

Technical data

Pos. No.		01	02	03
Type		TNOSPA 30/20	TNOSPA 50/20	TNOSPA 100/20
SSTL CODE		57 632 02	57 632 04	57 632 06
Rated power	kVA	30	50	100
Rated voltage (no load)	HV/LV V/V	20500/410	20500/410	20500/410
Regulation	%	±2x2,5	±2x2,5	±2x2,5
Vector group		Dyn11	Dyn11	Dyn11
No load losses P _o (at rated voltage) tol. acc. to IEC	W	100	125	210
Load losses P _k (at rated power and 75°C) tol. acc. to IEC	W	750	1100	1750
Rated impedance voltage U _k (in nominal-pos. and 75°C)	%	4	4	4
Frequency	Hz	50	50	50
No load current , tol. 30%	%	0,7	0,45	0,45
Mode of operation		Continuous	Continuous	Continuous
Type of cooling		ONAN	ONAN	ONAN
Rise of temperatures	K	60/65	60/65	60/65
Insulation class		A	A	A
Maximum altitude	m	1000	1000	1000
Maximum ambient temperature	°C	40	40	40
Protection class		IP 00	IP 00	IP 00
Weight of oil	kg	88	107	128
Length L(A1)	mm	780	850	890
Width B(B1)	mm	675	695	715
Height H(H1)	mm	1015	1075	1115
Girder distance	mm	420	420	520
Total weight (approx.)	kg	320	413	538
Material of windings HV/LV		Cu/Al	Al/Al	Al/Al

Technical data

Pos. No.		04	05	06
Type		TNOSRA 160/20	TNOSRA 200/20	TNOSRA 200/10/20
SSTL CODE		57 632 08	57 632 10	NN
Rated power	kVA	160	200	200
Rated voltage (no load)	HV/LV V/V	20500/410	20500/410	10250-20500/410
Regulation	%	±2x2,5	±2x2,5	±2x2,5
Vector group		Dyn11	Dyn11	Dyn11
No load losses P _o (at rated voltage) tol. acc. to IEC	W	300	360	360
Load losses P _k (at rated power and 75°C) tol. acc. to IEC	W	2350	2850	2850
Rated impedance voltage U _k (in nominal-pos. and 75°C)	%	4	4	4
Frequency	Hz	50	50	50
No load current, tol. 30%	%	0,24	0,25	0,25
Mode of operation		Continuous	Continuous	Continuous
Type of cooling		ONAN	ONAN	ONAN
Rise of temperatures	K	60/65	60/65	60/65
Insulation class		A	A	A
Maximum altitude	m	1000	1000	1000
Maximum ambient temperature	°C	40	40	40
Protection class		IP 00	IP 00	IP 00
Weight of oil	kg	186	190	231
Length L(A1)	mm	950	1110	1000
Width B(B1)	mm	660	640	785
Height H(H1)	mm	1245	1320	1320
Girder distance	mm	520	520	520
Total weight (approx.)	kg	734	800	880
Material of windings HV/LV		Al/Al	Al/Al	Al/Al

Technical data

Pos. No.		07	08	09
Type		TNOSRA 315/20	TNOSRA 315/10/20	TNOSRA 400/20
SSTL CODE		57 632 12	57 631 12	57 632 14
Rated power	kVA	315	315	400
Rated voltage (no load)	HV/LV V/V	20500/410	10250-20500/410	20500/410
Regulation	%	±2x2,5	±2x2,5	±2x2,5
Vector group		Dyn11	Dyn11	Dyn11
No load losses P _o (at rated voltage) tol. acc. to IEC	W	500	500	610
Load losses P _k (at rated power and 75°C) tol. acc. to IEC	W	3900	3900	4600
Rated impedance voltage U _k (in nominal-pos. and 75°C)	%	4	4	4
Frequency	Hz	50	50	50
No load current, tol. 30%	%	0,22	0,22	0,21
Mode of operation		Continuous	Continuous	Continuous
Type of cooling		ONAN	ONAN	ONAN
Rise of temperatures	K	60/65	60/65	60/65
Insulation class		A	A	A
Maximum altitude	m	1000	1000	1000
Maximum ambient temperature	°C	40	40	40
Protection class		IP 00	IP 00	IP 00
Weight of oil	kg	245	265	281
Length L(A1)	mm	1090	1070	1150
Width B(B1)	mm	860	860	880
Height H(H1)	mm	1440	1440	1460
Roller distance	mm	670	670	670
Total weight (approx.)	kg	1060	1140	1240
Material of windings HV/LV		Al/Al	Al/Al	Al/Al

Technical data

Pos. No.		10	11	12	13	
Type		TNOSRA 500/20	TNOSRA 500/10/20	TNOSRA 630/20	TNOSRA 630/10/20	
SSTL CODE		57 632 16	57 631 16	57 632 18	57 631 18	
Rated power	kVA	500	500	630	630	
Rated voltage (no load)	HV/LV	V/V	20500/410	10250-20500/410	20500/410	10250-20500/410
Regulation	%	±2x2,5	±2x2,5	±2x2,5	±2x2,5	
Vector group		Dyn11	Dyn11	Dyn11	Dyn11	
No load losses P _o (at rated voltage) tol. acc. to IEC	W	720	720	860	860	
Load losses P _k (at rated power and 75°C) tol. acc. to IEC	W	5500	5500	6500	6500	
Rated impedance voltage U _k (in nominal-pos. and 75°C)	%	4	4	4	4	
Frequency	Hz	50	50	50	50	
No load current, tol. 30%	%	0,21	0,21	0,22	0,20	
Mode of operation		Continuous	Continuous	Continuous	Continuous	
Type of cooling		ONAN	ONAN	ONAN	ONAN	
Rise of temperatures	K	60/65	60/65	60/65	60/65	
Insulation class		A	A	A	A	
Maximum altitude	m	1000	1000	1000	1000	
Maximum ambient temperature	°C	40	40	40	40	
Protection class		IP 00	IP00	IP 00	IP 00	
Weight of oil	kg	325	360	346	386	
Length L(A1)	mm	1190	1240	1380	1400	
Width B(B1)	mm	880	900	920	940	
Height H(H1)	mm	1540	1540	1560	1580	
Roller distance	mm	670	670	670	670	
Total weight (approx.)	kg	1430	1540	1610	1710	
Material of windings HV/LV		Al/Al	Al/Al	Al/Al	Al/Al	

Technical data

Pos. No.		14	15	16	17
Type		TNOSRA 800/20	TNOSRA 800/10/20	TNOSRA 1000/20	TNOSRA 1000/10/20
SSTL CODE		57 632 20	57 631 20	57 632 22	57 631 22
Rated power	kVA	800	800	1000	1000
Rated voltage (no load)	HV/LV V/V	20500/410	10250-20500/410	20500/410	10250-20500/410
Regulation	%	±2x2,5	±2x2,5	±2x2,5	±2x2,5
Vector group		Dyn11	Dyn11	Dyn11	Dyn11
No load losses P _o (at rated voltage) tol. acc. to IEC	W	930	930	1100	1100
Load losses P _k (at rated power and tol. acc. to IEC	W	8400	8400	10500	10500
Rated impedance voltage U _k	%	5	5	6	6
Frequency	Hz	50	50	50	50
No load current, tol. 30%	%	0,17	0,17	0,18	0,18
Mode of operation		Continuous	Continuous	Continuous	Continuous
Type of cooling		ONAN	ONAN	ONAN	ONAN
Rise of temperatures	K	60/65	60/65	60/65	60/65
Insulation class		A	A	A	A
Maximum altitude	m	1000	1000	1000	1000
Maximum ambient temperature	°C	40	40	40	40
Protection class		IP 00	IP 00	IP00	IP 00
Weight of oil	kg	401	445	510	544
Length L(A1)	mm	1590	1600	1610	1640
Width B(B1)	mm	920	920	980	1000
Height H(H1)	mm	1560	1620	1720	1740
Roller distance	mm	670	670	820	820
Total weight (approx.)	kg	1920	2030	2430	2500
Material of windings HV/LV		Al/Al	Al/Al	Al/Al	Al/Al

Technical data

Pos. No.		18	19	20
Type		TNOSNA 1250/20	TNOSNA 1250/20/10	TNOSNA 1600/20
SSTL CODE		57 632 24	57 631 24	57 632 26
Rated power	kVA	1250	1250	1600
Rated voltage (no load)	HV/LV V/V	20500/410	10250-20500/410	20500/410
Regulation	%	±2x2,5	±2x2,5	±2x2,5
Vector group		Dyn11	Dyn11	Dyn11
No load losses P _o (at rated voltage) tol. acc. to IEC	W	1350	1350	1700
Load losses P _k (at rated power and 75°C) tol. acc. to IEC	W	13500	13500	17000
Rated impedance voltage U _k (in nominal-pos. and 75°C)	%	6	6	6
Frequency	Hz	50	50	50
No load current, tol. 30%	%	0,27	0,19	0,55
Mode of operation		Continuous	Continuous	Continuous
Type of cooling		ONAN	ONAN	ONAN
Rise of temperatures	K	60/65	60/65	60/65
Insulation class		A	A	A
Maximum altitude	m	1000	1000	1000
Maximum ambient temperature	°C	40	40	40
Protection class		IP 00	IP 00	IP 00
Weight of oil	kg	601	635	720
Length L(A1)	mm	1710	1770	1780
Width B(B1)	mm	1140	1160	1140
Height H(H1)	mm	1740	1760	1940
Roller distance	mm	820	820	820
Total weight (approx.)	kg	2880	2970	3280
Material of windings HV/LV		Al/Al	Al/Al	Al/Al

Technical data

Pos. No.		21	22	23
Type		TNOSNA 2000/20	TNOSNA 2500/20	TNOSNA 3150/20
SSTL CODE		57 632 28	57 632 30	57 632 32
Rated power	kVA	2000	2500	3150
Rated voltage (no load)	HV/LV V/V	20500/410	20500/410	20500/410
Regulation	%	±2x2,5	±2x2,5	±2x2,5
Vector group		Dyn11	Dyn11	Dyn11
No load losses P ₀ (at rated voltage) tol. acc. to IEC	W	2100	2350	2850
Load losses P _k (at rated power and 75°C) tol. acc. to IEC	W	21000	26500	33000
Rated impedance voltage U _k (in nominal-pos. and 75°C)	%	6	6	6
Frequency	Hz	50	50	50
No load current, tol. 30%	%	0,60	0,36	0,26
Mode of operation		Continuous	Continuous	Continuous
Type of cooling		ONAN	ONAN	ONAN
Rise of temperatures	K	60/65	60/65	60/65
Insulation class		A	A	A
Maximum altitude	m	1000	1000	1000
Maximum ambient temperature	°C	40	40	40
Protection class		IP 00	IP 00	IP 00
Weight of oil	kg	870	1015	2337
Length L(A1)	mm	1890	2100	3420
Width B(B1)	mm	1280	1360	1400
Height H(H1)	mm	2080	2080	2580
Roller distance	mm	182	1070	1070
Total weight (approx.)	kg	4000	4800	7300
Material of windings HV/LV		Al/Al	Al/Al	Al/Al

Technical data

Pos. No.		24	25	26	27
Type		TNOSPA 30/20	TNOSPA 50/20	TNOSPA 100/20	TNOSRA 200/20
SSTL CODE		NN	NN	NN	NN
Rated power	kVA	30	50	100	200
Rated voltage (no load)	HV/LV	V/V 20500/410	20500/410	20500/410	20500/410
Regulation	%	±2x2,5	±2x2,5	±2x2,5	±2x2,5
Vector group		Dyn11	Dyn11	Dyn11	Dyn11
No load losses P _o (at rated voltage) tol. acc. to IEC	W	100	125	210	360
Load losses P _k (at rated power and 75°C) tol. acc. to IEC	W	750	1100	1750	2850
Rated impedance voltage U _k (in nominal-pos. and 75°C)	%	4	4	4	4
Frequency	Hz	50	50	50	50
No load current , tol. 30%	%	0,6	0,35	0,33	0,24
Mode of operation		Continuous	Continuous	Continuous	Continuous
Type of cooling		KNAN	KNAN	KNAN	KNAN
Rise of temperatures	K	60/65	60/65	60/65	60/65
Insulation class		A	A	A	A
Maximum altitude	m	1000	1000	1000	1000
Maximum ambient temperature	°C	40	40	40	40
Protection class		IP 00	IP 00	IP 00	IP 00
Weight of oil	kg	96	116	140	210
Length L(A1)	mm	780	850	890	1250
Width B(B1)	mm	675	695	715	620
Height H(H1)	mm	1015	1075	1115	1380
Girder distance	mm	420	420	520	520
Total weight (approx.)	kg	328	422	553	860
Material of windings HV/LV		Cu/Al	Al/Al	Al/Al	Al/Al

Technical data

Pos. No.		28	29
Type		TNOSPA 30/1	TNOSPA 50/1
SSTL CODE		NN	NN
Rated power	kVA	30	50
Rated voltage (no load)	HV/LV V/V	1000/410	1000/410
Regulation	%	±2x2,5	±2x2,5
Vector group		Dyn11	Dyn11
No load losses P _o (at rated voltage) tol. acc. to IEC	W	105	130
Load losses P _k (at rated power and 75°C) tol. acc. to IEC	W	700	1050
Rated impedance voltage U _k (in nominal-pos. and 75°C)	%	4	4
Frequency	Hz	50	50
Mode of operation		Continuous	Continuous
Type of cooling		ONAN	ONAN
Rise of temperatures	K	60/65	60/65
Insulation class		A	A
Maximum altitude	m	1000	1000
Maximum ambient temperature	°C	40	40
Protection class		IP 00	IP 00
Weight of oil	kg	90	100
Length L(A1)	mm	780	790
Width B(B1)	mm	680	680
Height H(H1)	mm	1040	1100
Girder distance	mm	420	520
Total weight (approx.)	kg	310	380
Material of windings HV/LV		Al/Al	Al/Al

Technical data

Pos. No.			30
Type		T3NOSPA	100/20/1
SSTL CODE			NN
Rated power		kVA	100
Rated voltage (no load)	HV/LV	V/V	20000/1000/400
Regulation		%	±2x2,5
Vector group			Dyn11yn11
No load losses P _o (at rated voltage) tol. acc. to IEC		W	320
Load losses P _k (at rated power and 75°C) tol. acc. to IEC		W	1750
Rated impedance voltage U _k at 20/1 kV and 66,66kVA		%	4,2
Rated impedance voltage U _k at 20/0,4 kV and 33,33kVA		%	3,5
Frequency		Hz	50
Mode of operation			Continuous
Type of cooling			ONAN
Rise of temperatures		K	60/65
Insulation class			A
Maximum altitude		m	1000
Maximum ambient temperature		°C	40
Protection class			IP 00
Weight of oil		kg	220
Length L(A1)		mm	1100
Width B(B1)		mm	680
Height H(H1)		mm	1220
Girder distance		mm	420
Total weight (approx.)		kg	640
Material of windings HV/LV			Al/Al

Technical data

Pos. No.			31
Type			T3NOSPA 150/20/1
SSTL CODE			NN
Rated power		kVA	150
Rated voltage (no load)	HV/LV	V/V	20000/1000/400
Regulation		%	±2x2,5
Vector group			Dyn11yn11
No load losses P _o (at rated voltage) tol. acc. to IEC		W	350
Load losses P _k (at rated power and 75°C) tol. acc. to IEC		W	2350
Rated impedance voltage U _k at 20/1 kV and 100kVA		%	4,2
Rated impedance voltage U _k at 20/0,4 kV and 50kVA		%	3,3
Frequency		Hz	50
Mode of operation			Continuous
Type of cooling			ONAN
Rise of temperatures		K	60/65
Insulation class			A
Maximum altitude		m	1000
Maximum ambient temperature		°C	40
Protection class			IP 00
Weight of oil		kg	270
Length L(A1)		mm	1150
Width B(B1)		mm	740
Height H(H1)		mm	1300
Roller distance		mm	420
Total weight (approx.)		kg	810
Material of windings HV/LV			Al/Al

Common accessories :

Pos.No.	01-06,28-29	07-22	23	24-27	30	31
3 HV porcelain bushings	YES	YES	YES	YES	YES	YES
3HV Elastimold plugs	NO	NO	NO	NO	NO	NO
4 LV porcelain bushings	YES	YES	YES	YES	YES	YES
Clamps for LV bushings	NO	YES	YES	NO	NO	NO
Arc horns	YES	NO	NO	YES	YES	YES
Oil level indicator	YES	YES	YES	YES	YES	YES
Surge arresters mounting possibility	YES	YES	YES	YES	YES	YES
Pole mounting support	YES	NO	NO	YES	YES	NO
4 Bi-directional wheels	NO	YES	YES	NO	NO	YES
2 lifting lugs	YES	YES	YES	YES	YES	YES
1 Draining valve DIN A22	YES	YES	YES	YES	YES	YES
Overpressure valve	YES	YES	YES	YES	YES	YES
Thermometer pocket	NO	YES	YES	NO	NO	NO
Additional thermometer pocket	NO	YES	YES	NO	NO	NO
Thermometer with two contacts	NO	NO	NO	NO	NO	NO
Air dryer	NO	NO	YES	NO	NO	NO
Buchholz relay	NO	NO	YES	NO	NO	NO
Conservator	NO	NO	YES	NO	NO	NO
Bartec box	NO	NO	YES	NO	NO	NO
Mineral inhibited oil	YES	YES	YES	NO	YES	YES
Midel oil	NO	NO	NO	YES	NO	NO
Painting RAL7033 / Hot-dip galvanizing	NO/YES	YES/NO	YES/NO	NO/YES	YES/YES	YES/YES