Technical specification- Distibution transformer- EAPC

	REQUIRED				
	Parameter	**Value #TR-1**	**Value #TR-2**	**Value #TR-3**	**Unit**
1	**Principle voltage ratio**				
1.1	Number of phases	3	3	3	
1.2	Total quntity	1	2	1	
1.3	U nom primary side (HV side)	6.6	33	6.6	KV
1.4	U max HV side	8.2	36	7.2	KV
1.5	Rated secondary side (LV side)	0.4	0.4	0.4	KV
1.6	Voltage variation	±5	±5	±5	%
1.7	Tapping range	33±2x2.5%	33±2x2.5%	22±2x2.5%	
1.8	Connection group	Dyn11	Dyn11	Dyn11	
1.9	Frequency variation	47-52	47-52	47-52	
1.10	Winding material (LV side & HV side)	COPPER	COPPER	COPPER	
2	**Insulation level**	According IEC 60076-3:2013	According IEC 60076-3:2013	According IEC 60076-3:2013	KV
2.1	**HV-side**				KV
2.1.1	Lighting impulse-Li(BiL)	60	170	75	
2.1.2	Power frequency-AV	20	70	20	KV
2.2	**LV-side**				
2.2.1	Li/AV	3	3	3	KV
3	**Cooling type**				
3.1	ONAN				Oil natural Air natural
4	**Insulation material**	upgraded paper(110°c)	upgraded paper(110°c)	upgraded paper(110°c)	according to standard IEC60076-2
4.1	Radiator type	core grated	core grated	core grated	
5	**Oil preservation**	CRGO	CRGO	CRGO	
5.1	Oil type	Ergon HVOLT 3	Ergon HVOLT 3	Ergon HVOLT 3	Inhibited type (not synthetic or silicon type)
5.2	Oil temperature rise	55°c	55°c	55°c	Class of temp - E (120°C), Correction temperature factor k-5
5.3	winding temperature rise	60°c	60°c	60°c	
6	**Bushing**				
6.1	HV-side type	porcelain	porcelain	porcelain	
6.2	LV-side type	porcelain	porcelain	porcelain	
6.3	The HV and LV side shall be installed with inlet prottecion cover for anti-accediental IP-55. the final diemations will delivered affter aeard				
7	**Tap changer**				
7.1	De-energized	off load	off load	off load	
7.2	Connection type	linear	linear	linear	
7.3	The tap changer shall include practical handle at the cover position				
7.4	The tap changer shall be at HV side				
7.5	Number of taps	+2 upper, -2 lower	+2 upper, -2 lower	+2 upper, -2 lower	
8	**Accessories**				

**	The transformer shell design for full vacuum and seal type				
**	the transformer shell include integrated safety detector as follows:				
8.1	Type: DGPT-2	REQUIRED	NOT REQUIRED	REQUIRED	
8.1.1	Manufacturer: comem (preferred)				
8.1.2	Functions description:				
8.1.2.1	Pressure switch				0.2-0.9 bar
8.1.2.2	Oil level				
8.1.3	Temperature thermostat switch:				
8.1.3.1	T2- Alarm				30-120c̊
8.1.3.2	T1- Trip				30-120c̊
8.1.4	Degree of protection				IP66
8.1.5	UV-ray resistance according to ISO 4892 / 4582				
8.2	Tank type				sealed type
8.2.1	The dimenations tank base eill deliverd after a eard				
8.3	Accessories				
8.3.1	The transformer shall include the following items				
8.3.2	The transformer shall include PRV (pressure relief valve)				On cover tank side
8.4	Conservator	NOT REQUIRED	REQUIRED	NOT REQUIRED	
8.4.1	The conservator shall be connected at the high point (above the HV bushings) of the transformer				
8.4.2	The conservator shall include the following parts:				
8.4.3	Oil level indicator with 4-20mA contacts for tripping				
8.4.4	Breather's valve at the upper side of the conservator				
8.4.5	Drainage valve at the bottom side of the conservator				
8.4.6	The conservator shall be design for full vacuum				
8.4.7	All the connection be flange connection				
8.4.8	Breather				
8.4.9	The transformer should include air breather at the conservator side				
8.4.10	The air breather shall include silica gal type:				the chemical composition:SiO2
8.4.11	the silica gal shall be compatible for using at transformer's air dehydrators				
8.4.12	The silica gal shall be with cobalt free				
8.4.13	Color type orange/white				
8.4.14	All the connection shall by includes flange valve type				
8.4.15	Accessories				
8.4.16	The transformer shall include the following items				
8.4.17	Drainage valve at the opposite side of the conservator side / (the final connection side shall be at the design stage)				
8.4.18	The transformer shall include PRV (pressure relief valve)				
8.4.19	The transformer tank shall be with lighting protiction system at HV side				
8.5	Painting				
8.5.1	The coating shell be complying with marine environment				classified C5-M by ISO 12944-5
8.5.2	Top layers shall be RAL 7038				
8.5.3	A Duplex system- hot deep galvanized and painted				
8.5.4	Galvanizing shall be according to "ASTM-A 153:3003 Std spec. for zinc coating (Hot Dip) io iron and steel"				

8.5.5	The matal shall be suitable for galvanizing				
8.5.6	Surface prepartion according to galvanizer's procedures				
8.5.7	zinc thicknee	75 microns(minimum)	75 microns(minimum)	75 microns(minimum)	
8.5.8	Surface prepartion for painting (without passivation)				
8.5.9	Primer (Coating for coonection)	70 microns(minimum)	70 microns(minimum)	70 microns(minimum)	Total 230 microns(minimum)
8.5.10	Painting EPOXY	100 microns(minimum)	100 microns(minimum)	100 microns(minimum)	
8.5.11	Cover Paint PE ressisting	60 microns(minimum)	60 microns(minimum)	60 microns(minimum)	
9	**Electrical data**				
9.1	Number of phases	2 winding 3 phases	2 winding 3 phases	2 winding 3 phases	
9.2	Rated power	400	630	1000	KVA
9.3	No-load losses up to	0.9	0.9	1.5	KW ±10% tolerances
9.4	Load losses at 75c up to	5	5.4	8	KW ±10% tolerances
9.5	Rated current HV	35	11	87.5	A
9.6	Rated current LV	577.4	910	1443.4	A
9.7	Short circuit current LV	13	21.5	24.66	KA
9.8	Short circuit impedance	4.44	4.26	5.86	±7.5% tolerances
9.9	Short circuit duration	2	2	2	sec
10	**Please indicate the**				
10.1	rated R/X ratio	based at R/X =14	based at R/X =14	based at R/X =14	
10.2	Dynamics current	2.5Isc (53.5kA)	2.5Isc (53.5kA)	2.5Isc (53.5kA)	
10.3	Efficiency at full load				
10.3.1	At cosφ=1				MIN 99
10.3.2	At cosφ=0.8				MAX 98.75
11	**Tests**				
11.1	All the tests shall be according to IEC 60076-3: update version				
11.2	Li (1.2/50ηsec)	60	170	75	KV
11.3	AV (60sec)	20	70	20	KV
11.4	Resistance				HV
11.5	Resistance				LV
11.6	Insulation resistance HV at 40c				c
11.7	Insulation resistance HV at 20c				c
11.8	Voltage ratio at principal tap				
11.9	All the accessories shall include type test report and will send us for initial acceptance review				
11.10	Tan δ				
11.11	Polarity test (IP)				
11.12	Magnetude curve				
11.13	winding resistance test at the SAT plant				The SAT in Eilat
**	After receiving the order EAPC will send the diemantions of the transformer				
**	The manufacturer's offer will include a Type tested of an equivalent transformer's				
		#TR-1	**#TR-2**	**#TR-3**	**Total for all ransformer**
	price for 1 transformer				
	Total price				