

INDUCTION DYNAMOMETERS OF THE SERIES ASD

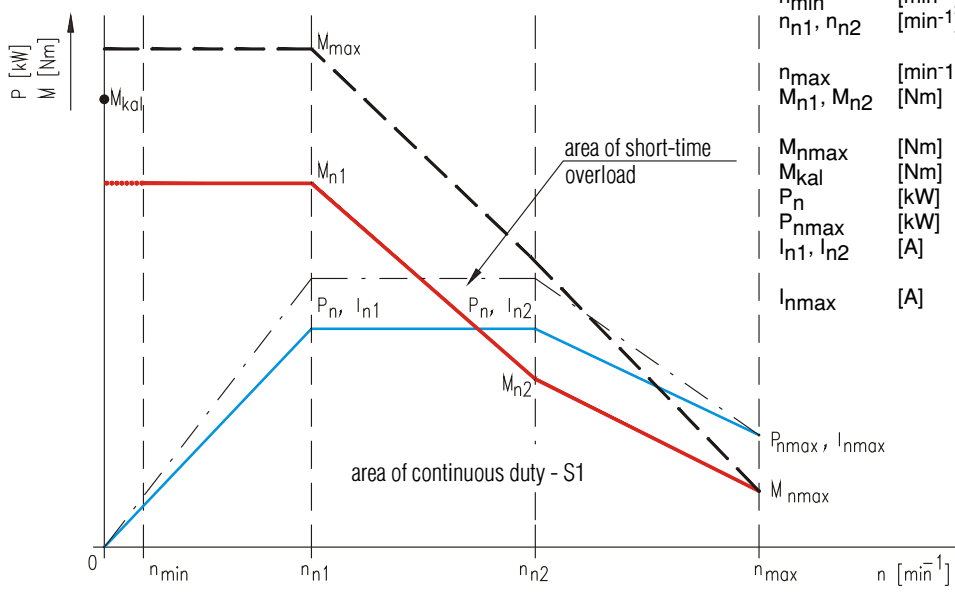
Induction dynamometers of ASD series are intended for the measurement of mechanical power on the shaft of the tested machine and for the generation of controlled braking and driving torque. They enable loading and driving of the rotating machine being tested (electric machine, internal combustion engine, etc.). Dynamometers of ASD series provide for the four-quadrant operation, i.e. they can brake and drive the tested machine in both senses of rotation. In the dynamometers of higher power outputs the braking energy is fed back to the mains by means of the regenerative unit of the static frequency converter, in the dynamometers with power outputs up to 10 kW the braking electrical energy is converted to heat in the braking resistor.



Small moment of inertia, wide range of operating speed and operation with low demands on maintenance belong to advantages of the dynamometers of ASD series.

VUES Brno s.r.o. delivers, according to the requirements of the customer, also complete test stands with induction dynamometers for testing laboratories for the measurement of electric rotating machines, gear boxes, hand tools and other equipment. In addition to the loading drive with the dynamometer these stands include also measuring system with transducers and multifunction system measuring instruments, control part, PC set and application software. Basic software includes always the measuring part for data collection and evaluation with a possibility of the test report printing. By request of the customer we can also deliver extended customer versions of application software.

Torque-speed and power characteristics of induction dynamometer



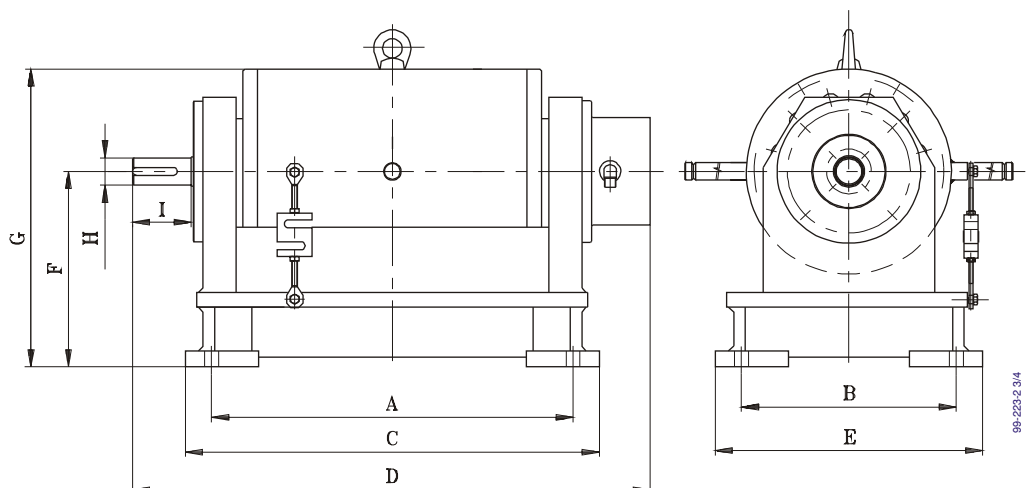
Symbols used in the diagram:

n_{min}	[min ⁻¹]	- minimum operating speed
n_{n1}, n_{n2}	[min ⁻¹]	- rated speed at working points 1 and 2
n_{max}	[min ⁻¹]	- maximum speed
M_{n1}, M_{n2}	[Nm]	- rated torque at working points 1 and 2
M_{nmax}	[Nm]	- torque at maximum speed
M_{kal}	[Nm]	- calibration torque
P_n	[kW]	- rated power output
P_{nmax}	[kW]	- power output at maximum speed
I_{n1}, I_{n2}	[A]	- rated current at working points 1 and 2
I_{nmax}	[A]	- current at maximum speed

TYPE ASD				1100-2	2000-2-12	2000-2-30	2000-2-40	3000-2	3000-4	5K-4V	5K-4	6000	6.3K-4
PARAMETERS OF THE DYNAMOMETER	Rated power output	P_n	kW	1,1	2,0	2,0	2,0	3,0	3,0	5,0	5,0	6,0	6,3
	Power output at maximum speed	P_{nmax}	kW	1,1	2,0	1,5	0,9	3,0	3,0	1,3	4,0	6,0	3,0
	Rated torque	M_{n1}	Nm	0,148	1,6	1,6	1,6	10,0	9,5	31,9	32,0	19,2	40
	Rated torque	M_{n2}	Nm	0,131	1,6	0,96	0,96	1,95	4,77	11,9	12,0	5,7	20
	Torque at maximum speed	M_{nmax}	Nm	0,131	1,6	0,48	0,21	1,95	4,77	1,0	7,6	5,7	4,1
	Maximum torque	M_{max}	Nm	0,2	3,0			15,0	15,0	45,0	45,0	30,0	70
	Calibration torque	M_{kal}	Nm	0,150	1,8			12,5	10,0	35,0	30,0	25,0	50
	Rated speed	n_{n1}	min^{-1}	70 000	12 000			2 865	3 000	1 500	1 500	3 000	1 500
	Rated speed	n_{n2}	min^{-1}	80 000	-	20 000	20 000	14 500	6 000	4 000	4 000	10 000	3 000
	Maximum speed	n_{nmax}	min^{-1}	80 000	12 000	30 000	40 000	14 500	6 000	12 000	5 000	10 000	7 000
	Minimum operating speed	n_{min}	min^{-1}	100	100			100	50	100	100	100	50
	No-load current	I_o	A	1,69	2,28			4,3	2,5	5,5	4,4	5,9	6,5
	Rated current	I_{n1}	A	2,39	4,21			9	5,3	11,93	9,6	17	12,7
	Rated voltage	U_{n1}	V	350	340			260	380	275	350	240	350
	Rated voltage	U_{n2}	V	350	340			360	380	380	460	360	380
	Rated frequency	f_{n1}	Hz	1 146	194,1	194,1	194,1	50	95,7	48,8	48,8	48,7	48,9
	Rated frequency	f_{n2}	Hz	1 310	-	325	325	70	-	131	131,2	-	98
Maximum frequency	f_{nmax}	Hz	1 310	194,1	484,7	646,3	250	191	399	164,5	164,4	231	
$\cos \phi$	-	-	0,553	0,726			0,876	0,81	0,774	0,751	0,84	0,73	
TECHNICAL DATA	Calibration arm	L_C	m	0,153			0,2549	0,2549	1,0197	0,5098	0,5098	0,5098	0,5098
	Calibration mass	m_{KAL}	kg	1,2			2	4	3,5	6	5	10	
	Sensors of winding temperature			PTC			PTC	KTY84	KTY84	KTY84	PTC	KTY84	
	Temperature sensor rear bearing (AS)			Pt100			Pt100	-	-	Pt100	Pt100	-	Pt100
	Temperature sensor front bearing (BS)			Pt100			Pt100	-	-	Pt100	Pt100	-	Pt100
	Moment of inertia	J	kgm^2	0,0000	0,0003			0,0028	0,0028	0,0314	0,0766	0,08	0,081
	Colour of dynamometer			RAL5014			RAL5014	RAL5014	RAL5014	RAL5014	RAL5014	RAL5014	RAL9006
	Mass	m	kg	26			102	102	270	138	160	161	
	Speed sensor type			RE3616	ROD426	ERO1421	RE 3616	ROD426	ROD426	ROD426	ROD426	ROD426	ROD426
	- pulse number			sin/cos	1024	512	sin/cos	750	1024	1024	1024	1024	1024
	Force sensor type			MB5			MB10	SM25	SM50	SM50	SM100	SM100	SM100
	-rated force	F_N	N	22			111	111	222	222	445	445	445
	Coupling type			Rexnord	KTR	Rexnord	Rexnord	Rexnord	Rexnord	Rexnord	KTR	Rexnord KTR	
	MECHANICAL DIMENSIONS	A		mm	INFO	228			330			370	
B			120			220			220				
C			258			384			424				
D			318			530			530		588		
E			150			274			274				
F			145			200			200				
G			211			305			305				
H			14			28			28				
I			30			60			60				

DIMENSIONS OF INDUCTION DYNAMOMETER

a) ASD 2000 to ASD 10K

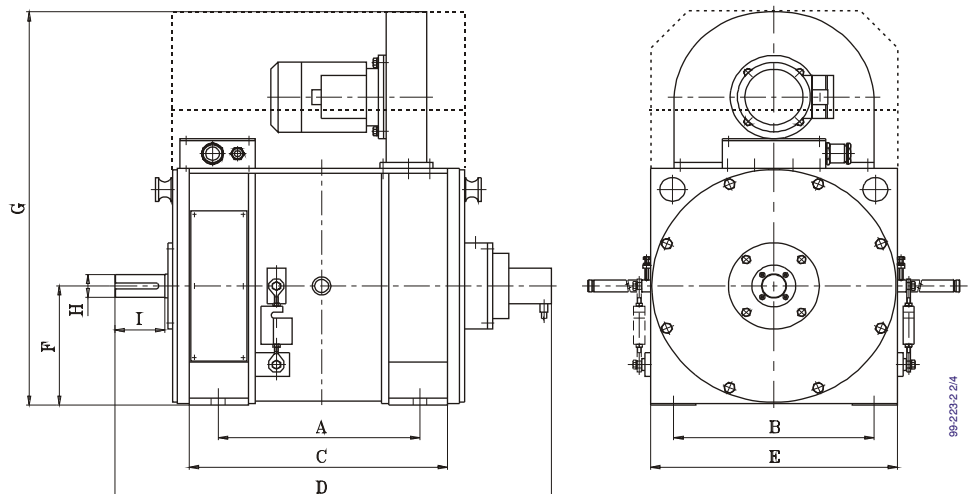


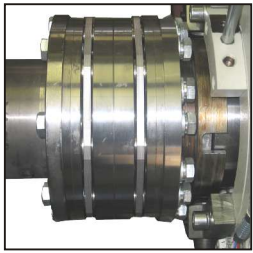
TYPE ASD				10K-2	15K	42K-4V/200	50K-4	145K-4	200K-4	220K-4	440K-4	500K-4	800K-4
PARAMETERS OF THE DYNAMOMETER	Rated power output	P_n	kW	10	15	42	50	145	200	220	400	500	800
	Power output at maximum speed	P_{nmax}	kW	10	6	20	25	100	110	150	350	320	750
	Rated torque	M_{n1}	Nm	12,7	93	200	311	923	1 275	934	1860	3 182	5 500
	Rated torque	M_{n2}	Nm	9,5	47,8	114	159	346	529	467	849	1 326	2 729
	Torque at maximum speed	M_{nmax}	Nm	9,5	9,5	9	40	191	175	239	557	509	1 791
	Maximum torque	M_{max}	Nm	15	150	200	450	1300	1 800	1 400	2500	4 500	6 870
	Calibration torque	M_{kal}	Nm	15	100	200	300	1000	1 500	1000	2000	3 500	6 000
	Rated speed	n_{n1}	min^{-1}	7 500	1 540	2 000	1 530	1 500	1 500	2 250	2 050	1 500	1 390
	Rated speed	n_{n2}	min^{-1}	16 000	3 000	2 500	4 000	4 000	3 600	4 500	4 500	3 600	2 800
	Maximum speed	n_{max}	min^{-1}	16 000	6 000	6 000	6 000	5 000	6 000	6 000	6 000	6 000	4 000
	Minimum operating speed	n_{min}	min^{-1}	100	50	50	50	50	50	50	50	50	50
	No-load current	I_o	A	8,1	11,6	25,2	32,88	67	153	135	241	378	415
	Rated current	I_{n1}	A	20,1	27,1	81,7	86,2	185	363	375	680	845	985
	Rated voltage	U_{n1}	V	360	360	360	360	500	370	380	380	400	540
	Rated voltage	U_{n2}	V	-	360	-	360	500	400	380	400	400	600
	Rated frequency	f_{n1}	Hz	127	50	68,2	50	49,2	49,3	74,2	67,8	49,5	45,9
	Rated frequency	f_{n2}	Hz	-	100	-	100	131	118	148,3	148,3	118,8	92,5
Maximum frequency	f_{nmax}	Hz	272	195	204,6	200	164,4	198,4	198,4	198	198,6	132,1	
$\cos \phi$	-	-	0,859	0,794	0,896	0,860	0,860	0,82	0,86	0,865	0,82	0,85	
TECHNICAL DATA	Calibration arm	L_C	m	0,2549	0,5099	1,0197	1,0197	1,0197	1,0197	1,0197	1,0197	1,0197	1,0197
	Calibration mass	m_{KAL}	kg	6	20	20	30	100	150	100	200	350	600
	Sensors of winding temperature			PTC	KTY84	KTY84	KTY84	KTY84	KTY84	KTY84	KTY84	KTY84	KTY84
	Temperature sensor rear bearing (AS)			Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100
	Temperature sensor front bearing (BS)			Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100	Pt100
	Moment of inertia	J	kgm^2	0,0075	0,0766	0,2626	0,4289	1,1	1,9	1,8	3,1165	7,66	16,82
	Colour of dynamometer			RAL5014	RAL5014	RAL5002	RAL5014	RAL5014	RAL7032	RAL7032	RAL7032	RAL7032	RAL7032
	Mass	m	kg	102	235	285	450	1225	1820	1180	2080	2715	4100
	Speed sensor type			ERO1421	ROD426	ROD426	ROD426	ROD426	ROD426	ROD426	ROD426	GEL243	ROD426
	- pulse number			512	1024	1024	1024	1024	2048	720	720	512	720
	Force sensor type			SM25	SM250	SM250	SM500	Z6GC3	Z6GC3	Z6GC3	Z6GC3	3410C3	3420-G
	-rated force	F_N	N	111	1112	1112	2224	5000	5000	5000	10000	20000	4500
	Coupling type			Rexnord	KTR	KTR	KTR	Rexnord	Rexnord	Rexnord	Rexnord	Rexnord	Rexnord
MECHANICAL DIMENSIONS	A		mm	370	312	INFO VERTICAL VERSION	420	700	790	700	890	1100	1230
	B			300	320		440	510	610	510	610	686	750
	C			410	403		514	852	992	852	1092	1302	1460
	D			458	708		806	1033	1234	1060	1336	1551	1760
	E			340	480		506	6300	740	630	740	820	880
	F			200	200		250	315	355	315	355	400	450
	G			305	660		766	1000	1130	1005	1130	1220	1350
	H			32	38		48	60	65	60	65	85	95
	I			28	80		110	52	60	52	60	70	85

DIMENSIONS OF INDUCTION DYNAMOMETER

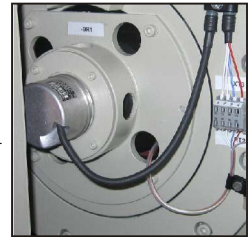
b) ASD 15 K, ASD 50 K

c) ASD 145K to ASD 800K including the upper cover





**COUPLING
REXNORD**



SPEED SENSOR



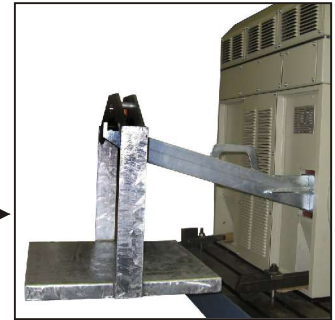
ASD 200K-4



FORCE SENSOR



LOCKING



**CALIBRATION ARMS
AND PANS FOR WEIGHTS**

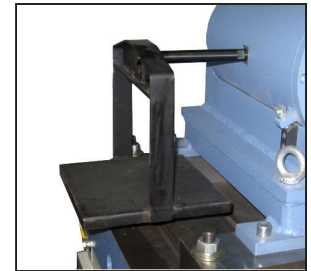
ASD 200K-4

ASD 10K-2

COUPLING KTR



**CALIBRATION ARMS
AND PANS FOR WEIGHTS**

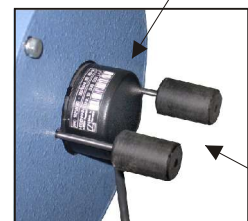


FORCE SENSOR



ASD 10K-2

SPEED SENSOR



LOCKING