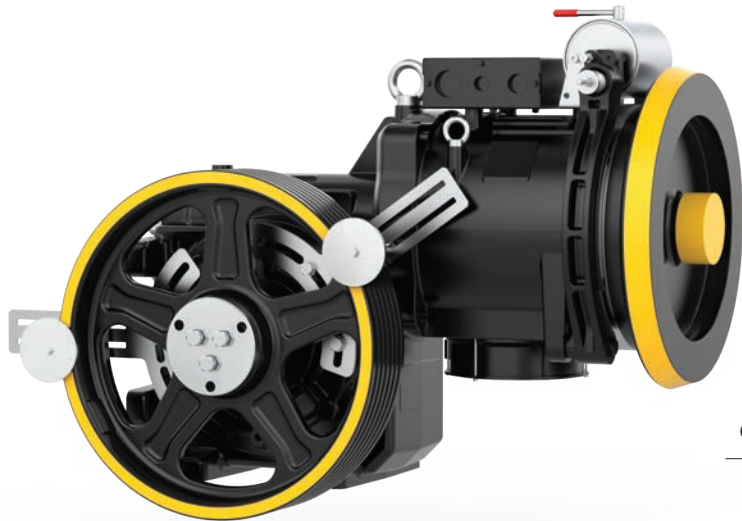


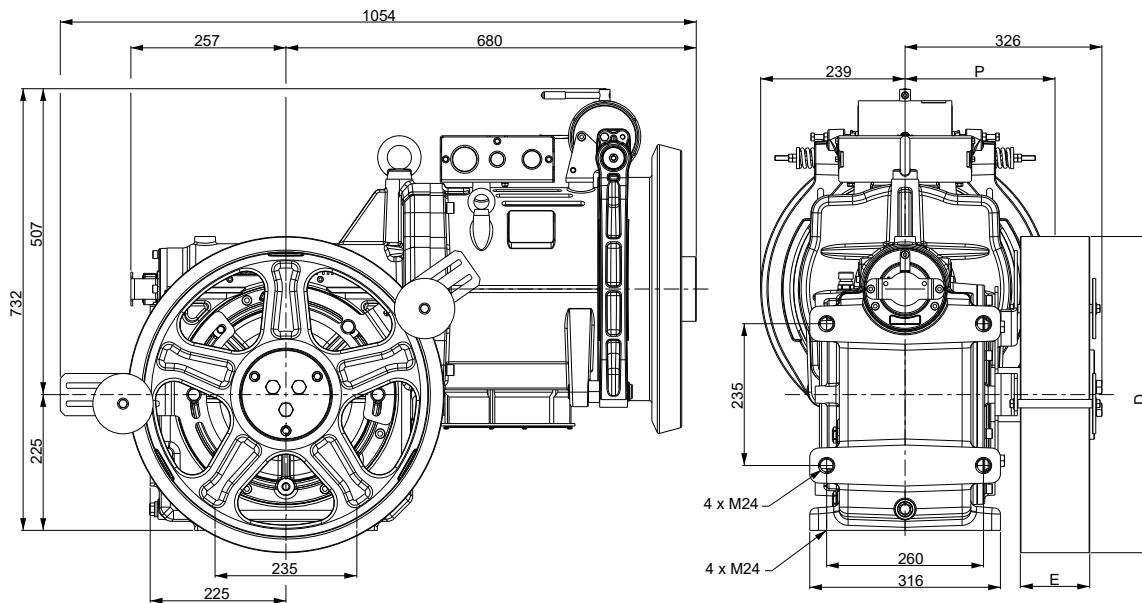
GEARED SH160



Maximum Static Load SH160	42,2 kN - 4300 kg
Power Range 50 Hz 4 poles VVVF	7,5 ÷ 20 kW
Power Range 50 Hz 4/16 poles	7,5 ÷ 11 kW
Power Range 50 Hz 6 poles VVVF	7,5 ÷ 11 kW
Power Range 50 Hz 6/16 poles	5,1 ÷ 7,5 kW
Power Range 60 Hz 4 poles VVVF	8,2 ÷ 18 kW
Power Range 60 Hz 4/16 poles	8,2 ÷ 12 kW
Power Range 60 Hz 6 poles VVVF	8,2 ÷ 12 kW
Power Range 60 Hz 6/16 poles	5,5 ÷ 8,2 kW
Riduction	1/55; 1/43; 1/35; 2/53; 2/43; 3/41
Weight	450 kg
Oil capacity	9 l
Geared machine Rh o Lh (see from motor)	Picture Gear Lh

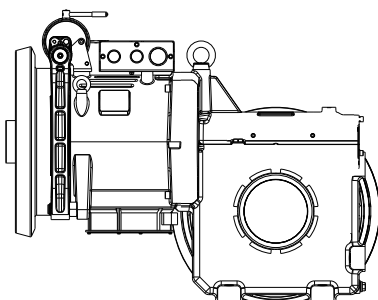
The geared machine efficiency values are present above each "rated load" table
The motor efficiency values are present in the table "electric motor data"

DIMENSIONS

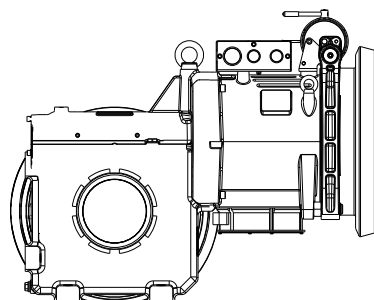


Wrapping System	Traction sheave		Dimension	Load*)	Static Load Direction
	D [mm]	E [mm]	P [mm]	F [kN - kg]	[%]
CSW	450	115	238,5	42,2 - 4300	100% ↑ 100% ↔ 100% ↓ 100%
	520				
	560				
	600				
	650				
	700				

*) Max. static load on the slow shaft CSW: Conventional single wrap ESW: Extended single wrap



horizontal lh



horizontal rh

Brake Electromagnet		
[V]	[A]	[W]
24	9,71	233
48	4,85	233
60	3,96	238
80	2,70	216
110	1,83	201
200	1,05	210

		50Hz							60Hz					
		VVVF 1500 rpm 4 Poles AC2 1500/375 rpm 4/16 Poles							VVVF 1800 rpm 4 Poles AC2 1800/450 rpm 4/16 Poles					
		Motor Output [kW] Asynchronous												
		VVVF/AC2 7,5	VVVF/AC2 9	VVVF/AC2 11	VVVF 13,5	VVVF 16,5	VVVF 20	VVVF/AC2 8,2	VVVF/AC2 10	VVVF/AC2 12	VVVF 15*)	VVVF 18*)		
R.R.	Traction Sheave Ø	Speed syn.	Max Rated Load					Speed syn.	Max Rated Load					
[i]	[mm]	[m/s]	[kg]	[kg]	[kg]	[kg]	[kg]	[kg]	[m/s]	[kg]	[kg]	[kg]	[kg]	[kg]
1/55	450	0,64	1250	--	--	--	--	--	0,77	1140	1250	--	--	--
1/55	520	0,74	1095	1220	--	--	--	--	0,89	985	1160	--	--	--
1/55	560	0,80	1015	1135	--	--	--	--	0,96	915	1075	--	--	--
1/43	450	0,82	1030	1250	--	--	--	--	0,99	925	1155	1250	--	--
1/55	600	0,86	945	1060	--	--	--	--	1,03	855	1005	--	--	--
1/55	650	0,93	875	975	--	--	--	--	1,11	790	925	--	--	--
1/43	520	0,95	890	1090	1250	--	--	--	1,14	800	1000	1220	1250	--
1/55	700	1,00	810	905	--	--	--	--	1,20	730	860	--	--	--
1/35	450	1,01	870	1065	1250	--	--	--	1,21	780	975	1190	1250	--
1/43	560	1,02	825	1010	1250	--	--	--	1,23	745	930	1135	1250	--
1/43	600	1,10	770	945	1175	1220	--	--	1,32	695	865	1060	1165	--
1/35	520	1,17	750	920	1145	1250	--	--	1,40	675	845	1030	1250	--
1/43	650	1,19	710	870	1085	1125	--	--	1,42	640	800	975	1075	--
1/35	560	1,26	700	855	1060	1250	--	--	1,51	625	780	955	1215	1250
1/43	700	1,28	660	810	1005	1045	--	--	1,53	595	745	905	1000	--
2/53	450	1,33	655	805	1000	1245	1250	--	1,60	590	735	900	1145	1250
1/35	600	1,35	650	795	990	1165	--	--	1,62	585	730	890	1135	1165
1/35	650	1,46	600	735	915	1075	--	--	1,75	540	675	825	1045	1075
2/53	520	1,54	605	740	920	1145	1160	--	1,85	545	680	830	1055	1095
1/35	700	1,57	595	725	905	1000	--	--	1,88	535	670	815	1000	--
2/43	450	1,64	570	695	865	1075	1250	--	1,97	510	640	780	990	1200
2/53	560	1,66	565	690	855	1065	1075	--	1,99	505	630	770	980	1015
2/53	600	1,78	525	640	800	990	1005	--	2,13	475	590	720	915	950
2/43	520	1,90	490	600	745	930	1145	1220	2,28	440	550	675	855	1035
2/53	650	1,93	500	615	760	925	--	--	2,31	450	565	685	870	875
2/43	560	2,05	475	580	715	890	1100	1135	2,45	425	530	645	820	995
2/53	700	2,07	465	570	705	860	--	--	2,49	420	520	635	810	815
2/43	600	2,19	440	540	670	830	1030	1060	2,63	395	495	605	765	930
2/43	650	2,37	405	495	620	770	950	975	2,85	365	455	555	705	855
2/43	700	2,56	380	460	575	715	880	905	3,07	340	425	515	655	795
3/41	450	2,59	360	440	550	680	840	1030	3,10	325	405	495	630	760
3/41	520	2,99	310	380	475	590	730	890	3,59	280	350	425	545	660
3/41	560	3,22	290	355	440	545	675	825	3,86	260	325	395	505	610
3/41	600	3,45	270	330	410	510	630	770	4,14	245	305	370	470	570
3/41	650	3,74	250	305	380	470	580	710	4,48	225	280	340	435	525
3/41	700	4,02	230	285	350	435	540	660	4,83	210	260	315	405	490

		50Hz						60Hz					
		Motor Output [kW]											
		VVVF/AC2 7,5	VVVF/AC2 9	VVVF/AC2 11	VVVF 13,5	VVVF 16,5	VVVF 20	VVVF/AC2 8,2	VVVF/AC2 10	VVVF/AC2 12	VVVF 15	VVVF 18	
R.R.	Max Output Torque	Geared Efficiency						Max Output Torque	Geared Efficiency				
[i]	[Nm]							[Nm]					
1/55	1950	0,70	0,71	--	--	--	--	1850	0,69	0,71	--	--	--
1/43	2250	0,73	0,74	0,75	--	--	--	2150	0,72	0,74	0,75	--	--
1/35	2150	0,76	0,77	0,78	0,79	--	--	2150	0,74	0,76	0,78	0,79	--
2/53	1850	0,81	0,82	0,83	0,84	0,85	--	1750	0,80	0,81	0,83	0,84	0,85
2/43	1950	0,81	0,82	0,83	0,84	0,85	0,86	1750	0,80	0,81	0,83	0,84	0,85
3/41	1850	0,83	0,85	0,86	0,87	0,88	0,89	1900	0,82	0,84	0,85	0,87	0,88

Rated load values listed in the table include the weight of the ropes.

To know the theoretical load, subtract the weight of the ropes.

Position Of The Geared = Top Counterweight = 50% Plant efficiency = 0,80

50Hz						60Hz					
VVVF 1000 rpm 6 Poles AC2 1000/375 rpm 6/16 Poles						VVVF 1200 rpm 6 Poles AC2 1200/450 rpm 6/16 Poles					
Motor Output [kW] Asynchronous											
	AC2 5,1	AC2 6	VVVF/AC2 7,5	VVVF 9	VVVF 11		AC2 5,5	AC2 6,7	VVVF/AC2 8,2	VVVF 10	VVVF 12
Speed syn.	Max Rated Load					Speed syn.	Max Rated Load				
[m/s]	[kg]	[kg]	[kg]	[kg]	[kg]	[m/s]	[kg]	[kg]		[kg]	[kg]
0,43	1250	--	--	--	--	0,51	1145	1250	--	--	--
0,50	1115	1250	--	--	--	0,59	990	1230	1250	--	--
0,53	1035	1240	1250	--	--	0,64	920	1145	1250	--	--
0,55	1050	1250	--	--	--	0,66	935	1165	1250	--	--
0,57	965	1155	1165	--	--	0,69	860	1065	1165	--	--
0,62	890	1065	1075	--	--	0,74	790	985	1075	--	--
0,63	910	1090	1250	--	--	0,76	810	1005	1250	--	--
0,67	830	990	1000	--	--	0,80	735	915	1000	--	--
0,67	885	1065	1250	--	--	0,81	790	980	1225	1250	--
0,68	845	1010	1250	--	--	0,82	750	935	1165	1250	--
0,73	785	945	1200	1250	--	0,88	700	870	1085	1250	--
0,78	765	920	1170	1250	--	0,93	680	850	1060	1250	--
0,79	725	870	1105	1175	--	0,95	645	805	1005	1175	--
0,84	710	855	1085	1250	--	1,01	630	790	985	1215	1250
0,85	675	810	1030	1095	--	1,02	600	745	930	1095	--
0,89	670	805	1025	1245	1250	1,07	595	740	925	1145	1250
0,90	665	795	1015	1235	1250	1,08	590	735	915	1135	1250
0,97	615	735	935	1140	1150	1,17	545	680	845	1050	1150
1,03	620	740	940	1145	1250	1,23	550	680	850	1050	1250
1,05	605	725	925	1070	--	1,26	535	670	835	1035	1070
1,10	580	695	885	1075	1250	1,32	515	640	795	985	1195
1,11	575	690	875	1065	1160	1,33	510	635	790	975	1160
1,19	535	640	815	990	1085	1,42	475	590	735	910	1085
1,27	500	600	765	930	1145	1,52	445	555	690	855	1035
1,28	510	615	780	945	1000	1,54	455	565	705	875	1000
1,36	480	580	735	890	1100	1,64	430	535	665	820	995
1,38	475	570	725	880	930	1,66	425	525	655	810	930
1,46	450	540	685	830	1030	1,75	400	500	620	765	930
1,58	415	495	630	770	950	1,90	370	460	570	710	860
1,70	385	460	585	715	880	2,05	345	425	530	655	795
1,72	370	440	560	680	840	2,07	325	405	505	625	755
1,99	320	380	485	590	730	2,39	280	350	435	540	655
2,15	295	355	450	545	675	2,57	260	325	405	500	605
2,30	275	330	420	510	630	2,76	245	305	380	465	565
2,49	255	305	385	470	580	2,99	225	280	350	430	525
2,68	235	285	360	435	540	3,22	210	260	325	400	485

50Hz						60Hz					
Motor Output [kW]											
AC2 5,1		AC2 6	VVF/AC2 7,5	VVF 9	VVF 11	AC2 5,5		AC2 6,7	VVF/AC2 8,2	VVF 10	VVF 12
Max Output Torque	Geared Efficiency					Max Output Torque	Geared Efficiency				
[Nm]						[Nm]					
2150	0,70	0,71	--	--	--	2150	0,69	0,70	0,72	--	--
2350	0,73	0,74	0,75	--	--	2350	0,72	0,74	0,75	0,76	--
2300	0,76	0,77	0,78	0,79	--	2300	0,75	0,76	0,78	0,79	0,80
2000	0,81	0,82	0,83	0,84	0,85	2000	0,79	0,81	0,82	0,83	0,84
2250	0,81	0,82	0,83	0,84	0,85	2250	0,79	0,81	0,83	0,84	0,85
2000	0,83	0,85	0,86	0,87	0,88	2000	0,83	0,84	0,86	0,87	0,88

50Hz										
VVVF 1500 rpm 4 Poles AC2 1500/375 rpm 4/16 Poles										
Asynchronous Rated Power [kW]										
		VVVF 7,5	VVVF 9	VVVF 11	VVVF 13,5	VVVF 16,5	VVVF 20	AC2 7,5	AC2 9	AC2 11
Motor Parameters										
Rated Voltage (star connection) ^{(1) (3)}	[V]	400	400	400	400	400	400	400	400	400
Frequency	[Hz]	50	50	50	50	50	50	50	50	50
Synchronous Speed	[rpm]	1500	1500	1500	1500	1500	1500	1500/375	1500/375	1500/375
Asynchronous Speed	[rpm]	1467	1471	1470	1475	1478	1480	1370/300	1370/300	1370/300
Rated Current ⁽²⁾	[A]	16	19	22	28	35	42	22/13	25/15	29/17
Rated Torque	[Nm]	49	58	72	89	107	129	52	63	77
Cos φ Power Factor	[]	0,79	0,8	0,81	0,78	0,83	0,74	0,76	0,75	0,75
Starting Current	[A]	66	87	94	169	235	280	72	102	125
Starting Torque	[Nm]	60	80	86	136	238	257	125/78	150/93	183/114
Duty Cycle	[%]	60	60	60	60	60	60	30+10	30+10	30+10
Starts per Hour	[s/h]	240	240	240	240	240	240	180	180	180
Insulation Class	[]	F	F	F	F	F	F	F	F	F
Degree of Protection IP	[]	IP21	IP21	IP21	IP21	IP21	IP21	IP21	IP21	IP21

(1) The motors are standard supplied with star connection (Y), the customer can arrange a delta connection (Δ).

(2) The indicated current values are related to 400V voltage. For current values with delta connection, multiply the values by 1,732.

(3) The standard supply voltage is suitable for 380-400V/220-230V power supplies.

The geared machine includes a fan, 1~220...240V, 50/60Hz, 0,7A.

Available on request 115V supply voltage.

The inertia value includes the high speed shaft, while the flywheel is excluded.

60Hz										
VVVF 1800 rpm 4 Poles AC2 1800/450 rpm 4/16 Poles										
Asynchronous Rated Power [kW]										
		VVVF 8,2	VVVF 10	VVVF 12	VVVF 15	VVVF 18	AC2 8,2	AC2 10	AC2 12	
Motor Parameters										
Rated Voltage (star connection) ^{(1) (3)}	[V]	400	400	400	400	400	400	400	400	400
Frequency	[Hz]	60	60	60	60	60	60	60	60	60
Synchronous Speed	[rpm]	1800	1800	1800	1800	1800	1800/450	1800/450	1800/450	1800/450
Asynchronous Speed	[rpm]	1760	1763	1765	1770	1774	1645/360	1645/360	1645/360	1645/360
Rated Current ⁽²⁾	[A]	17	21	24	31	40	22/13	25/15	29/17	
Rated Torque	[Nm]	44	54	65	81	97	48	58	70	
Cos φ Power Factor	[]	0,79	0,8	0,81	0,82	0,83	0,76	0,74	0,75	
Starting Current	[A]	--	--	--	--	--	72	102	125	
Starting Torque	[Nm]	--	--	--	--	--	--	--	--	
Duty Cycle	[%]	60	60	60	60	60	30+10	30+10	30+10	
Starts per Hour	[s/h]	240	240	240	240	240	180	180	180	
Insulation Class	[]	F	F	F	F	F	F	F	F	
Degree of Protection IP	[]	IP21	IP21	IP21	IP21	IP21	IP21	IP21	IP21	

(1) The motors are standard supplied with star connection (Y), the customer can arrange a delta connection (Δ).

(2) The indicated current values are related to 400V voltage. For current values with delta connection, multiply the values by 1,732.

(3) The standard supply voltage is suitable for 380-400V/220-230V power supplies.

The geared machine includes a fan, 1~220...240V, 50/60Hz, 0,7A.

Available on request 115V supply voltage.

The inertia value includes the high speed shaft, while the flywheel is excluded.

50Hz

VVVF 1000 rpm 6 Poles
AC2 1000/375 rpm 6/16 Poles

Asynchronous Rated Power [kW]

VVVF 7,5	VVVF 9	VVVF 11	AC2 5,1	AC2 6	AC2 7,5
Motor Parameters					
400	400	400	400	400	400
50	50	50	50	50	50
1000	1000	1000	1000/375	1000/375	1000/375
987	986	989	910/300	910/300	910/300
17	22	31	17	21	24
72	87	106	54	63	79
0,72	0,68	0,6	--	--	--
73	78	85	73	80	89
108	145	189	131	150	183
60	60	60	30+10	30+10	30+10
240	240	240	180	180	180
F	F	F	F	F	F
IP21	IP21	IP21	IP21	IP21	IP21

60Hz

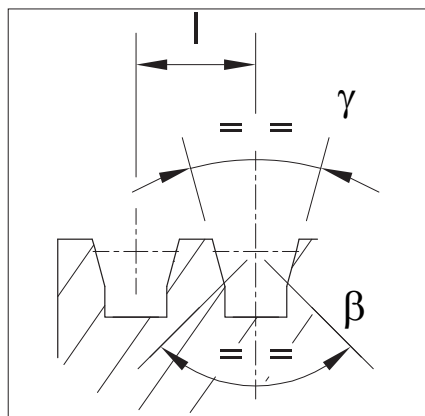
VVVF 1200 rpm 6 Poles
AC2 1200/450 rpm 6/16 Poles

Asynchronous Rated Power [kW]

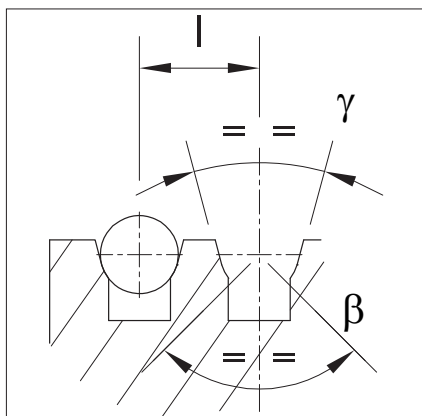
VVVF 8,2	VVVF 10	VVVF 12	AC2 5,5	AC2 6,7	AC2 8,2
Motor Parameters					
400	400	400	400	400	400
60	60	60	60	60	60
1200	1200	1200	1200/450	1200/450	1200/450
1185	1186	1187	1090/360	1090/360	1090/360
18,5	23,3	32,5	22	25	27
67	80,5	97	48	59	72
0,72	0,71	0,62	--	--	--
150	197	263	74	79	90
132	176,3	238	115	142	165
60	60	60	30+10	30+10	30+10
240	240	240	180	180	180
F	F	F	F	F	F
IP21	IP21	IP21	IP21	IP21	IP21



Wrapping System	Traction sheave		Max n° Grooves x D	Grooves Pitch
	D [mm]	E [mm]	n° x mm	l [mm]
CSW	450	115	7xD8	14
	450	115	6xD9	17
	450	115	6xD10	17
	450	115	6xD11	17
	520	115	7xD8	14
	520	115	6xD9	17
	520	115	6xD10	17
	520	115	6xD11	17
	520	115	5xD12	19
	520	115	5xD13	19
	560	115	7xD8	14
	560	115	6xD9	17
	560	115	6xD10	17
	560	115	6xD11	17
	560	115	5xD12	19
	560	115	5xD13	19
	560	115	4xD14	22
	600	115	7xD8	14
	600	115	6xD9	17
	600	115	6xD10	17
	600	115	6xD11	17
	600	115	5xD12	19
	600	115	5xD13	19
	600	115	4xD14	22
	600	115	4xD15	22
	650	115	7xD8	14
	650	115	6xD9	17
	650	115	6xD10	17
	650	115	6xD11	17
	650	115	5xD12	19
	650	115	5xD13	19
	650	115	4xD14	22
	650	115	4xD15	22
	650	115	4xD16	22
	700	115	7xD8	14
	700	115	6xD9	17
	700	115	6xD10	17
	700	115	6xD11	17
	700	115	5xD12	19
	700	115	5xD13	19
	700	115	4xD14	22
	700	115	4xD15	22
	700	115	4xD16	22



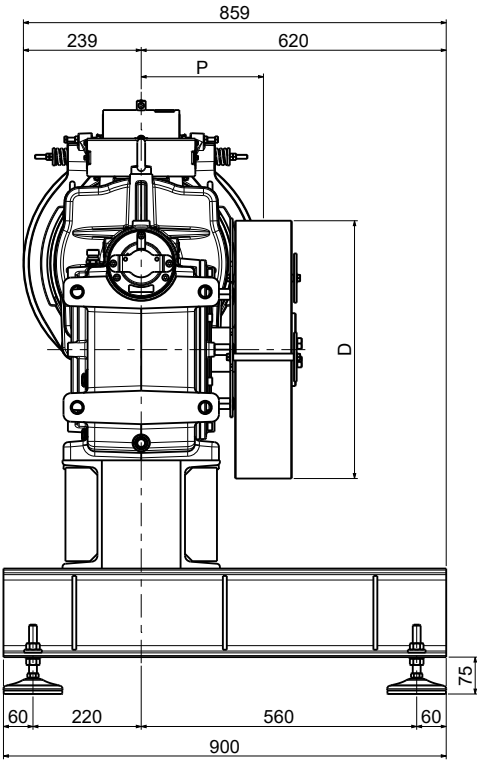
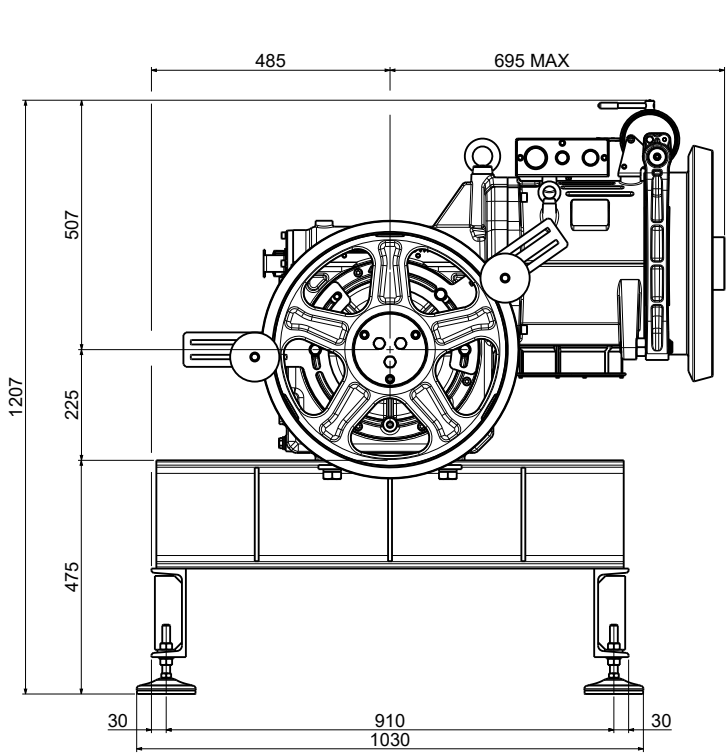
V grooves with undercut



U grooves with undercut

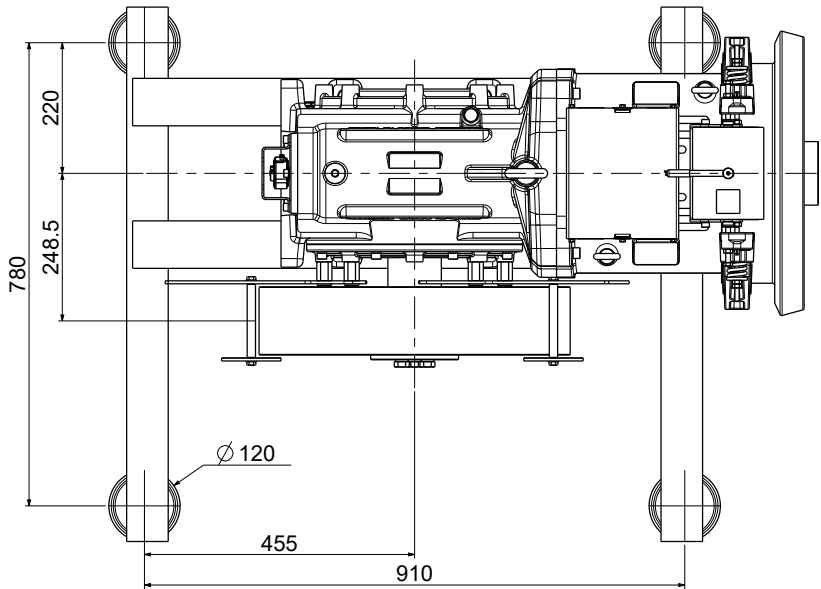
γ = groove angle
 β = Undercut angle

BEDPLATE SH160 | TOP MACHINE WITHOUT DIVERTING PULLEY FOR CSW WRAPPING

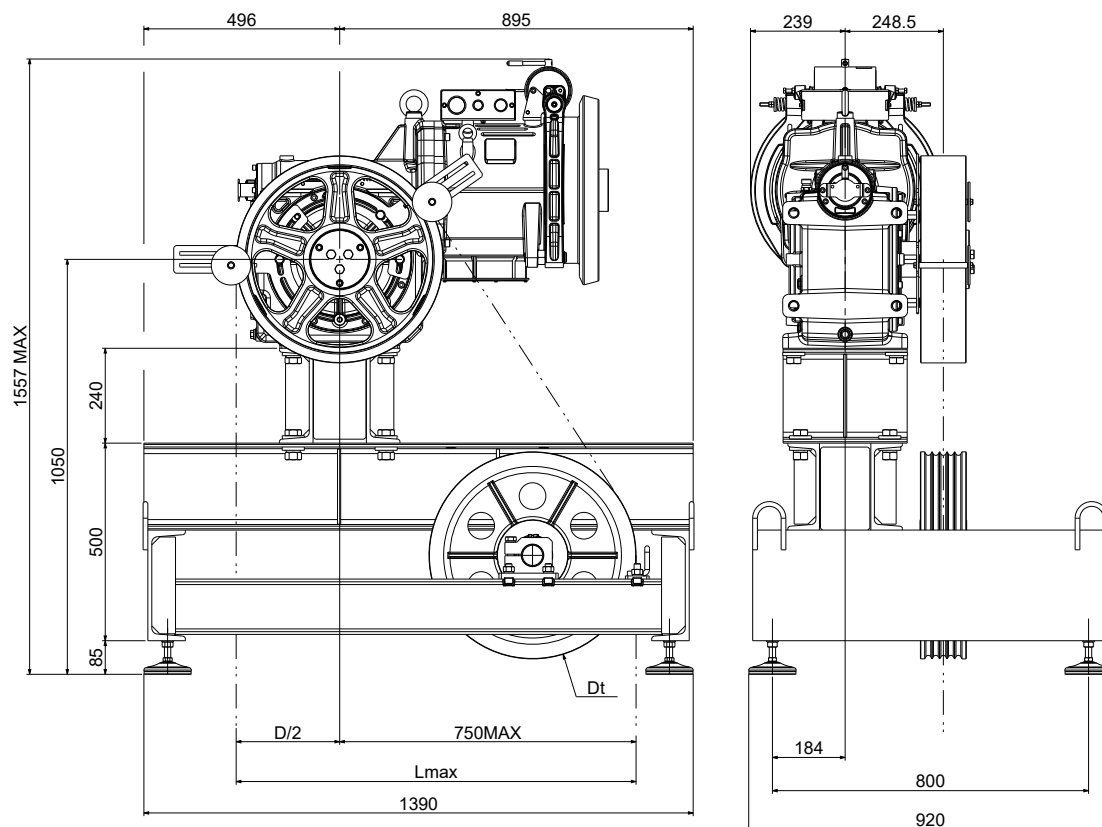


XTE1039 (D 450-700) (vibration dampers included)
Weight of machine bedplate: 108 kg (bedplate + vibration dampers)

VIBRATIONS DAMPER SET UP



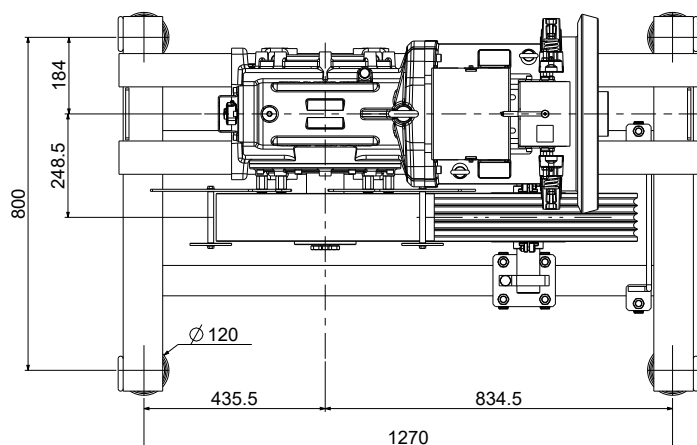
Damper code	Dimension
	[mm]
TAI0111	D.120x32



XTE1362 (Dt 400-450-520) (vibration dampers included)

Weight of machine bedplate: 293 kg. (bedplate + diverting pulley + vibration dampers)

VIBRATIONS DAMPER SET UP

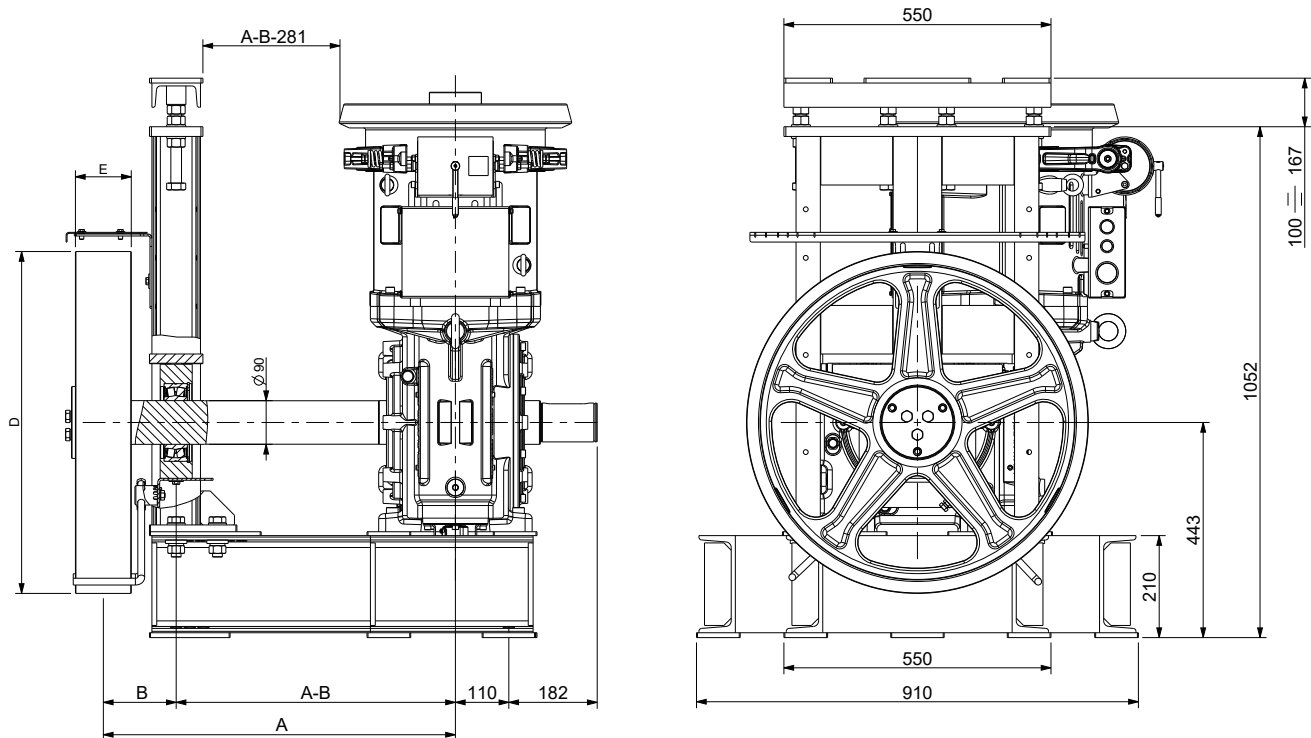
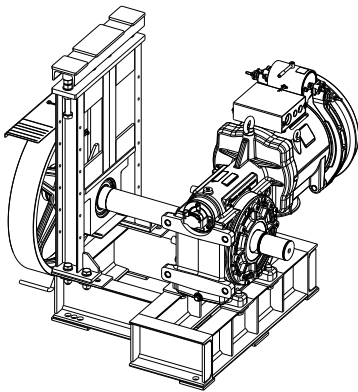


Traction Sheave	X	L max
D [mm]	[mm]	[mm]
450	270	975
520	235	1010
560	215	1030
600	195	1050
650	170	1075
700	145	1100
600	80	1000

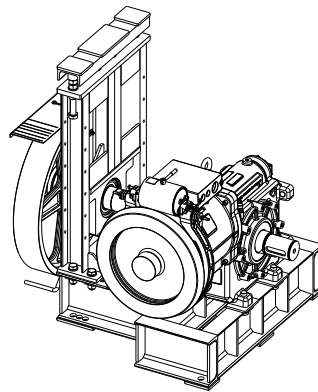
Damper code	Dimension
	[mm]
TAI0111	D.120x32

BEDPLATE SH160 LS | BOTTOM DRIVE MACHINE WITH CSW WRAPPING

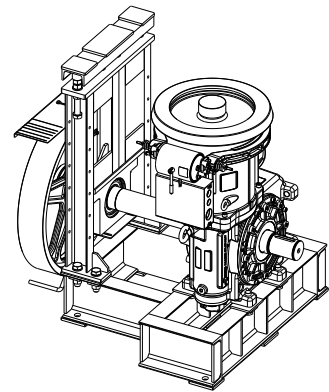
(Ropes upwards)

**INSTALLATION POSITION**

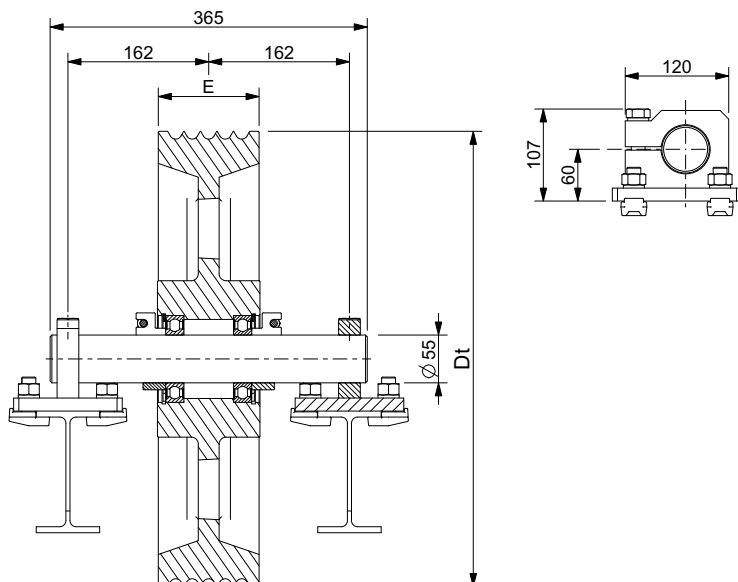
Right hand Machine



Left hand Machine



Vertical Machine

DIVERTING PULLEYS AND GROOVES NUMBER x ROPES DIAMETER

Diverting Pulley		Max n° Grooves x D	Grooves Pitch
Dt [mm]	E [mm]	n° x mm	l [mm]
400	116	7xD8	14
		6xD9	17
450	116	6xD10	17
		6xD11	17
520	116	5xD12	19
		5xD13	19