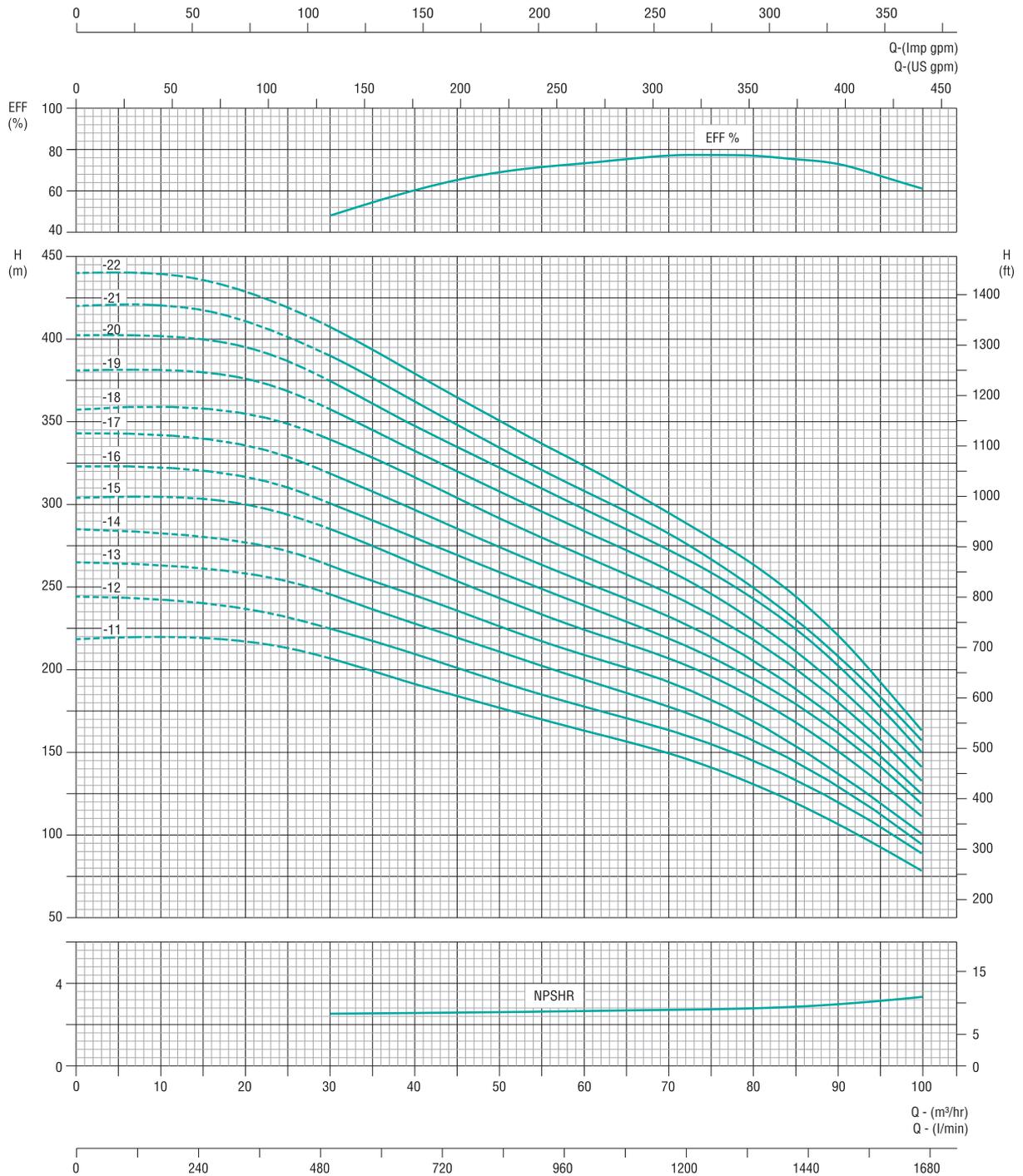
# PERFORMANCE CURVES

## TS / TN / TL SERIES > 8" > 78 m<sup>3</sup>/hr

Model : **TS200-78**

Outlet Size : **4" / 5"**

**2900 rpm**



Curve tolerance according to ISO 9906:2012, Grade 3B

## PERFORMANCE DATA

### TS / TN / TL SERIES > 8" > 78 m<sup>3</sup>/hr

Model : **TS200-78**

Outlet Size : **4" / 5"**

**2900 rpm**

Pump Model*	Power		lpm m <sup>3</sup> /hr	0	333.3	500	666.6	833.3	1000	1299.8	1333.3	1666.7
	kW	HP		0	20	30	40	50	60	78	80	100
TS200-78-11	45	60	Total Dynamic Head in Meters	218	217	207	191.5	177	163	133	132	78
TS200-78-12	45	60		244	237	225	209.5	192.5	178	147	145	89
TS200-78-13	55	75		265	258	245.5	228	211	194	162	157.5	94.5
TS200-78-14	55	75		285	277	263	245	226.5	209	173	169	101
TS200-78-15	55	75		304	300	285	264	243	224	185	184.5	111.5
TS200-78-16	63	85		323	316.5	300.5	280	259	239	197	195	119
TS200-78-17	63	85		343	336	319	297	274.5	253.5	208	205.5	125
TS200-78-18	63	85		357	355	339.5	317	292	269	223	218.5	133
TS200-78-19	75	100		381	376	357.5	332.5	308	284	232	230	141.5
TS200-78-20	75	100		404	395	375	346	322	297	247	242	150
TS 200-78-21	75	100		420	410	390	368	335	309	253	250	157
TS 200-78-22	93	125		440	429	407	380	350	324	270	265	164

\* For AISI 316 replace TS with TN : Performance Data remains same.

\* For AISI 904L replace TS with TL : Performance Data remains same.

### Nett Weights & Dimensions

Pump Model*	Power		Dimensions in mm		Nett Weight (kg)
	kW	HP	D	H	
TS200-78-11	45	60	193/195	1834	60
TS200-78-12	45	60	193/195	1962	63
TS200-78-13	55	75	193/195	2090	67
TS200-78-14	55	75	193/195	2219	71
TS200-78-15	55	75	193/195	2146	75
TS200-78-16	63	85	193/195	2474	78
TS200-78-17	63	85	193/195	2602	82
TS200-78-18	63	85	193/195	2730	85
TS200-78-19	75	100	193/195	2858	84
TS200-78-20	75	100	193/195	2986	93
TS 200-78-21	75	100	193/195	3114	97
TS 200-78-22	93	125	193/195	3242	100

Pump Height(H) and Weight(Kg) are approximate.



All performance data is based on rated input.

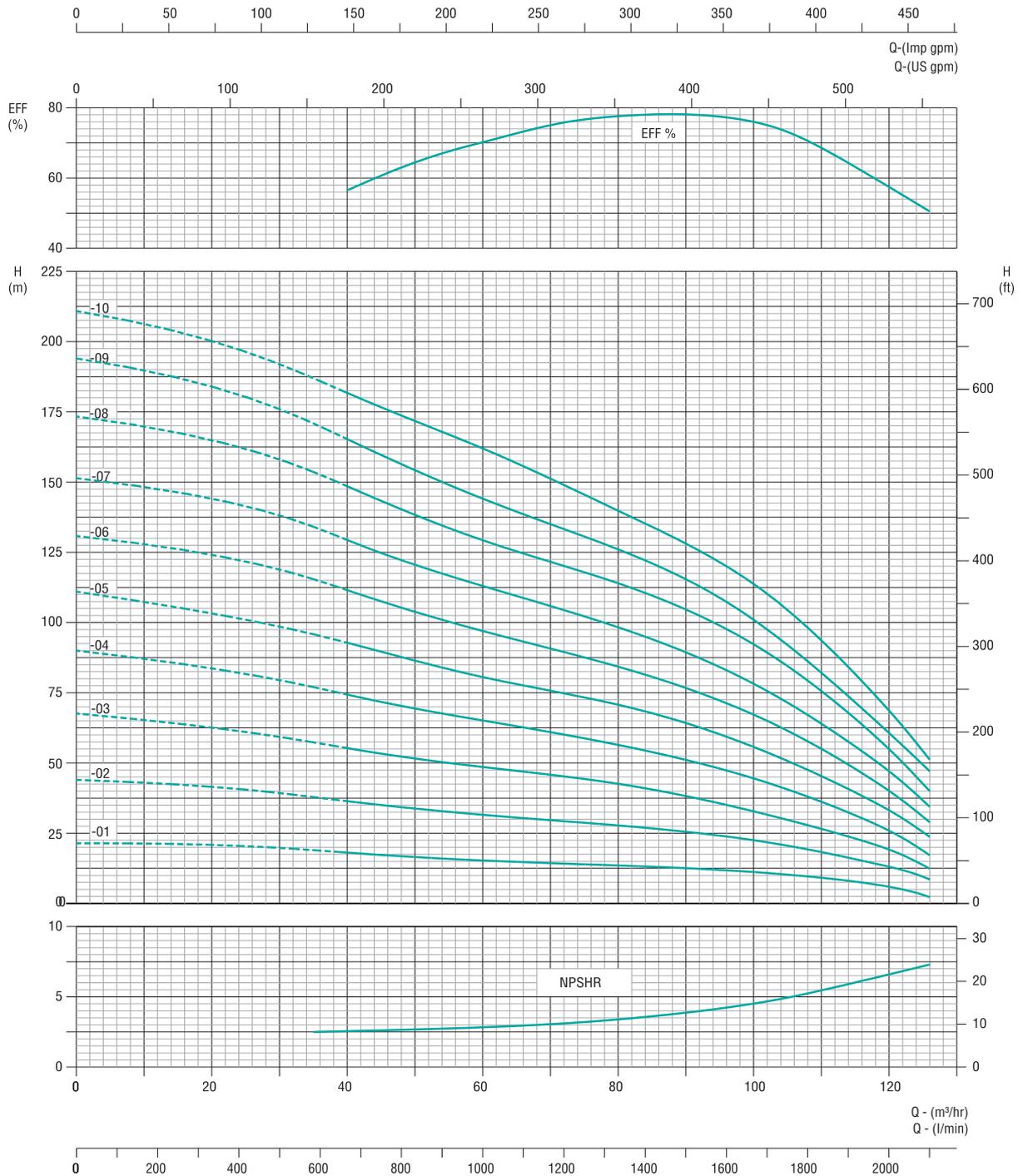
# PERFORMANCE CURVES

## TS / TN / TL SERIES > 8" > 95 m<sup>3</sup>/hr

Model : **TS200-95**

Outlet Size : **4" / 5"**

**2900 rpm**



Curve tolerance according to ISO 9906:2012, Grade 3B

## PERFORMANCE DATA

### TS / TN / TL SERIES > 8" > 95 m<sup>3</sup>/hr

Model : **TS200-95**

Outlet Size : **4" / 5"**

**2900 rpm**

Pump Model*	Power		lpm m <sup>3</sup> /hr	0	333.2	666.4	1000	1333.2	1583.1	1666	2000	2100
	kW	HP		0	20	40	60	80	95	100	120	126
TS200-95-01-6	5.5	7.5	Total Dynamic Head in Meters	22	21	18	15.5	13.5	11.5	11.5	6	2
TS200-95-02-6	9.3	12.5		44	41.5	36	31.5	28	23	22.5	13	8.5
TS200-95-03-6	13	17.5		68	62.5	55.3	48.5	42.5	34	32.5	19.5	12.5
TS200-95-04-6	18.5	25		90	83.5	74	65	56.5	46	44	26	17
TS200-95-05-6	22	30		111	103	93	80.5	70.5	58	55.5	33	24
TS200-95-06-6	26	35		131	124	111.5	97	84.5	69	67	40	29
TS200-95-07-6	30	40		151	144	129.5	113	98	82	78	47	34.5
TS200-95-08	37	50		173	165	148.5	130	114	96	91.5	54.5	40
TS200-95-09	37	50		194	184	165.5	144	126	108	100.5	60.5	47
TS200-95-10	45	60		211	200	181.5	162	140	114	113	68.5	51

\* For AISI 316 replace TS with TN : Performance Data remains same.

\* For AISI 904L replace TS with TL : Performance Data remains same.

### Nett Weights & Dimensions

Pump Model*	Power		Dimensions in mm		Nett Weight (kg)
	kW	HP	D	H	
TS200-95-01-6	5.5	7.5	193	554	22
TS200-95-02-6	9.3	12.5	193/195	682	26
TS200-95-03-6	13	17.5	193/195	810	30
TS200-95-04-6	18.5	25	193/195	988	33
TS200-95-05-6	22	30	193/195	1066	37
TS200-95-06-6	26	35	193/195	1194	41
TS200-95-07-6	30	40	193/195	1322	43
TS200-95-08	37	50	193/195	1450	49
TS200-95-09	37	50	193/195	1578	53
TS200-95-10	45	60	193/195	1706	57

Pump Height(H) and Weight(Kg) are approximate.



All performance data is based on rated input.

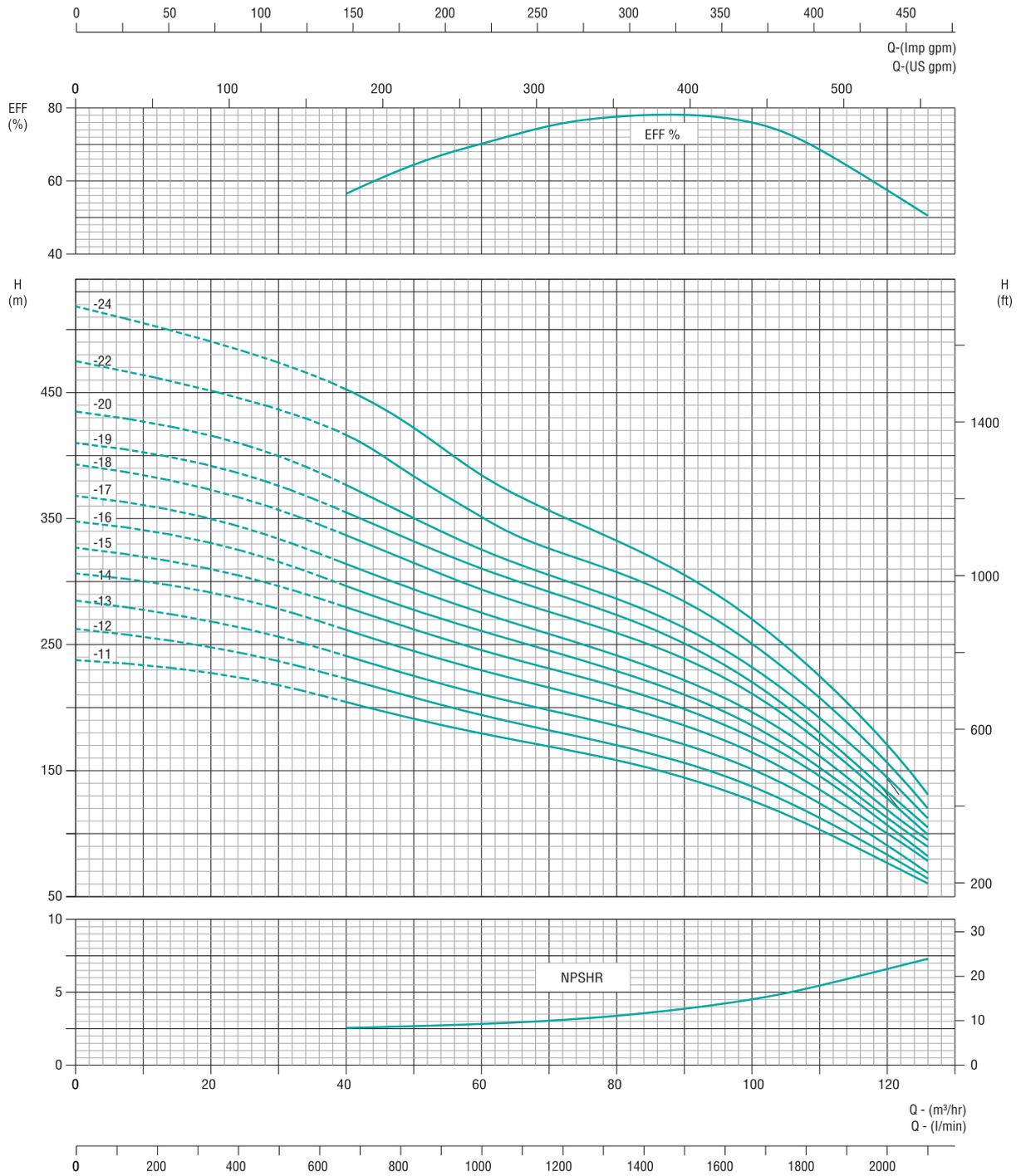
# PERFORMANCE CURVES

## TS / TN / TL SERIES > 8" > 95 m<sup>3</sup>/hr

Model : **TS200-95**

Outlet Size : **4" / 5"**

**2900 rpm**



## PERFORMANCE DATA

### TS / TN / TL SERIES > 8" > 95 m<sup>3</sup>/hr

Model : **TS200-95**

Outlet Size : **4" / 5"**

**2900 rpm**

Pump Model*	Power		lpm m <sup>3</sup> /hr	0	333.2	666.4	1000	1333.2	1583.1	1666	2000	2100
	kW	HP		0	20	40	60	80	95	100	120	126
TS200-95-11	55	75	Total Dynamic Head in Meters	237.5	227.5	204.5	179.5	158	137	126.5	77	60.5
TS200-95-12	55	75		262.5	248	222	194.5	170	140	137.5	83	64
TS200-95-13	55	75		285	268	241.5	210.5	185.5	153	151	90.5	69
TS200-95-14	63	85		306	291	262	229.5	202	170	164.5	100	78
TS200-95-15	75	100		326	310	280	246	216	183	176	106.5	57
TS200-95-16	75	100		347.5	331	296.5	261	229	190	186	112.5	89.5
TS200-95-17	93	125		367.5	350	314	275.5	241.5	207	196	119	95
TS200-95-18	93	125		393	373	336	294	259	223	211	128	99
TS200-95-19	93	125		410	391.5	355	310.5	274	230	220	133	105
TS200-95-20	93	125		435	416	376.5	325.5	286	241	231.5	145	112
TS200-95-22-10	110	150		475	452	416.5	351	307	260	250	156	120
TS200-95-24-10	130	175		518	490	453	383	332	278	270	176	132

\* For AISI 316 replace TS with TN : Performance Data remains same.  
 \* For AISI 904L replace TS with TL : Performance Data remains same.

### Nett Weights & Dimensions

Pump Model*	Power		Dimensions in mm		Nett Weight (kg)
	kW	HP	D	H	
TS200-95-11	55	75	193/195	1834	61
TS200-95-12	55	75	193/195	1960	64
TS200-95-13	55	75	193/195	2090	68
TS200-95-14	63	85	193/195	2218	74
TS200-95-15	75	100	193/195	2346	76
TS200-95-16	75	100	193/195	2474	80
TS200-95-17	93	125	193/195	2602	84
TS200-95-18	93	125	193/195	2730	88
TS200-95-19	93	125	193/195	2858	92
TS200-95-20	93	125	193/195	2986	96
TS200-95-22-10	110	150	193/195	3242	104
TS200-95-24-10	130	175	193/195	3370	111

Pump Height(H) and Weight(Kg) are approximate.



All performance data is based on rated input.



## CABLE SELECTION CHART

For Three Phase 6 wire (S.D.) Motor Maximum Length of Copper Cable

Motor Rating			Cable Size In American Wire Gauge																						
VOLTS	kW	HP	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	400	500	630				
<b>380 - 415 VOLT 50Hz</b>	5.5	7.5	91	143	234	351	572	896	1377	1884															
	7.5	10	65	104	169	260	403	650	974	1338															
	9.3	12.5		91	143	221	364	572	870	1182	1624														
	11	15		78	130	182	299	481	714	974	1377	1832													
	13	17.5			104	143	260	403	611	844	1156	1533													
	15	20			91	130	221	351	533	740	1026	1364	1741												
	18.5	25				104	182	273	429	585	799	1065	1364	1624											
	22	30					156	234	364	494	688	922	1169	1403	1650										
	26	35					130	195	299	403	572	792	1000	1221	1429	1650									
	30	40					117	169	273	364	520	675	870	1013	1208	1390	1624								
	37	50						143	221	299	416	546	701	831	974	1117	1312	1494							
	45	60							182	247	338	468	598	727	870	1013	1208	1377							
	55	75								208	286	377	494	611	714	831	987	1137							
	63	85								188	260	299	442	546	637	740	870	1000							
	75	100									208	286	377	455	533	611	727	831	974						
	93	125									170	234	299	364	429	494	585	662	779						
	110	150											260	312	377	429	520	598	701	786					
	130	175											221	266	325	377	442	520	598	688	760				
	150	200												234	279	325	390	455	539	604	669				
	166	225													234	286	338	390	455	520	578				
185	250														260	312	364	429	481	539					
220	300															247	286	331	372	410					
260	350																247	286	325	357					
300	400																	214	247	273	312				

Maximum Length in Meters

The given cable lengths are the maximum one from POWER TO MOTOR, Exceeding the lengths mentioned will void warranty.

# CONVERSION CHART

## Flow Rate

litre per second l/s	litre per minute l/min	cubic meter per hour m <sup>3</sup> /h	cubic foot per hour ft <sup>3</sup> /h	cubic foot per minute ft <sup>3</sup> /min	Imp.gallon per minute Imp.gal./min	US gallon per minute Us gal./min	Us barrel per day Is barrel/d (Petroleum)
1	60	3.6	127.133	2.1189	13.2	15.85	543.439
0.017	1	0.06	2.1189	0.0353	0.22	0.264	9.057
0.278	16.667	1	35.3147	0.5886	3.666	4.403	150.955
0.008	0.472	0.0283	1	0.0167	0.104	0.125	4.275
0.472	28.317	1.6990	60	1	6.229	7.480	256.475
0.076	4.546	0.2728	9.6326	0.1605	1	1.201	41.175
0.063	3.785	0.2271	8.0209	0.1337	0.833	1	34.286
0.002	0.110	0.0066	0.2339	0.0039	0.024	0.029	1

## Liquid

Cubic meter m <sup>3</sup>	litre l	Milli litre ml	Imp. gallon Imp. Gal	US gallon US gal	cubic foot ft <sup>3</sup>
1	1000	1 x 10 <sup>6</sup>	220	264.2	35.3147
0.001	1	1000	0.22	0.2642	0.0353
1 x 10 <sup>-6</sup>	0.001	1	2.2 X 10 <sup>-4</sup>	2.642 x 10 <sup>-4</sup>	3.53 x 10 <sup>-5</sup>
0.00455	4.546	4546	1	1.201	0.1605
0.00378	3.785	3785	0.8327	1	0.1337
0.0283	28.317	28317	6.2288	7.4805	1

## Liquid Head and Pressure

newton per square meter N/m <sup>2</sup> (Pa)	kilo pascal kPa	bar	kilogram force per square centimeter Kgf/cm <sup>2</sup>	pound force per square inch psi	foot for water ft H <sub>2</sub> O	meter of water m H <sub>2</sub> O	millimeter of mercury mm Hg	inch of mercury in Hg
1	0.001	1 x 10 <sup>-5</sup>	1.02 x 10 <sup>-5</sup>	1.45 x 10 <sup>-4</sup>	3.35 x 10 <sup>-4</sup>	1.02 x 10 <sup>-4</sup>	0.0075	2.95 x 10 <sup>-4</sup>
1000	1	0.01	0.0102	0.145	0.335	0.102	7.5	0.295
1 x 10 <sup>5</sup>	100	1	1.02	14.5	33.52	10.2	750.1	29.53
98,067	98.07	0.981	1	14.22	32.81	10	735.6	28.96
6895	6.895	0.069	0.0703	1	2.31	0.703	51.72	2.036
2984	2.984	0.03	0.0305	0.433	1	0.305	22.42	0.882
9789	9.789	0.098	0.1	1.42	3.28	1	73.42	2.891
133.3	0.133	0.0013	0.0014	0.019	0.045	0.014	1	0.039
3386	3.386	0.0338	0.0345	0.491	1.133	0.0345	25.4	1

## Length

millimeter mm	centimeter cm	meter m	inch in	foot ft	yard yd
1	0.1	0.001	0.0394	0.0033	0.0011
10	1	0.01	0.3937	0.0328	0.0109
1000	100	1	39.3701	3.2808	1.0936
25.4	2.54	0.0254	1	0.0833	0.0278
304.8	30.48	0.3048	12	1	0.3333
914.4	91.44	0.9144	36	3	1

1 Kilometer = 1000 metres = 0.62137 miles 1 mile = 1609.37 metres = 1.60934 kilometers

## Mass

kilogram kg	pound lb	hundred weight (cwt)	tonne t	ton long tn	short ton sh tn
1	2.205	0.0197	0.001	9.84 x 10 <sup>-4</sup>	0.0011
0.454	1	0.0089	4.54 x 10 <sup>-4</sup>	4.46 x 10 <sup>-4</sup>	5.0 x 10 <sup>-4</sup>
50.802	112	1	0.0508	0.05	0.056
1000	2204.6	19.684	1	0.9842	1.1023
1016	2240	20	1.0161	1	1.102
907.2	2000	17.857	0.9072	0.8929	1

## Temperature

To Convert From	To	Use Formula
Temperature Celsius, tc	Temperature Kelvin, tk	K = tc + 273.15
Temperature Fahrenheit, tf	Temperature Kelvin, tk	K = (tf + 459.67 / 1.8)
Temperature Celsius, tc	Temperature Fahrenheit, tf	F = 1.8 tc + 32
Temperature Fahrenheit, tf	Temperature Celsius, tc	C = (tf - 32) / 1.8
Temperature Kelvin, tk	Temperature Celsius, tc	C = tk - 273.15
Temperature Kelvin, tk	Temperature Fahrenheit, tf	F = 1.8tk - 459.67





## T H E P O W E R B E H I N D T H E F O R C E

Naargo Industries Private Limited, one of the leading manufacturers of latest state of art, large range of pumps and motors, is managed by veterans who are in the pump industry for almost half a century. The products are employed in various applications like irrigation, domestic, civil construction, de-watering etc; The Company has a strong distribution network in India for sales & service and a strong global presence.

Quality is the key factor in Naargo's products. The expansive infrastructure and environment accredited with ISO 9001 quality certification, latest engineering softwares, high-tech machinery, futuristic pumping technology and high caliber workforce facilitate the production of flawless and efficient products on par with international standards under the brand name of "Tormac". The well equipped R & D wing stays alive to the changing global trends and comes out with viable solutions for innovative product development and upgradation.

The Products currently available include Stainless Steel Submersible Pumps (SS 304, SS 316 & SS 904L), Submersible Motors (CI, SS 304, SS 316 & SS 904L - HT on optional), Starters & Control Panels, Centrifugal Monoblock Pumps, End Suction Pumps, Close Coupled Pumps, Horizontal Split Case Pumps, Horizontal & Vertical Multistage Pumps, Inline Booster Systems, Sewage, Drainage & Dewatering Pumps, Induction Motors, Submersible Cables, Riser Pipes and Column Pipes.

The power, performance and endurance of the products backed by the uncompromising teamwork and value systems will certainly propel the company's growth towards new horizons in the pump industry.

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