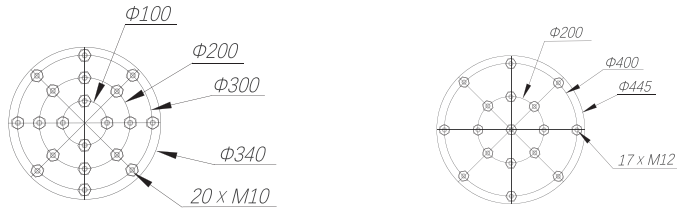


# Water-cooled Series

## Armature pattern

Notes:

Default metric armature pattern (mm)  
Contact sales people for optional imperial armature pattern and special requirements.

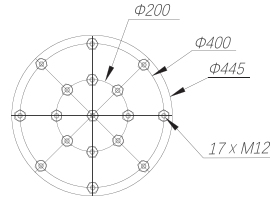


System model	TS25WLS3-340	TS35WLS3-340	TS50W-445	TS50WLS3-445	TS50WLS4-445	TS60W-445	TS60WLS3-445
Sine/Random (kN)	25	35	50	50	50	60	60
Shock force (kN)	50/75	70/105	100/150	100/150	100/150	120/180	120/180
Frequency range (Hz)	5-2,800	5-2,800	5-2,600	5-2,500	5-2,400	5-2,600	5-2,500
Max. acceleration (m/s <sup>2</sup> )	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Max. velocity (m/s)	2	2	2	2	2	2	2
Max. displacement (mm)	76	76	51	76	100	51	76
Max. load (kg)	300	300	800	800	800	800	800
Armature mass (kg)	25	25	50	50	50	55	60
Armature diameter (mm)	340	340	445	445	445	445	445
Body suspension Fre. (Hz)	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Armature inserts (standard)	20 * M10	20 * M10	17 * M12	17 * M12	17 * M12	17 * M12	17 * M12
Stray flux density	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)
Fund. resonance Fre. (Hz)	2,700 (nom.) ± 5%	2,700 (nom.) ± 5%	2,400 (nom.) ± 5%	2,200 (nom.) ± 5%	2,100 (nom.) ± 5%	2,350 (nom.) ± 5%	2,200 (nom.) ± 5%
Weight (kg)	1750	1750	4550	4550	4550	4550	4550
Dimension (mm)	1136*710*1071	1136*710*1071	1636*1104*1300	1636*1104*1300	1636*1104*1336	1636*1104*1300	1636*1104*1300
Power amplifier model	PWA30W	PWA40W	PWA50W	PWA50W	PWA50W	PWA60W	PWA60W
Power (kVA)	36	48	50	50	50	60	60
Max. output voltage (V)	120	120	120	120	120	120	120
Max. output current (A)	400	500	550	550	550	550	550
Power requirement (kVA)	85	90	90	90	90	100	100
Weight (kg)	700	1000	1100	1100	1100	1150	1150
Dimension (mm)	600*1000*2020	1200*1000*2020	1200*1000*2020	1200*1000*2020	1200*1000*2020	1200*1000*2020	1200*1000*2020
<b>Cooling type</b>	Water cooling. Distilled water for internal circle (hardness 30ppm, PH7-8, conductivity 1μS/cm); city water for external circle.						
Cooling unit model	CW-40-1	CW-40-1	CW-40-1	CW-40-1	CW-80-1	CW-40-1	CW-40-1
Internal circle water flow (L/min)	40	40	40	40	80	40	40
Internal water pressure (Mpa)	1	1	1	1	1	1	1
External circle water flow (L/min)	100	100	100	100	160	100	100
External water pressure (Mpa)	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4
Water pump power (in./ex.) (kW)	4/2.5	4/2.5	4/2.5	4/2.5	8/4	4/2.5	4/2.5
Weight (kg)	250	250	250	250	320	250	250
Dimension (mm)	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020

## Armature pattern

Notes:

Default metric armature pattern (mm)  
Contact sales people for optional imperial  
armature pattern and special requirements.



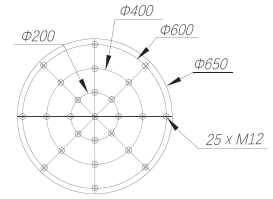
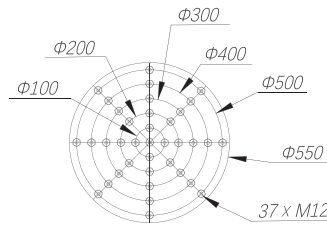
System model	TS60WLS4-445	TS70W-445	TS70WLS3-445	TS70WLS4-445	TS80W-445	TS80WLS3-445	TS80WLS4-445
Sine/Random (kN)	60	70	70	70	80	80	80
Shock force (kN)	120/180	140/210	140/210	140/210	160/240	160/240	160/240
Frequency range (Hz)	5-2,400	5-2,600	5-2,500	5-2,400	5-2,500	5-2,500	5-2,400
Max. acceleration (m/s <sup>2</sup> )	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Max. velocity (m/s)	2	2	2	2	2	2	2
Max. displacement (mm)	100	51	76	100	51	76	100
Max. load (kg)	800	800	800	800	800	800	800
Armature mass (kg)	60	55	60	60	60	60	60
Armature diameter (mm)	445	445	445	445	445	445	445
Body suspension Fre. (Hz)	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Armature inserts (standard)	17 * M12	17 * M12	17 * M12	17 * M12	17 * M12	17 * M12	17 * M12
Stray flux density	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)
Fund. resonance Fre. (Hz)	2,100 (nom.) ± 5%	2,350 (nom.) ± 5%	2,200 (nom.) ± 5%	2,100 (nom.) ± 5%	2,200 (nom.) ± 5%	2,200 (nom.) ± 5%	2,100 (nom.) ± 5%
Weight (kg)	4550	4550	4550	4550	4550	4550	4550
Dimension (mm)	1636*1104*1336	1636*1104*1300	1636*1104*1300	1636*1104*1336	1636*1104*1300	1636*1104*1300	1636*1104*1336
Power amplifier model	PWA60W	PWA70W	PWA70W	PWA80W	PWA80W	PWA80W	PWA80W
Power (kVA)	60	70	70	80	80	80	80
Max. output voltage (V)	120	120	120	120	120	120	120
Max. output current (A)	550	600	600	900	900	900	900
Power requirement (kVA)	100	110	110	140	140	140	140
Weight (kg)	1150	1200	1200	1800	1900	1900	1900
Dimension (mm)	1200*1000*2020	1200*1000*2020	1200*1000*2020	1800*1000*2020	1800*1000*2020	1800*1000*2020	1800*1000*2020
<b>Cooling type</b>	Water cooling. Distilled water for internal circle (hardness 30ppm, PH7-8, conductivity 1μS/cm); city water for external circle.						
Cooling unit model	CW-80-1	CW-40-1	CW-40-1	CW-80-1	CW-80-1	CW-80-1	CW-80-1
Internal circle water flow (L/min)	80	40	40	80	80	80	80
Internal water pressure (Mpa)	1	1	1	1	1	1	1
External circle water flow (L/min)	160	100	100	160	160	160	160
External water pressure (Mpa)	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4
Water pump power (in./ex.) (kW)	8/4	4/2.5	4/2.5	8/4	8/4	8/4	8/4
Weight (kg)	320	250	250	320	320	320	320
Dimension (mm)	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020

## Armature pattern

### Notes:

Default metric armature pattern (mm)

Contact sales people for optional imperial armature pattern and special requirements.



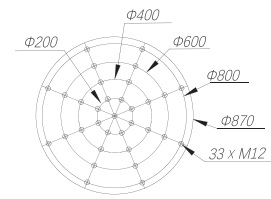
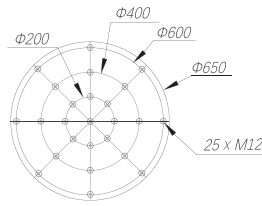
System model	TS100-550	TS100LS3-550	TS120-550	TS120LS3-550	TS160-650	TS160LS3-650	TS180-650
Sine/Random (kN)	100	100	120	120	160	160	180
Shock force (kN)	200/300	200/300	240/360	240/360	320/480	320/480	360/480
Frequency range (Hz)	5-2,500	5-2,500	5-2,500	5-2,500	5-2,100	5-2,100	5-2,100
Max. acceleration (m/s <sup>2</sup> )	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Max. velocity (m/s)	2	2	2	2	2	2	2
Max. displacement (mm)	51	76	51	76	51	76	51
Max. load (kg)	1000	1000	1000	1000	2,500	2,500	2,500
Armature mass (kg)	90	90	90	90	150	150	150
Armature diameter (mm)	550	550	550	550	650	650	650
Body suspension Fre. (Hz)	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Armature inserts (standard)	37 * M12	37 * M12	37 * M12	37 * M12	25 * M12	25 * M12	25 * M12
Stray flux density	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)
Fund. resonance Fre. (Hz)	2,150 (nom.) ± 5%	2,150 (nom.) ± 5%	2,150 (nom.) ± 5%	2,150 (nom.) ± 5%	1,800 (nom.) ± 5%	1,800 (nom.) ± 5%	1,700 (nom.) ± 5%
Weight (kg)	7380	7380	7380	7380	11100	11100	11100
Dimension (mm)	1780*1280*1380	1780*1280*1380	1780*1280*1380	1780*1280*1380	2100*1430*1553	2100*1430*1553	2100*1430*1553
Power amplifier model	PWA100W	PWA100W	PWA120W	PWA120W	PWA160W	PWA160W	PWA180W
Power (kVA)	100	100	120	120	160	160	180
Max. output voltage (V)	120	120	120	120	120	120	120
Max. output current (A)	1100	1100	1200	1200	1800	1800	2000
Power requirement (kVA)	160	160	180	180	230	230	250
Weight (kg)	2000	2000	2000	2000	2700	2700	2700
Dimension (mm)	1800*1000*2020	1800*1000*2020	1800*1000*2020	1800*1000*2020	2400*1000*2020	2400*1000*2020	2400*1000*2020
<b>Cooling type</b>	Water cooling. Distilled water for internal circle (hardness 30ppm, PH7-8, conductivity 1μS/cm); city water for external circle.						
Cooling unit model	CW-80-1	CW-80-1	CW-80-1	CW-80-1	CW-80-1	CW-80-1	CW-80-1
Internal circle water flow (L/min)	80	80	80	80	80	80	80
Internal water pressure (Mpa)	1	1	1	1	1	1	1
External circle water flow (L/min)	160	160	160	160	160	160	160
External water pressure (Mpa)	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4
Water pump power (in./ex.) (kW)	8/4	8/4	8/4	8/4	8/4	8/4	8/4
Weight (kg)	320	320	320	320	320	320	320
Dimension (mm)	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020

## Armature pattern

Notes:

Default metric armature pattern (mm)

Contact sales people for optional imperial armature pattern and special requirements.



System model	TS180LS3-650	TS200-650	TS200LS3-650	TS300LS3-870	TS350LS3-870	TS400LS3-870
Sine/Random (kN)	180	200	200	300/240	350/250	400/300
Shock force (kN)	360/480	400/600	400/600	600/900	700/900	800/1000
Frequency range (Hz)	5-2,100	5-2,100	5-2,100	5-1,700	5-1,700	5-1,700
Max. acceleration (m/s <sup>2</sup> )	1,000	1,000	1,000	1,000	1,000	1,000
Max. velocity (m/s)	2	2	2	2	2	2
Max. displacement (mm)	76	51	76	76	76	76
Max. load (kg)	2,500	2,500	2,500	5,000	5,000	5,000
Armature mass (kg)	150	150	150	300	310	330
Armature diameter (mm)	650	650	650	870	870	870
Body suspension Fre. (Hz)	2.5	2.5	2.5	2.5	2.5	2.5
Armature inserts (standard)	25 * M12	25 * M12	25 * M12	33 * M12	33 * M12	33 * M12
Stray flux density	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)	<1mT (10Gs)
Fund. resonance Fre. (Hz)	1,700 (nom.) ± 5%	1,700 (nom.) ± 5%	1,700 (nom.) ± 5%	1,600 (nom.) ± 5%	1,600 (nom.) ± 5%	1,600 (nom.) ± 5%
Weight (kg)	11100	11100	11100	22950	22950	22950
Dimension (mm)	2100*1430*1553	2100*1430*1553	2100*1430*1553	2900*1900*1983	2900*1900*1983	2900*1900*1983
Power amplifier model	PWA180W	PWA200W	PWA200W	PWA300W	PWA350W	PWA400W
Power (kVA)	180	200	200	380	420	460
Max. output voltage (V)	120	120	120	120	120	120
Max. output current (A)	2000	2200	2200	3000	3600	4000
Power requirement (kVA)	250	280	280	420	500	530
Weight (kg)	2700	3400	3400	4200	6300	6300
Dimension (mm)	2400*1000*2020	3000*1000*2020	3000*1000*2020	6000*1000*2020	6000*1000*2020	6000*1000*2020
<b>Cooling type</b>	Water cooling. Distilled water for internal circle (hardness 30ppm, PH7-8, conductivity 1μS/cm); city water for external circle.					
Cooling unit model	CW-80-1	CW-80-1	CW-80-1	CW-120-1	CW-120-1	CW-120-1
Internal circle water flow (L/min)	80	80	80	120	120	120
Internal water pressure (Mpa)	1	1	1	1	1	1
External circle water flow (L/min)	160	160	160	320	320	320
External water pressure (Mpa)	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4	0.25~0.4
Water pump power (in./ex.) (kW)	8/4	8/4	8/4	8/6.5	8/6.5	8/6.5
Weight (kg)	320	320	320	350	350	350
Dimension (mm)	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020	600*1000*2020