SMARANGE RADIAL PISTON MOTORS





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ABOUT US

Rotary Power specialises in the design, development and manufacture of hydraulic motors and pumps.

With a history dating back over 50 years, we understand the exacting and demanding requirements of today's hydraulic applications.

Operating from 18,000 sq. m. of purpose built manufacturing facilities in the UK and India, we continue to invest in the latest CNC machinery, automation and testing facilities. We have a clear focus on continuous improvement in lean cellular manufacturing. These facilities, alongside our European and US operations, offer sales, service and production support for the entire product range. A worldwide network of distribution partnerships provide additional support.

OUR BUSINESS

We recognise the importance of developing partnerships with our customers. That's why we offer flexibility in design, delivery and service to meet our customers' requirements.

Partnerships with our supply chain are key to our success and allow us to deliver superior service in order to exceed expectations.

OUR PEOPLE

People are at the centre of everything we do. As an innovative engineering and manufacturing business, we take recruitment and career development very seriously.

As part of the British Engines Group, we operate a training and development programme that maintains a strong focus on in-house manufacturing and a commitment to local employment. Our apprenticeship and graduate schemes provide the opportunity to develop and nurture engineering talent from an early stage.

OUR FUTURE

Whether in product design or internal processes and systems, our engineers are actively encouraged to develop new ideas within design and manufacturing. This ensures that we are at the forefront of our customer and sector led innovation, whilst continuously improving our business

Our team of in-house design engineers invest time into understanding our customers' application and work with them to deliver value added solutions, customised to their application.

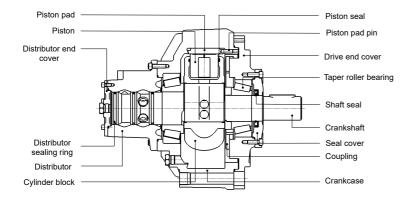
Rotary Power SMA 122175 (02) 09/21 1 **Rotary Power SMA** 122175 (02) 09/21 1

The SMA heavy duty motor is of radial piston, eccentric shaft configuration. The motor's efficient design includes a hardened, high tensile, steel crankshaft supported on taper roller bearings. The eccentric element of the crankshaft acts as a hydrodynamic bearing to support the cylinder block and pistons to provide low friction running. The SMA motor range offers displacements from 200 - 16,400 cc/rev.

Motors within this range can withstand both high mechanical and hydraulic shock loads, offering excellent life and continuous high power use. The speed and power ratings are significantly higher than standard high torque low speed (HTLS) motors.

The SMA motor has a range of features and options designed to suit a number of specific applications:

- High pressure
- High power
- High speed
- Fixed displacements
- Robust
- Free wheel capability
- Fluid versatility
- 350 bar continuous pressure



ROTATING CASE OPTION

For types E1, E1 high power and B1, the SMA motor can be built in rotating case form by incorporating a crankshaft, which is designed to be used as the motor mounting point. Hydraulic fluid is supplied directly to the internal galleries, therefore eliminating the need for a distributor.

MULTIPLE DISPLACEMENT OPTION

For C2 type motors, multiple displacement is achieved via an integrated pilot operated selector valve, mounted on/in the distributor housing.

The activation of the selector valve discretely changes the internal displacement of the motor, changing the speed and available output torque. The valve ensures that the pressurised areas of the motor remain primed with hydraulic fluid, allowing displacement to be changed whilst the motor is turning under load.

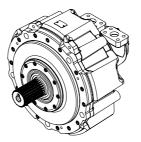
FREE-WHEEL ABILITY

Only hydraulic system pressure retains the pistons against their respective pads. Therefore, if the motor is isolated from the rest of the system, the pistons are free to retract. This allows the cylinder block to orbit without pumping fluid and consequently providing negligible resistance to rotation.

Piston retraction is achieved by pressurising the motor case. Drive is re-engaged by opening the hydraulic supply to the motor and returning the pistons to their normal working position against their respective pads. During this process the large hydrostatic bearing surface has a dampening effect which prevents harsh contact between each piston and its pad.

CONFIGURATIONS

HEAVY DUTY MOBILE, MARINE AND INDUSTRIAL DRIVES

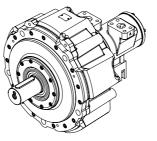


ROTATING SHAFT C1 MOTOR

Can operate up to pressures of 490 bar and may experience external loading.

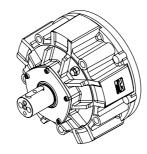
ROTATING SHAFT C1 HIGH POWER MOTOR

Can operate up to pressures of 490 bar and may experience external loading and higher than standard running speeds.



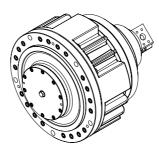
ROTATING SHAFT C2 (DUAL DISPLACEMENT) MOTOR

Can operate up to pressures of 490 bar and may experience external loading. Used in applications which require a wide speed range from limited pump flows.



ROTATING CASE B1 MOTOR

Can operate up to pressures of 490 bar and may experience external loading. This motor often forms an integral part of the machine structure. High running speeds with minimal out of balance forces.



ROTATING CASE E1 MOTOR

Can operate up to pressures of 490 bar and may experience very high external loading. This motor often forms an integral part of the machine structure.

ROTATING CASE E1 HIGH POWER MOTOR

Can operate up to pressures of 490 bar and may feature very high external loading. Motor often forms an integral part of the machine structure. High running speeds with minimal out of balance forces.

Fluid type	HL;HLP to DIN 51524 For alternatives please contact Rotary Power.
Minimum/maximum viscosity	15 - 1000 cSt
Optimum viscosity	20 - 200 cSt
Minimum/maximum operating temperature	-20° to +90 °C [-4° to 194°F]
Optimum operating temperature	50 °C [122°F]
Fluid cleanliness	ISO code 18/13 or better/NAS 1638 class 9
Filtration	B25 ratio 75 or better for simple closed loop systems

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MOTOR ORDER CODE

		SMA N/A
PRODU	СТ	
01	SMA	
NOMINA	AL DISPLACEME	NT .
02	0200	
	0350	
	0500	
	0750	
	1000	
	etc. (see	relevant data table)
TYPE		
03	В	Rotating case single shaft
	С	Rotating single shaft
	E	Rotating case flange mount
TYPE - C	OTHER	
04	1	Single
	2	Dual
REFERE	NCE	
05	Sequenti	al reference number determined by Rotary Power according to motor build specification*

REFERENCE

PRODUCT DISPLACEMENT

OPTIONS

A number of special features can be applied to the SMA motor. Please contact us for individual application requirements.

OUTPUT SHAFTS

- Male keyed and splined shafts to special, metric, imperial and SAE standards
- Female plain, keyed and splined shafts to metric, imperial and SAE standards for flange, shrink disc and through bolt mounting

CASE MOUNTING

- Non-standard spigot for mounting
- Re-profiled casings for installation clearance

PERFORMANCE

- High power
- Uni-directional consistency

SEALS

- Seal material options
- High pressure shaft seal
- Mechanical shaft seal (for type E1 motors)
- Back to back shaft seal
- · Lip seal and dirt excluder
- · Stainless steel shaft sleeve

PORT BLOCKS FOR E1 MOTORS

An integral port block is fitted for motors with displacement up to 750 cm³. For motor capabilities 750 cm³ and above, the base motor is supplied with plain ports for use with a customer supplied port block. Further options are as follows:

- Tapped ports in crankshaft face
- Standard port block with SAE ports
- High flow port block with SAE ports

OTHER

- Special porting
- Mechanical, proximity, induction and d.c. generator speed sensing
- Special paint and corrosion inhibition

SERVICE

All service activities should be carried out by Rotary Power or an approved source. A full factory service is available for general overhaul including hydraulic testing to confirm motor performance. Shaft seals may wear and require periodic replacement. Seal kits are available and it is recommended that a suitable stock level is held.

Motors returned for factory overhaul should be cleaned externally and drained of fluids. Transport plugs should be fitted to all ports as soon as the machine pipe work has been removed and before the motor is dismounted. All ancillary equipment should be removed where possible and the unit should be clearly labelled, stating the sender address and details.

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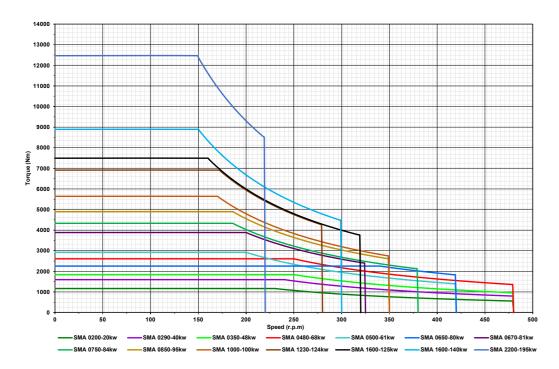
^{*}Individual motor specification including shaft type, seals, valves and other options will be established at the time of ordering when the build reference number is issued.

POWER ENVELOPES

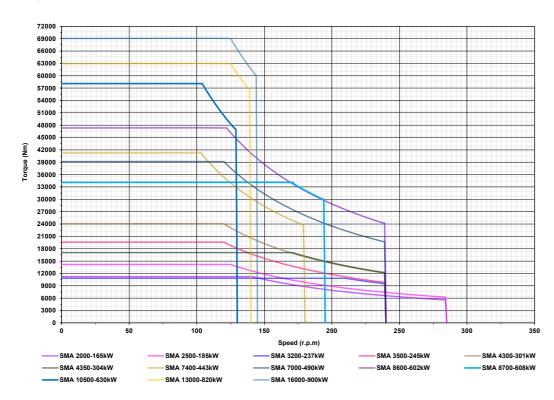
The below power capabilities should be read in conjunction with the technical data charts for each motor type.

These charts are based on maximum continuous values for C1 standard and high power motors. Other types may vary.

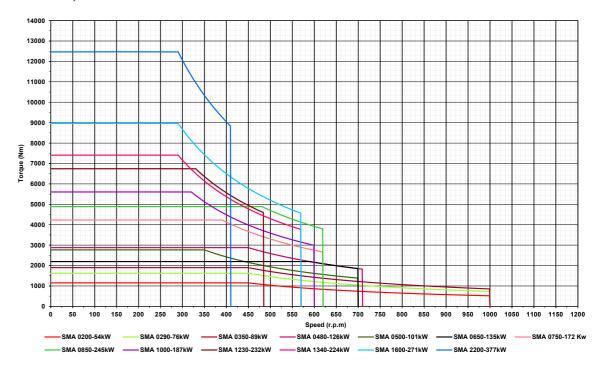
SMA 0200 - 2,200 STANDARD C1



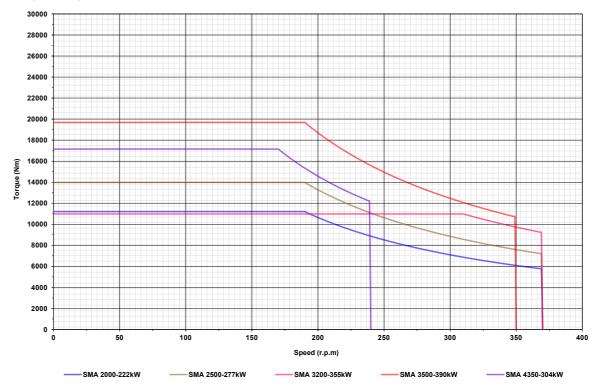
SMA 2,000 - 16,000 STANDARD C1



SMA 0200 - 2,200 HIGH POWER C1



SMA 2,000 - 4,800 HIGH POWER C1



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CALCULATIONS

Torque (Nm) =	bar x disp. (cc) x ηm	Torque (in. lbs) =	psi x disp. (in³)
	20π		6.28

Flow (lpm) =
$$\frac{\text{rpm x disp. (cc)}}{(1,000 \text{ x pv)}}$$
 Flow (gpm) = $\frac{\text{rpm x disp. (in}^3)}{231}$

Power (kW) =
$$\frac{\text{torque (Nm) x rpm}}{9,550}$$
 Fluid power (hp) = $\frac{\text{gpm x psi}}{1,714}$

Torque (Nm) =
$$\frac{\text{power (Kw) x 9,550}}{\text{rpm}}$$
 Torque (in. lbs) = $\frac{\text{hp x 63,025}}{\text{rpm}}$

Where:

 ηm = Mechanical efficiency ηv = Volumetric efficiency

For estimates of performance use:

 $\eta m = 0.95$ $\eta v = 0.95$

These can be assumed as typical values for 50% of maximum continuous speed and 275 bar pressure

Differential pressure = inlet pressure - outlet pressure

CONVERSIONS

 $Nm \rightarrow lbf.ft = x 0.7376$

 $N \rightarrow lbf = x 0.2248$

 $bar \rightarrow psi = x 14.5038$

 $cc \rightarrow in^3 = x \cdot 0.061$

 $lpm \rightarrow U.S. gpm = x 0.2641$

 $kW \rightarrow hp = x 1.341$

 $kg \rightarrow lb = x 2.2046$

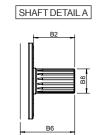
TECHNICAL DATA NOTES

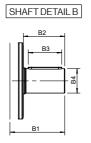
The notes below correspond with the numbered data in the following datasheets.

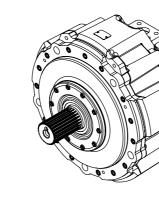
- 1. Intermittent values up to the maximum shown may occur for up to 10% of every minute as part of a known duty cycle, subject to approval.
- Whether or not the motor shaft is rotating, positive gauge pressure must be maintained at both main ports at all times
 whilst the motor is under load. Boost pressure should not be less than 7 bar above case pressure with a fluid viscosity
 of 30 cSt. When utilising higher viscosities, higher boost pressures will be required. For over-running conditions,
 please consult Rotary Power.
- 3. Case pressure should be kept to the minimum possible. Continuously high case pressure will adversely affect the life of the shaft seal system. Motor drain lines should be independently returned to the tank.
- 4. SMA motors will operate successfully on a wide variety of hydraulic fluids.
- 5. For very high or very low speed operation, fluid viscosity should be as high as possible within the optimum viscosity limits
- 6. Higher temperatures may be possible if required through the use of alternative seal materials, providing that fluid viscosity remains within the optimum range.
- 7. Please contact Rotary Power for a more detailed assessment of specific applications.
- 8. Weights and diameters shown are an approximation and depend on final specification supplied.

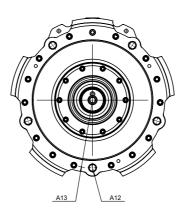
Rotary Power SMA 122175 (02) 09/21 9

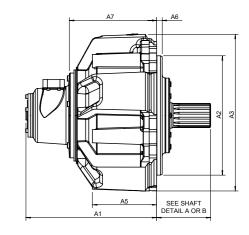
PERFORMANCE DATA SMA ROTATING SHAFT MOTOR TYPE C1STANDARD





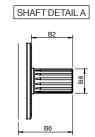


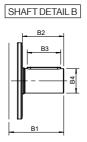


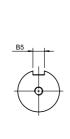


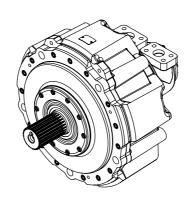
Nomina	al displacement (cc/rev) [in³]	200 [12.2]	290 [17.7]	350 [21.4]	480 [29.3]	500 [30.5]	650 [39.7]	750 [45.8]	850 [51.9]	1,000	1,230 [75]	1,340 [81.8]	1,600 [97.6]	2,000 [122]	2,200 [134.2]	2,500 [152.6]	3,200 [195.3]	3,500 [213.6]	4,350 [265.4]	7,000 [427]	7,400 [451.5]	8,700 [530.9]	8,800 [537]	10,500 [640.7]	13,000 [793.3]	16,000 [976.3]
	A1	315	315	315	315	335	335	394	394	394	394	449	449	507.5	449	507.5	507.5	602	602	761	601	761	601	601	708	708
		[12.4] ø250	[12.4] ø250	[12.4] ø250	[12.4] ø250	[13.19] ø280	[13.19] ø280	[15.51] ø315	[15.51] ø315	[15.51] ø315	[15.51] ø315	[17.68] ø400	[17.68] ø400	[19.98] ø450	[17.68] ø400	[19.98] ø450	[19.98] ø450	[23.70] ø560	[23.70] ø560	[29.96] ø560	[23.66] ø790	[29.96] ø560	[23.66] ø790	[23.66] ø790	[27.8] ø908	[27.8] ø908
	A2	[9.84]	[9.84]	[9.84]	[9.84]	[11.02]	[11.02]	[12.4]	[12.4]	[12.4]	[12.4]	[15.75]	[15.75]	[17.72]	[15.75]	[17.72]	[17.72]	[22.05]	[22.05]	[22.05]	[31.10]	[22.05]	[31.10]	[31.10]	[35.78]	[35.78]
	A3	ø345 [13.58]	ø345 [13.58]	ø345 [13.58]	ø345 [13.58]	ø370 [14.57]	ø370 [14.57]	ø436 [17.17]	ø436 [17.17]	ø436 [17.17]	ø434 [17:1]	ø545 [21.46]	ø545 [1.77]	ø583 [22.95]	ø545 [21.46]	ø583 [22.95]	ø583 [22.95]	ø695 [27.36]	ø695 [27.36]	ø700 [27.56]	ø900 [35.43]	ø700 [27.56]	ø900 [35.43]	ø900 [35.43]	ø1140 [44.92	ø1140 [44.92]
	A5	139 [5.47]	139 [5.47]	139 [5.47]	139	150 [5.91]	150 [5.91]	187.5 [7.38]	187.5 [7.38]	187.5 [7.38]	187.5 [7.38]	215 [8.46]	215 [8.46]	242.0 [9.53]	215 [8.46]	242.0 [9.53]	242.0 [9.53]	86 [3.39]	86 [3.39]	100 [3.94]	102 [4.02]	100 [3.94]	102 [4.02]	102 [4.02]	411 [16.19]	411 [16.19]
	A6	12	12	12	[5.47] 12	16	16	16	16	16	16	19	19	15	19	15	15	27	27	27	13	27	13	13	30	30
	AO	[0.47] 236.5	[0.47]	[0.47]	[0.47]	[0.63] 259.5	[0.63] 259.5	[0.63]	[0.63]	[0.63]	[0.63]	[0.75] 345	[0.75] 345	[0.59]	[0.75] 345	[0.59] 386	[0.59]	[1.06] 462	[1.06] 462	[1.06] 690	[0.51]	[1.06] 690	[0.51]	[0.51] 474	[1.18] 530	[1.18] 530
Ξ	A7	[9.31]	[9.31]	[9.31]	[9.31]	[10.22]	[10.22]	[12.15]	[12.15]	[12.15]	[10.36]	[13.58]	[13.58]	[15.2]	[13.58]	[15.2]	[15.2]	[18.19]	[18.19]	[27:17]	[18.66]	[27:17]	[18.66]	[18.66]	[20.88]	[20.88]
m m	A12 A13	ø24 M5	ø24 M5	ø24 M5	ø24 M5	ø22 M6	ø22 M6	ø24 M12	ø24 M12	ø24 M12	ø24 M12	ø22 M16	ø22 M16	ø24 M16	ø22 M16	ø24 M16	ø24 M16	ø26 M16	ø26 M16	ø22 M146	ø24	ø22 M16	ø24	ø24	ø26	ø26
nsin	Alo	122	122	122	122	154	154	156	156	156	155	181	181	184	181	184	184	225	225	225	305	225	305	305	-	-
nsio	В	[4.8]	[4.8]	[4.8]	[4.8]	[6.06]	[6.06]	[6.14]	[6.14]	[6.14]	[6.11]	[7:13]	[7:13]	[7.24]	[7:13]	[7.24]	[7.24]	[8.86]	[8.86]	[8.86]	[12.01]	[8.86]	[12.01]	[12.01]	-	-
Dime	B2	[3.23]	[3.23]	[3.23]	[3.23]	105 [4.13]	105 [4.13]	105 [4.13]	105 [4.13]	105 [4.13]	105 [4.13]	130 [5.12]	130 [5.12]	[5.91]	[5.12]	[5.91]	[5.91]	165 [6.5]	[6.5]	165 [6.5]	[8.66]	[6.5]	[8.66]	[8.66]	-	-
	B3	69	69	69	69	74	74	92	92	92	80	120	120	135	120	135	135	145	145	145	208	145	208	208	-	-
		[2.72] ø50	[2.72] ø50	[2.72] ø50	[2.72] ø50	[2.91] ø60	[2.91] ø60	[3.62] ø63	[3.62] ø63	[3.62] ø63	[3.15] ø63	[4.72] ø80	[4.72] ø80	[5.31] ø95	[4.72] ø80	[5.31] ø95	[5.31] ø95	[5.71] ø110	[5.71] ø110	[5.71] ø110	[8.19] ø160	[5.71] ø110	[8.19] ø160	[8.19] ø160	-	-
	84	[1.97]	[1.97]	[1.97]	[1.97]	[2.36]	[2.36]	[2.48]	[2.48]	[2.48]	[2.48]	[3.15]	[3.15]	[3.74]	[3.15]	[3.74]	[3.74]	[4.33]	[4.33]	[4.33]	[6.30]	[4.33]	[6.30]	[6.30]	-	-
	B5	16 [0.63]	[0.63]	[0.63]	16 [0.63]	[0.71]	[0.71]	[0.71]	[0.71]	18 [0.71]	[0.71]	[0.87]	[0.87]	[0.98]	[0.87]	[0.98]	[0.98]	[1.10]	[1.10]	[1.10]	40 [1.57]	[1.10]	40 [1.57]	40 [1.57]	-	-
	86	122	122	122	122	154	154	156	156	156	155	181	181	184	181	184	184	225	225	223	305	223	305	305	-	-
		[4.80] 63	[4.80] 63	[4.80] 63	[4.80] 63	[6.06] 85	[6.06] 85	[6.14] 80	[6.14] 80	[6.14] 80	[6.11] 80	[7.13] 105	[7:13] 105	[7.24] 100	[7.13] 105	[7.24] 100	[7.24] 100	[8.86]	[8.86]	[8.78]	[12.01] 180	[8.78]	[12.01] 180	[12.01]	-	-
	B7	[2.48]	[2.48]	[2.48]	[2.48]	[3.35]	[3.35]	[3.15]	[3.15]	[3.15]	[3:15]	[4.13]	[4.13]	[3.94]	[4.13]	[3.94]	[3.94]	[5.51]	[5.51]	[5.12]	[7.09]	[5.12]	[7.09]	[7.09]	-	-
	B8	19t 10/20	19t 10/20	19t 10/20	19t 10/20	18t 8/16	18t 8/16	19t 8/16	19t 8/16	19t 8/16	19t 8/16	24t 8/16	24t 8/16	28t 8/16	24t 8/16	28t 8/16	28t 8/16	25t 6/12	25t 6/12	26t 6/12	41t 6/12	26t 6/12	41t 6/12	41t 6/12	-	-
Geome	tric displacement (cc/rev) [in³]	208 [12.7]	289.5 [17.7]	339.5 [20.7]	480 [29.2]	502.5 [30.6]	663 [40.5]	756.5 [46.2]	856.5 [52.3]	996 [60.8]	1,233.5 [75.3]	1,343 [81.9]	1,602.5 [97.8]	2,003 [122.2]	2,227.5 [135.9]	2,507 [153]	3,215 [196.2]	3,504.5 [213.8]	4,349 [265.4]	7,008.5 [427.7]	7,381.5 [450.4]	8,698 [530.8]	8,811.5 [537.7]	10,498 [640.6]	13,000 [793.3]	16,400 [1,000.7]
	peed cont. (rev/min) peed int. (rev/min) (1)	480 768	480 768	480 768	480 768	430 688	430 688	380 608	350 560	350 560	283 453	321 512	300 480	285 456	216 346	285 456	240 384	240 384	240 384	240 384	180 288	240 384	150 240	125 200	125 150	125 150
	peed int. (rev/min) (r)	768	768	768	768	688	688	608	560	560	453	512	480	456	346	456	387	387	387	387	288	387	240	200	150	150
Min. sp	eed std. motor (rev/min)	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	2-4	5-10	2-4	5-10	5-10	5	5
Max. to	rque cont. (Nm) [lbf.ft]	1,157 [853.3]	1,611 [1,225]	1,890 [1,393.9]	2,677 [1,974.3]	2,798 [2,063.5]	2,215 [1,633.6]	4,215 [3,108.6]	4,770 [3,517.9]	5,549 [4,092.4]	6,870 [5,066.6]	7,480 [5,516.5]	8,925 [6,582.2]	11,156 [8,227.6]	12,405 [9,148.7]	13,964 [10,298.5]	10,744 [7,923.7]	19,518 [14,394.5]	17,302 [12,760.2]	39,036 [28,789.1]	41,112 [30,320.1]	34,604 [25,520.5]	49,078 [36,195]	58,470 [43,121.6]	72,406 [53,399.4]	91,343 [67,365.5]
Max. to	rque intermittent (Nm) [lbf.ft] (1)	1,620 [1,194.8]	2,256 [1,663.8]	2,646 [1,951.4]	3,748 [2,764.2]	3,918 [2,889.5]	3,059 [2,225.6]	5,900 [4,351.3]	6,679 [4,925.8]	7,768 [5,728.9]	9,618 [7,093.3]	10,471 [7,722.4]	12,495 [9,215.1]	15,619 [11,519]	17,368 [12,808.9]	19,550 [14,418.1]	14,837 [10,942.3]	27,325 [20,152.2]	24,223 [17,864.5]	54,650 [40,304.4]	57,557 [42,448.3]	48,445 [35,728.2]	68,710 [50,673.6]	81,858 [60,370.3]	101,369 [74,759.6]	127,880 [94,311.5]
Max. po	ower cont. (kW) [hp]	28 [37.5]	40 [53.6]	48 [64.4]	68 [91.2]	61 [81.8]	80 [107.3]	84 [112.6]	95 [127.4]	100 [134.1]	124 [166.3]	125 [167.6]	140 [187.7]	195 [261.5]	165 [221.3]	185 [248.1]	237 [317.8]	245 [328.5]	304 [407.7]	490 [657.1]	443 [549.1]	608 [815.3]	528 [708]	630 [844.8]	820 [1,099.6]	900 [1,206.9]
Max.po	ower int. (kW) [hp] (1)	56 [75.1]	80 [107.3]	96 [128.7]	136 [182.4]	122 [163.6]	160 [214.6]	168 [225.3]	190 [254.8]	200 [268.2]	248 [332.6]	250 [335.3]	280 [375.5]	390 [523]	330 [442.5]	370 [496.2]	474 [635.6]	490 [657:1]	608 [815.3]	980 [1,314.2]	886 [1,188.1]	1,216 [1,630.7]	1,056 [1,416.1]	1,260 [1,689.7]	1,640 [2,199.2]	1,800 [2,413.8]
Max. di	ff. pressure cont. (bar) [psi] (2)	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	210 [3,045]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	210 [3,045]	350 [5,075]	250 [3,625]	350 [5,075]	350 [5,075]	250 [3,625]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]
May di	ff. pressure int. (bar) [psi] (1)	490	490	490	490	490	290	490	490	490	490	490	490	490	490	490	290	490	350	490	490	350	490	490	490	490
	ow cont. I/min	[7,105]	[7,105]	[7,105] 163	[7,105] 231	[7,105] 216	[4,205] 285	[7,105] 288	[7,105] 300	[7,105] 349	[7,105] 349	[7,105] 430	[7,105] 481	[7,105] 571	[7,105] 481	[7,105] 715	[4,205] 772	[7,105] 841	[5,075] 1.044	[7,105] 1,682	[7,105] 1,329	[5,075] 2,088	[7,105] 1,322	[7,105] 1,312	[7,105] 1,625	[7,105] 2050
	ow int. I/min (1)	160	222	261	369	346	456	460	480	558	558	688	769	770	913	1,143	1,235	1,346	1,670	2,691	2,126	3,340	2,115	2,100	1,950	2460
Return	pressure min. (bar) [psi] (2)	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]										
Return	pressure max. (bar) [psi] (2)	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	210 [3,045]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	350 [5,075]	210 [3,045]	350 [5,075]	250 [3,625]	350 [5,075]	350 [5,075]	250 [3,625]	350 [5,075]	350 [5,075]	350	350
Case p	ressure max. (bar) [psi] (3)	8	8	8	8	8	8	8	8	8	8	8	8[116]	8	8	8	8	8	8	8	8	8	8	8	8	8
		[116] 1,053	[116] 1,465	[116] 1,720	[116] 2,437	[116] 2,547	[116] 2,016	[116] 3,836	[116] 4,342	[116] 5,050	[116] 6,252	[116] 6,807	8,123	[116] 10,153	[116] 11,290	[116] 12,709	[116] 9,778	[116] 17,764	[116] 15,747	[116] 35,527	[116] 37,417	[116] 31,493	[116] 44,667	[116] 53,214	[116] 65,809	[116] 83,122
9 6	Min. @ max. cont. pressure	[776.7]	[1,080.6]	[1,268.7]	[1,797.5]	[1,878.7]	[1,487.0]	[2,829.4]	[3,202.7]	[3,724.9]	[4,611.5]	[5,020.8]	[5,991.5]	[7,488.9]	[8,327.5]	[9,374.2]	[7,212.3]	[13,102.7]	[11,615.0]	[26,204.7]	[27,598.8]	[23,229.2]	[32,946.4]	[39,250.6]	[48,540.7]	[61,310.8]
torqu f.ft] (Average @ max. cont. pressure	1,077 [794.4]	1,499 [1,105.7]	1,758 [1,296.7]	2,490 [1,836.6]	2,603 [1,920]	2,060 [1,519.5]	3,920 [2,891.4]	4,437 [3,272.7]	5,161 [3,806.8]	6,390 [4,713.3]	6,957 [5,131.5]	8,301 [6,122.8]	10,377 [7,654.1]	11,538 [8,510.4]	12,989 [9,580.7]	9,993 [7,370.8]	18,154 [13,390.4]	16,093 [11,870.2]	36,308 [26,780.8]	38,239 [28,205.1]	32,186 [23,740.4]	45,649 [33,670.7]	54,384 [40,113.6]	67,337 [49,667.8]	84,947 [62,656.9]
rting () [lb	Min. @ max. int. pressure	1,475	2,053	2,408	3,411	3,565	2,784	5,370	6,078	7,070	8,753	9,530	11,372	14,215	15,806	17,793	13,503	24,869	22,045	49,738	52,383	44,091	62,534	74,500	92,245	116,371
Star (Nn	& Huxuna process	[1,088] 1,507	[1,514.3] 2,098	[1,776.1] 2,461	[2,516] 3,486	[2,629.5] 3,644	[2,053.5] 2,845	[3,960.9] 5,488	[4,483.1] 6,212	[5,214.8] 7,225	[6,456.2] 8,945	[7,029.3] 9,740	[8,388] 11,622	[10,485] 14,527	[11,658.5] 16,154	[13,124.1] 18,184	[9,959.8] 13,800	[18,343.4] 25,416	[16,260.4] 22,530	[36,686.7] 50,831	[38,637.7] 53,535	[32,521.5] 45,060	[46,125.1] 63,908	[54,951.2] 76,137	[68,039.9] 94,273	[85,835.2] 118,928
	Average @ max. int. pressure (1)	[1,111.6]	[1,547.5]	[1,815.2]	[2,571.3]	[2,687.8]	[2,098.5]	[4,047.9]	[4,582]	[5,329.2]	[6,597.8]	[7,184.2]	[8,572.4]	[10,715.1]	[11,915.2]	[13,412.5]	[10,178.9]	[18,746.8]	[16,618.1]	[37,492.9]	[39,487.4]	[33,236.3]	[47,138.5]	[56,158.7]	[69,535.8]	[87,721.3]
Approx	. weight (kg) [lbs] (8)	83 [183]	83 [183]	83 [183]	88 [194]	110 [242.6]	110 [242.6]	170 [374.9]	170 [374.9]	170 [374.9]	170 [374.9]	290 [639.5]	290 [639.5]	440 [970.2]	327 [721]	440 [970.2]	440 [970.2]	790 [1,742]	790 [1,742]	1,140 [2,513.7]	1,250 [2,756.3]	1,140 [2,513.7]	1,250 [2,756.3]	1,250 [2,756.3]	2,600 [3,486.6]	2,600 [3,486.6]

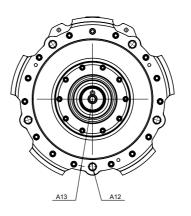
SMA ROTATING SHAFT MOTOR TYPE C1 HIGH POWER

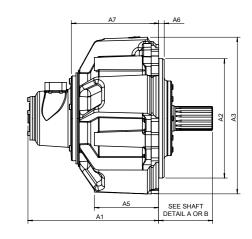








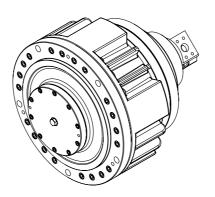


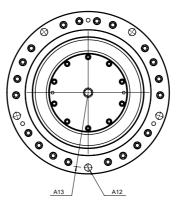


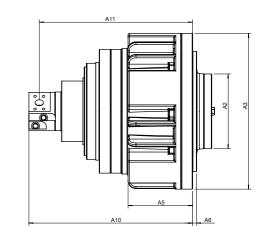
Nomin	nal displacement (cc/rev) [in³]	200 [12.2]	290 [17.7]	350 [21.4]	480 [29.3]	500 [30.5]	650 [39.7]	750 [45.8]	850 [51.9]	1,000 [61]	1,230 [75.1]	1,340 [81.8]	1,600 [97.6]	2,000 [122]	2,200 [134.2]	2,500 [152.6]	3,200 [195.3]	3,500 [213.6]	4,350 [265.4]
	A1	315	315	315	315	335	335	394	394	394	394	449	449	507.5	449	507.5	507.5	602	602
	A1	[12.4]	[12.4]	[12.4]	[12.4]	[13.19]	[13.19]	[15.51]	[15.51]	[15.51]	[15.51]	[17.68]	[17.68]	[19.98]	[17.68]	[19.98]	[19.98]	[23.70]	[23.70]
	A2	ø250 [9.84]	ø250 [9.84]	ø250 [9.84]	ø250 [9.84]	ø280 [11.02]	ø280 [11.02]	ø315 [12.4]	ø315 [12.4]	ø315 [12.4]	ø315 [12.4]	ø400 [15.75]	ø400 [15.75]	ø450 [17.72]	ø400 [15.75]	ø450 [17.72]	ø450 [17.72]	ø560 [22.05]	ø560 [22.05]
	40	ø345	ø345	ø345	ø345	ø370	ø370	ø436	ø436	ø436	ø434	ø545	ø545	ø583	ø545	ø583	ø583	ø695	ø695
	A3	[13.58]	[13.58]	[13.58]	[13.58]	[14.57]	[14.57]	[17:17]	[17:17]	[17:17]	[17:1]	[21.46]	[21.46]	[22.95]	[21.46]	[22.95]	[22.95]	[27.36]	[27.36]
	A5	139 [5.47]	139 [5.47]	139 [5.47]	139 [5.47]	150 [5.91]	150 [5.91]	187.5 [7.38]	[7.38]	187.5 [7.38]	187.5 [7.38]	215 [8.46]	[8.46]	[9.53]	[8.46]	[9.53]	[9.53]	[3.39]	86 [3.39]
	A6	12	12	12	12	16	16	16	16	16	16	19	19	15	19	15	15	27	27
	Ab	[0.47]	[0.47]	[0.47]	[0.47]	[0.63]	[0.63]	[0.63]	[0.63]	[0.63]	[0.63]	[0.75]	[0.75]	[0.59]	[0.75]	[0.59]	[0.59]	[1.06]	[1.06]
7	A7	236.5 [9.31]	236.5 [9.31]	236.5 [9.31]	236.5 [9.31]	259.5 [10.22]	259.5 [10.22]	308.5 [12.15]	308.5 [12.15]	308.5 [12.15]	263 [10.36]	345 [13.58]	[13.58]	386 [15.20]	345 [13.58]	386 [15.2]	386 [15.2]	462 [18.19]	462 [18.19]
mm [in]	A12	ø24	ø24	ø24	ø24	ø22	ø22	ø24	ø24	ø24	ø24	ø22	ø22	ø22	ø24	ø24	ø24	ø26	ø26
Ē ⊒.	A13	M5	M5	M5	M5	M6	M6	M12	M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M16
nsi	B1	122	122	122	122	154	154	156	156	156	155	181	181	184	181	184	184	225	225
nsic	-	[4.8]	[4.8]	[4.8]	[4.8]	[6.06]	[6.06]	[6.14]	[6.14]	[6.14]	[6.11]	[7.13]	[7:13]	[7.24]	[7:13]	[7.24]	[7.24]	[8.86]	[8.86]
Dime	B2	[3.23]	[3.23]	[3.23]	[3.23]	105 [4.13]	105 [4.13]	105 [4.13]	105 [4.13]	105 [4.13]	105 [4.13]	130 [5.12]	130 [5.12]	150 [5.91]	130 [5.12]	150 [5.91]	150 [5.91]	165 [6.5]	165 [6.5]
_	-	69	69	69	69	74	74	92	92	92	80	120	120	135	120	135	135	145	145
	B3	[2.72]	[2.72]	[2.72]	[2.72]	[2.91]	[2.91]	[3.62]	[3.62]	[3.62]	[3.15]	[4.72]	[4.72]	[5.31]	[4.72]	[5.31]	[5.31]	[5.71]	[5.71]
	B4	ø50	ø50	ø50	ø50	ø60	ø60	ø63	ø63	ø63	ø63	ø80	ø80	ø95	ø80	ø95	ø95	ø110	ø110
		[1.97]	[1.97]	[1.97]	[1.97]	[2.36]	[2.36]	[2.48]	[2.48]	[2.48]	[2.48]	[3.15]	[3.15]	[3.74]	[3.15]	[3.74] 25	[3.74]	[4.33]	[4.33]
	B5	[0.63]	[0.63]	[0.63]	[0.63]	[0.71]	[0.71]	[0.71]	[0.71]	[0.71]	[0.71]	[0.87]	[0.87]	[0.98]	[0.87]	[0.98]	[0.98]	[1:10]	[1.10]
	PC.	122	122	122	122	154	154	156	156	156	155	181	181	184	181	184	184	225	225
	B6	[4.8]	[4.8]	[4.8]	[4.8]	[6.06]	[6.06]	[6.14]	[6.14]	[6.14]	[6.11]	[7.13]	[7:13]	[7.24]	[7:13]	[7.24]	[7.24]	[8.86]	[8.86]
	B7	63	63	63	63	85	85	80	80	80	80	105	105	100	105	100	100	140	140
	B8	[2.48] 19t 10/20	[2.48] 19t 10/20	[2.48] 19t 10/20	[2.48] 19t 10/20	[3.35] 18t 8/16	[3.35] 18t 8/16	[3.15] 19t 8/16	[3.15] 19t 8/16	[3.15] 19t 8/16	[3.15] 19t 8/16	[4.13] 24t 8/16	[4.13] 24t 8/16	[3.94] 28t 8/16	[4.13] 24t 8/16	[3.94] 28t 8/16	[3.94] 28t 8/16	[5.51] 25t 6/12	[5.51] 25t 6/12
Coom	etric displacement (cc/rev) [in³]	208	289.5	339.5	480.5	502.5	663	756.5	856.5	996	1,233.5	1,343	1,602.4	2,003	2,227.5	2,807	3,215	3,504.5	4,349
		[12.7]	[17.7]	[20.7]	[29.3]	[30.7]	[40.5]	[46.2]	[52.3]	[60.8]	[75.3]	[81.9]	[97.8]	[122.2]	[135.9]	[171.3]	[196.2]	[213.8]	[265.4]
	speed cont. (rev/min)	1000	1000	1000	710	700	700	620	620	600	485	565	565	380	406	380	380	350	240
	peed int. (rev/min) (1) peed freewheel (rev/min)	1250 1250	1250 1250	1250 1250	890 890	880 880	880	780 780	780 780	750 750	776 776	700	700 700	475 475	560 650	475 475	475 475	438	348
	peed std. motor (rev/min)	20	20	20	20	20	20	20	20	20	5-10	20	20	20	5-10	20	20	20	20
Max. to	orque cont. (Nm) [lbf.ft]	1,157 [853.3]	1,611 [1,225]	1,890 [1,393.9]	2,677 [1,974.3]	2,798 [2,063.5]	2,215 [1,633.6]	4,215 [3,108.6]	4,770 [3,517.9]	5,549 [4,092.4]	6,870 [5,066.6]	7,480 [5,516.5]	8,925 [6,582.2]	11,156 [8,227.6]	12,405 [9,148.7]	13,964 [10,298.5]	10,744 [7,923.7]	19,518 [14,394.5]	17,302 [12,760.2]
Max. to	orque intermittent (Nm) [lbf.ft] (1)	1,620	2,256	2,646	3,748	3,918	3,101	5,900	6,679	7,768	9,618	10,471	12,495	15,619	17,368	19,550	14,837	27,325	24,223
		[1,194.8] 54	[1,663.8] 76	[1,951.4]	[2,764.2]	[2,889.5]	[2,287]	[4,351.3]	[4,925.8]	[5,728.9]	[7,093.3]	[7,722.4]	[9,215.1]	[12,256.5]	[12,808.9]	[14,418.1]	[10,942.3] 355	[20,152.2]	[32,844.7]
Max.p	ower cont. (kW) [hp]	[72.4]	[101.9]	89 [119.3]	126 [169]	[135.4]	135 [181]	172 [230.7]	[328.5]	[250.8]	[311.1]	[300.4]	271 [363.4]	[297.7]	[505.6]	[371.5]	[476.1]	390 [523]	304 [407.7]
May	consories (IAM) Floral (4)	108	152	178	252	202	270	344	490	374	464	448	542	444	754	554	710	780	608
мах. р	oower int. (kW) [hp] (1)	[144.8]	[203.8]	[238.7]	[337.9]	[270.9]	[362.1]	[461.3]	[657.1]	[501.5]	[622.2]	[600.8]	[726.8]	[595.4]	[1011.1]	[742.9]	[952.1]	[1046]	[815.3]
Max. d	liff. pressure cont. (bar) [psi] (2)	350	350	350	350	350	210	350	350	350	350	350	350	350	350	350	210	350	250
		[5,075] 490	[5,075] 490	[5,075] 490	[5,075] 490	[5,075] 490	[3,045] 294	[5,075] 490	[5,075] 350	[5,075] 490	[5,075] 490	[5,075] 490	[5,075] 490	[5,075] 490	[5,075] 490	[5,075] 490	[3,045]	[5,075] 490	[3,625] 350
Max.d	liff. pressure int. (bar) [psi] (1)	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[4,263]	[7,105]	[5,075]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[4,263]	[7,105]	5,075
Max. f	low cont. I/min	208	289	339	341	352	464	469	531	598	598	759	905	761	504	953	1,222	1,227	1,044
Max. f	low int. I/min (1)	260	362	424	428	442	583	590	668	747	957	940	1,122	951	1,447	1,191	1,527	1,535	1,670
Returr	pressure min. (bar) [psi] (2)	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]	7 [101.5]
		350	350	350	350	350	210	350	250	350	350	350	350	350	350	350	210	350	250
Returr	n pressure max. (bar) [psi] (2)	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[3,045]	[5,075]	[3,625]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[3,045]	[5,075]	[3,625]
Case p	oressure max. (bar) [psi] (3)	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		[116] 1,053	[116] 1,465	[116] 1,720	[116] 2,437	[116] 2,547	[116] 2,016	[116] 3,836	[116] 4,342	[116] 5,050	[116] 6,252	[116] 6,807	[116] 8,123	[116] 11,290	[116] 10,153	[116] 12,709	9,778	[116] 17,764	[116] 15,747
	Min. @ max. cont. pressure	[776.7]	[1,080.6]	[1,268.7]	[1,797.5]	[1,878.7]	[1,487.0]	[2,829.4]	[3,202.7]	[3,724.9]	[4,611.5]	[5,020.8]	[5,991.5]	[8,327.5]	[7,488.9]	[9,374.2]	[7,212.3]	[13,102.7]	[11,615.0]
13 (Z)	Average @ may cont proceurs	1,077	1,499	1,758	2,490	2,603	2,060	3,920	4,437	5,161	6,390	6,957	8,301	11,538	10,377	12,989	9,993	18,154	16,093
	Average @ max. cont. pressure	[794.4]	[1,105.7]	[1,296.7]	[1,836.6]	[1,920]	[1,519.5]	[2,891.4]	[3,272.7]	[3,806.8]	[4,713.3]	[5,131.5]	[6,122.8]	[8,510.4]	[7,654.1]	[9,580.7]	[7,370.8]	[13,390.4]	[11,870.2]
arting m) [lb	Min. @ max. int. pressure	1,475 [1,088]	2,053 [1,514.3]	2,408 [1,776.1]	3,411 [2,516]	3,565 [2,629.5]	2,784 [2,053.5]	5,370 [3,960.9]	6,078 [4,483.1]	7,070 [5,214.8]	8,753 [6,456.2]	9,530 [7,029.3]	11,372 [8,388]	15,806 [11,658.5]	14,215 [10,485]	17,793 [13,124.1]	13,503 [9,959.8]	24,869 [18,343.4]	22,045 [16,260.4]
おる		1,507	2,098	2,461	3,486	3,644	2,845	5,488	6,212	7,225	8,945	9,740	11,622	16,154	14,527	18,184	13,800	25,416	22,530
	Average @ max. int. pressure (1)	[1,111.6]	[1,547.5]	[1,815.2]	[2,571.3]	[2,687.8]	[2,098.5]	[4,047.9]	[4,582]	[5,329.2]	[6,597.8]	[7,184.2]	[8,572.4]	[11,915.2]	[10,715.1]	[13,412.5]	[10,178.9]	[18,746.8]	[16,618.1]
-		83	83	83	88	110	110	170	170	170	180	290	290	440	322	440	440	790	790
Annro	ox. weight (kg) [lbs] (7)	[183]	[183]	[183]	[194]	[242.6]	[242.6]	[374.9]	[374.9]	[374.9]	[396.9]	[639.5]	[639.5]	[970.2]	[710]	[970.2]	[970.2]	[1,742]	[1,742]

Rotary Power SMA 122175 (02) 09/21

SMA ROTATING CASE MOTOR TYPE E1 STANDARD



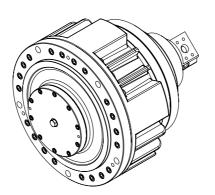


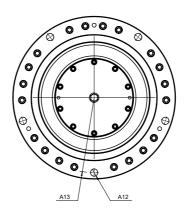


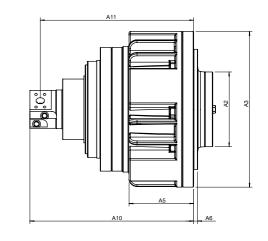
		1000	2000	250	400	750	1000	1000	1040	1600	0.000	0.000	0.500	3,200
Nor	minal displacement (cc/rev) [in³]	200 [12.2]	290 [17.7]	350 [21.4]	480 [29.3]	750 [45.8]	1,000 [61]	1,230 [75.1]	1,340 [81.8]	1,600 [97.6]	2,000 [122]	2,200 [134.2]	2,500 [152.6]	[195.3]
	A2	ø250	ø250	ø250	ø250	ø315	ø315	ø315	ø400	ø400	ø450	ø400	ø450	ø450
	AZ	[9.84]	[9.84]	[9.84]	[9.84]	[12.4]	[12.4]	[12.4]	[15.75]	[15.75]	[17.72]	[15.75]	[17.72]	[17.72]
	A3	ø345	ø345	ø345	ø345	ø436	ø436	ø434	ø545	ø545	ø583	ø545	ø583	ø583
2	A0	[13.58]	[13.58]	[13.58]	[13.58]	[17:17]	[17:17]	[17.1]	[21.46]	[21.46]	[22.95]	[21.46]	[22.95]	[22.95]
Dimensions in mm [in]	A5	139	139	139	139	187.5	187.5	187.5	215	215	242	215	242	242
Ē	A5	[5.47]	[5.47]	[5.47]	[5.47]	[7.38]	[7.38]	[7.38]	[8.46]	[8.46]	[9.53]	[8.46]	[9.53]	[9.53]
sin	A6	12	12	12	12	16	16	16	19	19	15	19	15	15
Ö	Au	[0.47]	[0.47]	[0.47]	[0.47]	[0.63]	[0.63]	[0.63]	[0.75]	[0.75]	[0.59]	[0.75]	[0.59]	[0.59]
ens	A10	296	296	296	296	474	474	478.5	534	534	575	534	575	575
Ë	Alo	[11.65]	[11.65]	[11.65]	[11.65]	[18.66]	[18.66]	[18.85]	[21.02]	[21.02]	[22.64]	[21.02]	[22.64]	[22.64]
_	A11	256	256	256	256	418	418	422.5	478	478	490	478	490	490
	A.,	[10.08]	[10.08]	[10.08]	[10.08]	[16.46]	[16.46]	[16.65]	[18.82]	[18.82]	[19.29]	[18.82]	[19.29]	[19.29]
	A12	M30	M30	M30	M30	M20	ø22	M20	ø22	M24	ø26	M24	ø26	ø26
	A13	9/16 unf	9/16 unf	9/16 unf	3/4-16 unf	3/4-16 unf	3/4-16 unf	3/4-16 unf	3/4-16 unf	3/4-16 unf	7/8-14 unf	3/4-16 unf	7/8-14 unf	7/8-14 unf
Ger	ometric displacement (cc/rev) [in³]	200	289.5	339.5	480.5	756.5	996	1,233.5	1,343	1,602.5	2,003	2,227.5	2,507	3,215
		[12.2]	[17.7]	[20.7]	[29.3]	[46.2]	[60.8]	[75.3]	[81.9]	[97.8]	[122.2]	[135.9]	[153.0]	[196.2]
Max	x. speed cont. (rev/min)	480	480	480	480	380	350	283	320	300	285	216	285	240
Max	x. speed int. (rev/min) (1)	768	768	768	768	608	560	453	512	480	456	346	456	384
Max	x. speed freewheel (rev/min)	768	768	768	768	608	560	453	512	480	456	346	456	384
Min	. speed std. motor (rev/min)	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10
Ma	x. torque cont. (Nm) [lbf.ft]	1,114	1,611	1,890	2,677	4,215	5,549	6,870	7,480	8,925	11,156	12,405	13,964	10,744
IVICI	x. torque com: (ram) [ibi.it]	[821.7]	[1,188.1]	[1,393.9]	[1,974.3]	[3,108.6]	[4,092.4]	[5,066.6]	[5,516.5]	[6,582.2]	[8,227.6]	[9,148.7]	[10,298.5]	[7,923.7]
Mar	x. torque intermittent (Nm) [lbf.ft] (1)	1,560	2,256	2,646	3,748	5,900	7,768	9,618	10,471	12,495	15,619	17,368	19,550	14,837
IVICI	x. torque intermittent (rum) [ibint] (i)	[1,150.7]	[1,663.8]	[1,951.4]	[2,764.2]	[4,351.3]	[5,728.9]	[7,093.3]	[7,722.4]	[9,215.1]	[11,519]	[12,808.9]	[14,418.1]	[10,942.3]
Ma	x. power cont. (kW) [hp]	28	40	48	68	84	100	124	125	140	165	195	185	237
IVICI	k. power cont. (kw/[np]	[37.5]	[53.6]	[64.4]	[91.2]	[112.6]	[134.1]	[166.3]	[167.6]	[187.7]	[221.3]	[261.5]	[248.1]	[317.8]
Mar	x. power int. (kW) [hp] (1)	55	80	96	136	168	200	248	250	280	330	390	370	474
IVICIA	x.power int. (kw) [rip] (i)	[73.8]	[107.3]	[128.7]	[182.4]	[225.3]	[268.2]	[332.6]	[335.3]	[375.5]	[442.5]	[523]	[496.2]	[635.6]
Mar	x. diff. pressure cont. (bar) [psi] (2)	350	350	350	350	350	350	350	350	350	350	350	350	210
IVICIA	x. uiii. pressure cont. (bai / [psi] (2)	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[3,045]
Mar						400		400	490	490	490	400	1.00	000
IVICIA	v diff proceure int (bar) [pei] (1)	490	490	490	490	490	490	490	400	100		490	490	290
	x. diff. pressure int. (bar) [psi] (1)	490 [7,105]	490 [7,105]	490 [7,105]	490 [7,105]	[7,105]	490 [7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[4,205]
Max	x. diff. pressure int. (bar) [psi] (1) x. flow cont. I/min		1	l .	1					i .	1	1		1
		[7;105] 96 153.6	[7,105] 139 222	[7,105] 163 261	[7,105] 231 369	[7,105] 288 460	[7,105] 349 558	[7,105] 349 558	[7,105] 430 688	[7,105] 481 769	[7,105] 571 913	[7,105] 481 770	[7,105] 715 1,143	[4,205] 772 1,235
Max	x. flow cont. I/min x. flow int. I/min (1)	[7,105] 96	[7,105] 139	[7,105] 163	[7,105] 231	[7,105] 288	[7,105] 349	[7,105] 349	[7,105] 430	[7,105] 481	[7,105] 571	[7,105] 481	[7,105] 715	[4,205] 772
Max	x. flow cont. I/min	[7;105] 96 153.6	[7,105] 139 222	[7,105] 163 261	[7,105] 231 369	[7,105] 288 460	[7,105] 349 558	[7,105] 349 558	[7,105] 430 688	[7,105] 481 769	[7,105] 571 913	[7,105] 481 770	[7,105] 715 1,143	[4,205] 772 1,235
Max	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2)	[7,105] 96 153.6 7	[7,105] 139 222 7	[7;105] 163 261 7	[7,105] 231 369 7 [101.5] 350	[7;105] 288 460 7	[7,105] 349 558 7	[7,105] 349 558 7	[7,105] 430 688 7	[7,105] 481 769 7	[7,105] 571 913 7	[7,105] 481 770 7	[7,105] 715 1,143 7	[4,205] 772 1,235 7
Max	x. flow cont. I/min x. flow int. I/min (1)	[7,105] 96 153.6 7 [101.5]	[7,105] 139 222 7 [101.5]	[7,105] 163 261 7 [101.5]	[7,105] 231 369 7 [101.5]	[7,105] 288 460 7 [101.5]	[7,105] 349 558 7 [101.5]	[7,105] 349 558 7 [101.5]	[7,105] 430 688 7 [101.5]	[7,105] 481 769 7 [101.5]	[7,105] 571 913 7 [101.5]	[7,105] 481 770 7 [101.5]	[7,105] 715 1,143 7 [101.5]	[4,205] 772 1,235 7 [101.5]
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2)	[7;105] 96 153.6 7 [101.5] 350	[7,105] 139 222 7 [101.5] 350	[7,105] 163 261 7 [101.5] 350	[7,105] 231 369 7 [101.5] 350	[7,105] 288 460 7 [101.5] 350	[7,105] 349 558 7 [101.5] 350	[7;105] 349 558 7 [101.5] 350	[7;105] 430 688 7 [101.5] 350	[7;105] 481 769 7 [101.5] 350	[7;105] 571 913 7 [101.5] 210	[7;105] 481 770 7 [101.5] 350	[7,105] 715 1,143 7 [101.5] 350	[4,205] 772 1,235 7 [101.5] 350
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2)	[7;105] 96 153.6 7 [101.5] 350 [5,075]	[7,105] 139 222 7 [101.5] 350 [5,075]	[7,105] 163 261 7 [101.5] 350 [5,075]	[7,105] 231 369 7 [101.5] 350 [5,075]	[7,105] 288 460 7 [101.5] 350 [5,075]	[7,105] 349 558 7 [101.5] 350 [5,075]	[7;105] 349 558 7 [101.5] 350 [5,075]	[7;105] 430 688 7 [101.5] 350 [5,075]	[7;105] 481 769 7 [101.5] 350 [5,075]	[7;105] 571 913 7 [101.5] 210 [3,045]	[7;105] 481 770 7 [101.5] 350 [5,075]	[7,105] 715 1,143 7 [101.5] 350 [5,075]	[4,205] 772 1,235 7 [101.5] 350 [5,075]
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3)	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8	[7;105] 139 222 7 [101.5] 350 [5,075]	[7;105] 163 261 7 [101.5] 350 [5,075] 8	[7,105] 231 369 7 [101.5] 350 [5,075]	[7,105] 288 460 7 [101.5] 350 [5,075] 8	[7,105] 349 558 7 [101.5] 350 [5,075]	[7;105] 349 558 7 [101.5] 350 [5,075] 8	[7;105] 430 688 7 [101.5] 350 [5,075]	[7;105] 481 769 7 [101.5] 350 [5,075] 8	[7;105] 571 913 7 [101.5] 210 [3,045] 8	[7;105] 481 770 7 [101.5] 350 [5,075] 8	[7,105] 715 1,143 7 [101.5] 350 [5,075]	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8
Ret Ret Cas	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3) Min. @ max. cont. pressure	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8 [116]	[7;105] 139 222 7 [101.5] 350 [5,075] 8 [116]	[7;105] 163 261 7 [101.5] 350 [5,075] 8 [116]	[7;105] 231 369 7 [101.5] 350 [5,075] 8 [116]	[7;105] 288 460 7 [101.5] 350 [5,075] 8 [116]	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116]	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116]	[7;105] 430 688 7 [101.5] 350 [5,075] 8 [116]	[7;105] 481 769 7 [101.5] 350 [5,075] 8 [116]	[7,105] 571 913 7 [101.5] 210 [3,045] 8 [116]	[7;105] 481 770 7 [101.5] 350 [5,075] 8 [116]	[7;105] 715 1;143 7 [101.5] 350 [5,075] 8 [116]	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8 [116]
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3) Min. @ max. cont. pressure	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8 [116] 1,014	[7;105] 139 222 7 [101.5] 350 [5,075] 8 [116] 1,466	[7;105] 163 261 7 [101.5] 350 [5,075] 8 [116]	[7;105] 231 369 7 [101.5] 350 [5,075] 8 [116] 2,437	[7;105] 288 460 7 [101.5] 350 [5,075] 8 [116] 3,836	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 5,050	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 6,252 [4,611] 6,390	[7;105] 430 688 7 [101.5] 350 [5,075] 8 [116] 6,807	[7;105] 481 769 7 [101.5] 350 [5,075] 8 [116] 8,123	[7;105] 571 913 7 [101.5] 210 [3,045] 8 [116] 10,153	[7;105] 481 770 7 [101.5] 350 [5,075] 8 [116] 11,290	[7;105] 715 1;143 7 [101.5] 350 [5,075] 8 [116] 12,709	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8 [116] 16,297
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3) Min. @ max. cont. pressure	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8 [116] 1,014 [748]	[7;105] 139 222 7 [101.5] 350 [5,075] 8 [116] 1,466 [1,081]	[7;105] 163 261 7 [101.5] 350 [5,075] 8 [116] 1,720 [1,269]	[7;105] 231 369 7 [101.5] 350 [5,075] 8 [116] 2,437 [1,798]	[7;105] 288 460 7 [101.5] 350 [5,075] 8 [116] 3,836 [2,829]	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 5,050 [3,725]	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 6,252 [4,611]	[7;105] 430 688 7 [101.5] 350 [5,075] 8 [116] 6,807 [5,021] 6,957 [5,131]	[7;105] 481 769 7 [101.5] 350 [5,075] 8 [116] 8;123 [5,992]	[7;105] 571 913 7 [101.5] 210 [3,045] 8 [116] 10,153 [7,489]	[7;105] 481 770 7 [101.5] 350 [5,075] 8 [116] 11,290 [8,328]	[7;105] 715 1;143 7 [101.5] 350 [5,075] 8 [116] 12,709 [9,374]	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8 [116] 16,297 [12,021]
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3) Min. @ max. cont. pressure	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8 [116] 1,014 [748] 1,039	[7;105] 139 222 7 [101.5] 350 [5,075] 8 [116] 1,466 [1,081] 1,499	[7;105] 163 261 7 [101.5] 350 [5,075] 8 [116] 1,720 [1,269]	[7;105] 231 369 7 [101.5] 350 [5,075] 8 [116] 2,437 [1,798] 2,490	[7;105] 288 460 7 [101.5] 350 [5,075] 8 [116] 3,836 [2,829] 3,920	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 5,050 [3,725] 5,161	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 6,252 [4,611] 6,390	[7;105] 430 688 7 [101.5] 350 [5,075] 8 [116] 6,807 [5,021] 6,957	[7;105] 481 769 7 [101.5] 350 [5,075] 8 [116] 8,123 [5,992] 8,301	[7;105] 571 913 7 [101.5] 210 [3,045] 8 [116] 10,153 [7,489] 10,377	[7;105] 481 770 7 [101.5] 350 [5,075] 8 [116] 11,290 [8,328] 11,538	[7;105] 715 1;143 7 [101.5] 350 [5,075] 8 [116] 12,709 [9,374] 12,989	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8 [116] 16,297 [12,021]
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3) Min. @ max. cont. pressure	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8 [116] 1,014 [748] 1,039 [766]	[7;105] 139 222 7 [101.5] 350 [5,075] 8 [116] 1,466 [1,081] 1,499 [1,106]	[7;105] 163 261 7 [101.5] 350 [5,075] 8 [116] 1,720 [1,269] 1,758 [1,297]	[7;105] 231 369 7 [101.5] 350 [5,075] 8 [116] 2,437 [1,798] 2,490 [1,836]	[7;105] 288 460 7 [101.5] 350 [5,075] 8 [116] 3,836 [2,829] 3,920 [2,891]	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 5,050 [3,725] 5,161 [3,806]	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 6,252 [4,611] 6,390 [4,713]	[7;105] 430 688 7 [101.5] 350 [5,075] 8 [116] 6,807 [5,021] 6,957 [5,131]	[7;105] 481 769 7 [101.5] 350 [5,075] 8 [116] 8,123 [5,992] 8,301 [6,122]	[7;105] 571 913 7 [101.5] 210 [3,045] 8 [116] 10,153 [7,489] 10,377 [7,653]	[7;105] 481 770 7 [101.5] 350 [5,075] 8 [116] 11,290 [8,328] 11,538 [8,509]	[7;105] 715 1;143 7 [101.5] 350 [5,075] 8 [116] 12,709 [9,374] 12,989 [9,579]	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8 [116] 16,297 [12,021] 16,655 [12,283]
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3) Min. @ max. cont. pressure Average @ max. cont. pressure Min. @ max. int. pressure	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8 [116] 1,014 [748] 1,039 [766] 1,420	[7;105] 139 222 7 [101.5] 350 [5,075] 8 [116] 1,466 [1,081] 1,499 [1,106] 2,053	[7;105] 163 261 7 [101.5] 350 [5,075] 8 [116] 1,720 [1,269] 1,758 [1,297] 2,408	[7;105] 231 369 7 [101.5] 350 [5,075] 8 [116] 2,437 [1,798] 2,490 [1,836] 3,411	[7;105] 288 460 7 [101.5] 350 [5,075] 8 [116] 3,836 [2,829] 3,920 [2,891] 5,370	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 5,050 [3,725] 5,161 [3,806] 7,070	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 6,252 [4,611] 6,390 [4,713] 8,653	[7;105] 430 688 7 [101.5] 350 [5,075] 8 [116] 6,807 [5,021] 6,957 [5,131] 9,530	[7;105] 481 769 7 [101.5] 350 [5,075] 8 [116] 8,123 [5,992] 8,301 [6,122] 11,372	[7;105] 571 913 7 [101.5] 210 [3,045] 8 [116] 10,153 [7,489] 10,377 [7,653] 14,215	[7;105] 481 770 7 [101.5] 350 [5,075] 8 [116] 11,290 [8,328] 11,538 [8,509] 15,806	[7;105] 715 1;143 7 [101.5] 350 [5,075] 8 [116] 12,709 [9,374] 12,989 [9,579] 17,793	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8 [116] 16,297 [12,021] 16,655 [12,283] 22,816
Ret Ret	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3) Min. @ max. cont. pressure	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8 [116] 1,014 [748] 1,039 [766] 1,420 [1,047]	[7;105] 139 222 7 [101.5] 350 [5,075] 8 [116] 1,466 [1,081] 1,499 [1,106] 2,053 [1,514]	[7;105] 163 261 7 [101.5] 350 [5,075] 8 [116] 1,720 [1,269] 1,758 [1,297] 2,408 [1,776]	[7;105] 231 369 7 [101.5] 350 [5,075] 8 [116] 2,437 [1,798] 2,490 [1,836] 3,411 [2,516]	[7;105] 288 460 7 [101.5] 350 [5,075] 8 [116] 3,836 [2,829] 3,920 [2,891] 5,370 [3,960]	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 5,050 [3,725] 5,161 [3,806] 7,070 [5,214]	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 6,252 [4,611] 6,390 [4,713] 8,653 [6,382]	[7;105] 430 688 7 [101.5] 350 [5,075] 8 [116] 6,807 [5,021] 6,957 [5,131] 9,530 [7,028]	[7;105] 481 769 7 [101.5] 350 [5,075] 8 [116] 8,123 [5,992] 8,301 [6,122] 11,372 [8,387]	[7;105] 571 913 7 [101.5] 210 [3,045] 8 [116] 10,153 [7,489] 10,377 [7,653] 14,215 [10,484]	[7;105] 481 770 7 [101.5] 350 [5,075] 8 [116] 11,290 [8,328] 11,538 [8,509] 15,806 [11,657]	[7;105] 715 1;143 7 [101.5] 350 [5,075] 8 [116] 12,709 [9,374] 12,989 [9,579] 17,793 [13,122]	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8 [116] 16,297 [12,021] 16,655 [12,283] 22,816 [16,827]
Starting torque	x. flow cont. I/min x. flow int. I/min (1) urn pressure min. (bar) [psi] (2) urn pressure max. (bar) [psi] (2) se pressure max. (bar) [psi] (3) Min. @ max. cont. pressure Average @ max. cont. pressure Min. @ max. int. pressure	[7;105] 96 153.6 7 [101.5] 350 [5,075] 8 [116] 1,014 [748] 1,039 [766] 1,420 [1,047]	[7;105] 139 222 7 [101.5] 350 [5,075] 8 [116] 1,466 [1,081] 1,499 [1,106] 2,053 [1,514] 2,098	[7;105] 163 261 7 [101.5] 350 [5,075] 8 [116] 1,720 [1,269] 1,758 [1,297] 2,408 [1,776] 2,461	[7;105] 231 369 7 [101.5] 350 [5,075] 8 [116] 2,437 [1,798] 2,490 [1,836] 3,411 [2,516] 3,486	[7;105] 288 460 7 [101.5] 350 [5,075] 8 [116] 3,836 [2,829] 3,920 [2,891] 5,370 [3,960] 5,488	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 5,050 [3,725] 5,161 [3,806] 7,070 [5,214] 7,225	[7;105] 349 558 7 [101.5] 350 [5,075] 8 [116] 6,252 [4,611] 6,390 [4,713] 8,653 [6,382] 8,945	[7;105] 430 688 7 [101.5] 350 [5,075] 8 [116] 6,807 [5,021] 6,957 [5,131] 9,530 [7,028]	[7;105] 481 769 7 [101.5] 350 [5,075] 8 [116] 8,123 [5,992] 8,301 [6,122] 11,372 [8,387] 11,622	[7;105] 571 913 7 [101.5] 210 [3,045] 8 [116] 10,153 [7,489] 10,377 [7,653] 14,215 [10,484] 14,527	[7;105] 481 770 7 [101.5] 350 [5,075] 8 [116] 11,290 [8,328] 11,538 [8,509] 15,806 [11,657] 16,154	[7;105] 715 1;143 7 [101.5] 350 [5,075] 8 [116] 12,709 [9,374] 12,989 [9,579] 17,793 [13,122] 18,184	[4,205] 772 1,235 7 [101.5] 350 [5,075] 8 [116] 16,297 [12,021] 16,655 [12,283] 22,816 [16,827] 23,317

Rotary Power SMA 122175 (02) 09/21 15 Rotary Power SMA 122175 (02) 09/21

SMA ROTATING CASE MOTOR TYPE E1 HIGH POWER



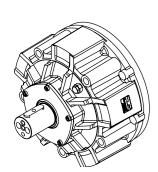


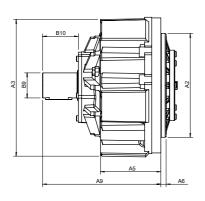


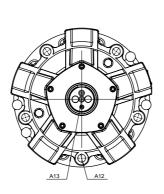
Nom	ninal displacement (cc/rev) [in³]	200 [12.2]	290 [17.7]	350 [21.4]	480 [29.3]	750 [45.8]	1,000 [61]	1,230 [75.1]	1,340 [81.8]	1,600 [97.6]	2,000 [122]	2,200 [134.2]	2,500 [152.6]	3,200 [195.3]
	A2	ø250 [9.84]	ø250 [9.84]	ø250 [9.84]	ø250 [9.84]	ø315 [12.4]	ø315 [12.4]	ø315 [12.4]	ø400 [15.75]	ø400 [15.75]	ø450 [17.72]	ø400 [15.75]	ø450 [17.72]	ø450 [17.72]
	A3	ø345 [13.58]	ø345 [13.58]	ø345 [13.58]	ø345 [13.58]	ø436 [17.17]	ø436 [17:17]	ø434 [17.1]	ø545 [21.46]	ø545 [21.46]	ø583 [22.95]	ø545 [21.46]	ø583 [22.95]	ø583 [22.95]
Dimensions in mm [in]	A5	139	139	139	139	187.5	187.5	187.5	215	215	242	215	242	242
٤١		[5.47]	[5.47]	[5.47]	[5.47]	[7.38]	[7.38]	[7.38]	[8.46]	[8.46]	[9.53]	[8.46]	[9.53]	[9.53]
. <u>=</u>	A6	12	12	12	12	16	16	16	19	19	15	19	15	15
.ö		[0.47]	[0.47]	[0.47]	[0.47]	[0.63]	[0.63]	[0.63]	[0.75]	[0.75]	[0.59]	[0.75]	[0.59]	[0.59]
eus	A10	296	296	296	296	474	474	478.5	534	534	575	534	575	575
Ë	7.10	[11.65]	[11.65]	[11.65]	[11.65]	[18.66]	[18.66]	[18.85]	[21.02]	[21.02]	[22.64]	[21.02]	[22.64]	[22.64]
۱ ـ	A11	256	256	256	256	418	418	422.5	478	478	490	478	490	490
	All	[10.08]	[10.08]	[10.08]	[10.08]	[16.46]	[16.46]	[16.65]	[18.82]	[18.82]	[19.29]	[18.82]	[19.29]	[19.29]
	A12	M30	M30	M30	M30	M20	ø22	M20	ø22	M24	ø26	M24	ø26	ø26
	A13	9/16 unf	9/16 unf	9/16 unf	3/4-16 unf	3/4-16 unf	3/4-16 unf	3/4-16 unf	3/4-16 unf	3/4-16 unf	7/8-14 unf	3/4-16 unf	7/8-14 unf	7/8-14 u
^	matria dianta annont (aa /ray) [in3]	207	289.3	339.3	480.7	756.7	996.2	1,233.4	1,342.9	1,602.4	2,003.0	2,227.3	2,507.2	3,215.0
ueoi	metric displacement (cc/rev) [in³]	[12.6]	[17.7]	[20.7]	[29.3]	[46.2]	[60.8]	[75.3]	[81.9]	[97.8]	[122.2]	[135.9]	[153.0]	[196.2]
Мах.	. speed cont. (rev/min)	1000	1000	1000	710	620	600	485	565	565	380	406	380	380
Max.	. speed int. (rev/min) (1)	1250	1250	1250	890	780	750	776	700	700	475	650	475	475
	. speed freewheel (rev/min)	1250	1250	1250	890	780	750	776	700	700	475	650	475	475
Vlin.	speed std. motor (rev/min)	20	20	20	20	20	20	20	20	20	20	20	20	20
	• • • • • • • • • • • • • • • • • • • •	1153	1,611	1,890	2,677	4,215	5,549	6,870	7,480	8,925	11,156	12,405	13,964	10,744
Max.	. torque cont. (Nm) [lbf.ft]	[850]	[1,188]	[1,394]	[1,974]	[3,109]	[4,092]	[5,067]	[5,517]	[6,582]	[8,228]	[9,149]	[10,298]	[7,924]
		1614	2,256	2,646	3,748	5,900	7,768	9,618	10,471	12,495	15,619	17,368	19,550	14,837
Max.	. torque intermittent (Nm) [lbf.ft] (1)	[1,190]	[1,664]	[1,951]	[2,764]	[4,351]	[5,729]	[7,093]	[7,722]	[9,215]	[11,519]	[12,809]	[14,418]	[10,942]
		54	76	89	126	172	187	232	224	271	222	377	277	355
Мах.	. power cont. (kW) [hp]	[72.4]	1		[169]	1		1			[297.7]		1	
			[101.9]	[119.3]		[230.7]	[250.8]	[311.1]	[300.4]	[363.4]	+	[505.6]	[371.5]	[476.1]
Max.	. power int. (kW) [hp] (1)	108	152	178	252	344	374	464	448	542	444	754	554	710
		[144.8]	[203.8]	[238.7]	[337.9]	[461.3]	[501.5]	[622.2]	[600.8]	[726.8]	[595.4]	[1011.1]	[742.9]	[952.1]
Мах.	. diff. pressure cont. (bar) [psi] (2)	350	350	350	350	350	350	350	350	350	350	350	350	210
		[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[3,045]
Max.	. diff. pressure int. (bar) [psi] (1)	490	490	490	490	490	490	490	490	490	490	490	490	290
	. a process o (ser, tpo.) (.)	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[4,205]
Max.	. flow cont. I/min	207	289	339	341	469	598	598	759	905	761	904	953	1,222
Max.	. flow int. I/min (1)	259	262	424	428	590	747	957	940	1,122	951	1,447	1,191	1,527
Dotu	ırn pressure min. (bar) [psi] (2)	7	7	7	7	7	7	7	7	7	7	7	7	7
netu	in pressure min. (bar) [psi] (2)	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]
Datu	we procedure may (box) [poi] (2)	350	350	350	350	350	350	350	350	350	350	350	350	350
netu	ırn pressure max. (bar) [psi] (2)	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]
		8	8	8	8	8	8	8	8	8	8	8	8	8
Case	e pressure max. (bar) [psi] (3)	[116]	[116]	[116]	[116]	[116]	[116]	[116]	[116]	[116]	[116]	[116]	[116]	[116]
		1,014	1,466	1,720	2,437	3,836	5,050	6,252	6,807	8,123	10,153	11,290	12,709	16,297
	Min. @ max. cont. pressure	[748]	[1,081]	[1,269]	[1,798]	[2,829]	[3,725]	[4,611]	[5,021]	[5,992]	[7,489]	[8,328]	[9,374]	[12,021]
age (2		1,039	1,499	1,758	2,490	3,920	5,161	6,390	6,957	8,301	10,377	11,538	12,989	16,655
Į ∃	Average @ max. cont. pressure	[766]	[1,106]	[1,297]	[1,836]	[2,891]	[3,806]	[4,713]	[5,131]	[6,122]	[7,653]	[8,509]	[9,579]	[12,283]
Starting torqu (Nm) [lbf.ft] (<u> </u>	1,420	2,053	2,408	3,411	5,370	7,070	8,653	9,530	11,372	14,215	15,806	17,793	22,816
arti m	Min. @ max. int. pressure	[1,047]		i	[2,516]				[7,028]		[10,484]	I	I	[16,827]
ťΖ	<u> </u>		[1,514]	[1,776]		[3,960]	[5,214]	[6,382]		[8,387]		[11,657]	[13,122]	
	Average @ max. int. pressure (1)	1,451	2,098	2,461	3,486	5,488	7,225	8,945	9,740	11,622	14,527	16,154	18,184	23,317
		[1,070]	[1,547]	[1,815]	[2,571]	[4,047]	[5,328]	[6,597]	[7,183]	[8,571]	[10,714]	[11,914]	[13,411]	[17,196]
Appı	rox. weight (kg.) [lbs] (7)	80	80	80	85	189	189	176	320	320	490	305	490	490
-12121		[176.4]	[176.4]	[176.4]	[187.4]	[416.7]	[416.7]	[388.1]	[705.6]	[705.6]	[1,080.5]	[672.5]	[1,080.5]	[1,080.5

Rotary Power SMA 122175 (02) 09/21 17 Rotary Power SMA 122175 (02) 09/21

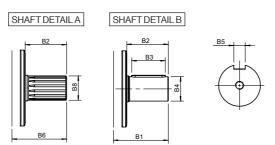
SMA ROTATING CASE MOTOR TYPE B1 STANDARD





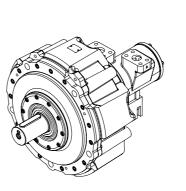


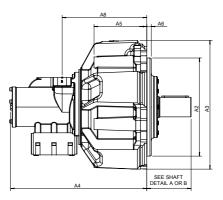
Nomi	inal displacement (cc/rev) [in³]	750 [44]	1,000 [61]
	A2	ø315	ø315
		[12.40]	[12.40]
	A3	ø436	ø436
		[17.17]	[17.17]
7	A5	187.5	187.5
Dimensions in mm [in]	A0	[7.38]	[7.38]
盲	A6	16	16
.⊑	AU	[0.63]	[0.63]
ğ	A9	362	362
Sus	A9	[14.25]	[14.25]
<u>ä</u>	A12	ø24	ø24
	A13	3/4-16 unf	3/4-16 unf
Ī	Do.	76	76
	B9	[2.99]	[2.99]
Ì		108	108
	B10	[4.25]	[4.25]
		756	996
Geor	netric displacement (cc/rev) [in³]	[46.1]	[60.8]
Max	speed cont. (rev/min)	380	350
	speed int. (rev/min) (1)	608	560
	speed freewheel (rev/min)	608	560
	speed std. motor (rev/min)	5-10	5-10
IVIII I. S	speed std. motor (rev/min)	4,211	5,549
Max.	torque cont. (Nm) [lbf.ft]	1	1
		[3,105]	[4,092]
Max.	torque intermittent (Nm) [lbf.ft] (1)	5,895	7,768
		[4,347]	[5,729]
Max.	power cont. (kW) [hp]	84	100
		[112.6]	[134.1]
Max.	power int. (kW) [hp] (1)	168	200
		[225.3]	[268.2]
Мах.	diff. pressure cont. (bar) [psi] (2)	350	350
	(,	[5,075]	[5,075]
Max.	diff. pressure int. (bar) [psi] (1)	490	490
		[7,105]	[7,105]
Max.	flow cont. I/min	287	349
Max.	flow int. I/min (1)	460	558
Ratu	rn pressure min. (bar) [psi] (2)	7	7
ricta	Triplessure min. (bar) [psi] (2)	[101.5]	[101.5]
Dotu	rn pressure max. (bar) [psi] (2)	350	350
rictu	in pressure max. (bar/[psi] (2)	[5,075]	[5,075]
Caca	proceure may (bar) [nei] (2)	8	8
Case	pressure max. (bar) [psi] (3)	[116]	[116]
	Min @ may cont processes	3,832	5,050
е —	Min. @ max. cont. pressure	[2,826]	[3,724]
Starting torque (Nm) [lbf.ft] (7)	Average @ may east seesure	3,916	5,161
ξĦ	Average @ max. cont. pressure	[2,888]	[3,806]
ing (5,364	7,070
tarl (m)	Min. @ max. int. pressure	[3,956]	[5,214]
s E		9,482	7,225
	Average @ max. int. pressure (1)	[6,993]	[5,328]
		160	160
Appr	ox. weight (kg) [lbs] (7)	[352.8]	[352.8]

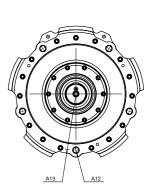


PERFORMANCE DATA

SMA DUAL DISPLACEMENT ROTATING SHAFT MOTOR TYPE C2





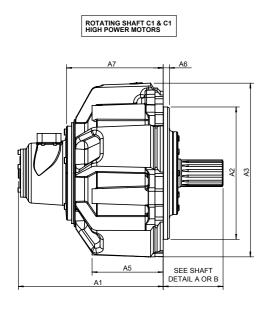


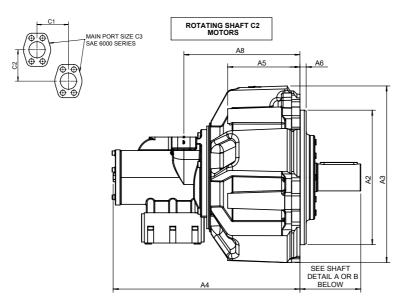
Nomi	nal displacement (cc/rev) [in³]		750 [45.8]	1,000 [61]	1,340 [81.8]	1,600 [97.6]	3,500 [213.6]	7,000 [427.14]	8,700 [530.9]
	A2		ø315	ø315	ø400	ø400	ø560	ø560	ø560
-		_	[12.4]	[12.4]	[15.75]	[15.75]	[22.05]	[22.05]	[22.05]
	A3		ø436 [17:17]	ø436 [17:17]	ø545 [21.46]	ø545 [21.46]	ø695 [27.36]	ø700 [27.56]	ø700 [27.56]
Dimensions in mm [in]			464	464	557	557	715	807	807
ᇤ	A4		[18.27]	[18.27]	[21.93]	[21.93]	[28.15]	[31.77]	[31.77]
si.	A5		187.5	187.5	215	215	86	100	100
ig	A0		[7.38]	[7.38]	[8.46]	[8.46]	[3.39]	[3.94]	[3.94]
ens	A6		16	16	19	19	27	27	27
Ë		_	[0.63]	[0.63]	[0.75]	[0.75]	[1.06]	[1.06]	[1.06]
	A8		306	306	345	345	513	650	650
		_	[12.05]	[12.05]	[13.58]	[13.58]	[20.20]	[25.59]	[25.59]
	A12	_	ø22	ø24	ø22	ø22	ø26	ø22	ø22
	A13	-	M12	M12	M16	M16	M16	M165/8 unf	M16 5/8 unf
Geon	netric displacement (cc/rev) [in3]		756	966	1,343	1,602.5	3,506.5	7,013	8,689.5
	\	_ ღ	[46.1]	[58.9]	[81.9]	[97.8]	[214]	[427.9]	[420.4]
	speed cont. (rev/min)	⊣ ફ	360	350 560	320	300	240	380	307
	speed int. (rev/min) (1)	– ŧ	610	560	510	480	380	_	
	speed freewheel (rev/min) speed std. motor (rev/min)	⊣ ნ	610 5-10	5-10	510 5-10	480 5-10	380 5-10	380 2-4	307 2-4
IVIII I. S	speed std. Motor (rev/min)	— ნ		5,541	7,470	_	19,505	39.011	48.336
Max.	torque cont. (N.m) [lbf.ft]	l di	4,209 [3,104]	[4,086]	[5,509]	8,914 [6,574]	[14,385]	[28,771]	[35,648]
		<u>—</u> ভূ	5,901	7,769	10,473	12,496	27,346	54.691	67,765
Max.	torque intermittent (N.m) [lbf.ft] (1)	Maximum displacement for dual displacement motors	[4,352]	[5,730]	[7,724]	[9,216]	[20,168]	[40,335]	[49,977]
		_ ნ	84	102	125	140	245	490	607
Max.	power cont. (k.W) [hp]	Į	[112.6]	[136.8]	[167.6]	[187.7]	[328.5]	[657:1]	[814]
		⊣ કૂ	167	203	140	170	490	980	1,215
Max.	power int. (k.W) [hp] (1)	ace	[2,421.5]	[2,943.5]	[2,030]	[2,465]	[7,105]	[14,210]	[17,617.5]
		- dsi	350	350	350	350	350	350	250
Max.	diff. pressure cont. (bar) [psi] (2)	ΙĒ	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[3,625]
		⊣ ք	490	490	490	490	490	490	350
Max.	diff. pressure int. (bar) [psi] (1)	axi	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[7,105]	[5,075]
Max.	flow cont. L/min	⊣ ≥	288	349	430	481	842	1,683	2,085
Max.	flow int. L/min (1)	┪	462	558	685	769	1,332	2,665	2,668
		\neg	7	7	7	7	7	7	7
Retu	n pressure min. (bar) [psi] (2)		[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]	[101.5]
D-4			350	350	350	350	350	350	250
Retu	n pressure max. (bar) [psi] (2)		[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[5,075]	[3,625]
C	pressure max. (bar) [psi] (3)		8	8	8	8	8	8	8
Case	pressure max. (bar) [psi] (3)		[116]	[116]	[116]	[116]	[116]	[116]	[116]
	Min. @ max. cont. pressure		3,836	5,050	6,807	8,123	17,775	35,940	31,808
Ф	Will. @ Max. cont. pressure		[2,829]	[3,724]	[5,020]	[5,991]	[13,109]	[26,506]	[23,458]
rque	Average @ max. cont. pressure		3,962	5,216	7,032	8,390	18,361	37,503	33,191
햜	Average @ max. cont. pressure		[2,922]	[3,847]	[5,186]	[6,188]	[13,541]	[27,658]	[24,478]
를 를	Min. @ max int. pressure		5,370	7,070	5,930	11,372	24,885	50,316	44,531
Starting torqu (Nm) [lbf.ft] (min & max mr bressure	_	[3,960]	[5,214]	[4,373]	[8,387]	[18,353]	[37,108]	[32,842]
3 ,	Average @max. int. pressure(1)		5,547	7,303	9,844	11,747	25,705	51,410	64,467
	Average willax. III. pressure(I)	_	[4,091]	[5,386]	[7,260]	[8,663]	[18,957]	[37,915]	[47,544]
	ox. weight (kg) (8)		180	180	305	305	760	1,100	1,100
Annr		1	[396.9]	[396.9]	[672.5]	[672.5]	[1,675.8]	[2,425.5]	[2,425.5]

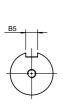
Please contact Rotary Power for second speed data.

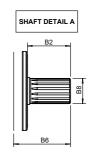
Rotary Power SMA 122175 (02) 09/21 19

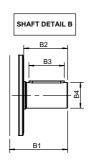
INSTALLATION DRAWING DATA



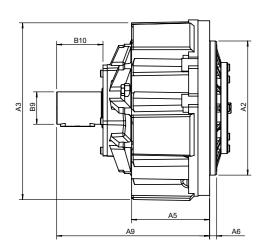


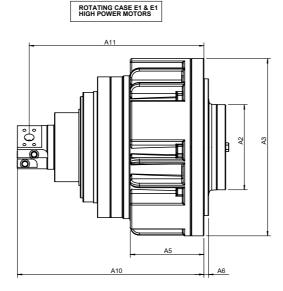












					М	otor capacity (co	c/rev)			
		200 [12.2] 290 [17.7] 350 [21.4] 480 [29.3]	500 [30.5] 650 [39.7]	750 [45.8] 850 [51.9] 1,000 [61] 1,230 [75.1]	1,340 [81.8] 1,600 [97.6] 2,200 [134.2]	2,000 [122] 2,500 [152.6] 2,800 [170.9] 3,200 [195.3]	3,500 [213.6] 4,350 [265.4]	7,000 [427.4] 8,700 [530.9]	7,400 [451.5] 8,800 [537] 10,500 [640.7]	13,000 [793.3] 16,000 [976.3]
	A1	315 [12.40]	335 [13.19]	394 [15.51]	449 [17.68]	507.5 [19.98]	602 [23.7]	761 [29.96]	601 [23.66]	708 [27.9]
	A2	ø250 [9.84]	ø 280 [11.02]	ø 315 [12.4]	ø 400 [15.75]	ø 450 [17.72]	ø 560 [22.05]	ø560 [22.05]	ø790 [31.1]	ø908 [35.78]
	А3	ø345 [13.58]	ø370 [14.57]	ø436 [17.17]	ø545 [21.46]	ø583 [22.95]	ø695 [27.36]	ø700 [27.56]	ø 900 [35.43]	ø1140 [44.92]
	A4	-	-	464 [18.27]	557 [21.93]	-	715 [28.15]	807 [31.77]	-	-
	A5	139 [5.47]	150 [5.91]	187.5 [7.38]	215 [8.46]	242.0 [9.53]	86 [3.39]	100	102 [4.02]	411 [16.19]
	A6	12	16	16	19 [0.75]	15	27	27	13	30
	A7	[0.47] 236.5 [9.31]	[0.63] 259.5 [10.22]	[0.63] 308.5 [12.15]	345 [13.58]	[0.59] 386 [15.2]	[1.06] 462 [18.19]	[1.06] 690 [27.17]	[0.51] 474 [18.66]	530 [20.88]
	A8	-	-	306 [12.05]	345 [13.58]	-	513 [20.2]	560 [22.05]	-	-
	A9	-	-	362 [14.25]	-	-	-	814 [32.05]	-	-
	A10	296 [11.65]	-	474 [18.66]	534 [21.02]	575 [22.64]	-	-	-	-
را] (ر	A11	256 [10.08]	-	418 [16.46]	478 [18.82]	490 [19.29]	-	-	-	-
s (mn	B1	122 [4.8]	154 [6.06]	156 [6.14]	181 [7:13]	184 [7.24]	225 [8.86]	225 [8.86]	305 [12.01]	-
Dimensions (mm) [in]	B2	82 [3.23]	105 [4.13]	105 [4.13]	130 [5.12]	150 [5.91]	165 [6.5]	165 [6.5]	220 [8.66]	-
Dime	В3	69 [2.72]	74 [2.91]	92 [3.62]	120 [4.72]	135 [5.31]	145 [5.71]	145 [5.71]	208 [8.19]	-
	B4	ø50 [1.97]	ø60 [2.36]	ø63 [2.48]	ø80 [3:15]	ø95 [3.74]	ø110 [4.33]	ø110 [4.33]	ø160 [6.3]	-
	B5	16 [0.63]	18 [0.71]	18 [0.71]	22 [0.87]	25 [0.98]	28 [1.1]	28 [1.1]	40 [1.57]	-
	B6	122 [4.8]	154 [6.06]	156 [6.14]	181 [7:13]	184 [7.24]	225 [8.86]	223 [8.78]	305 [12.01]	-
	B7	63 [2.48]	85 [3.35]	80 [3.15]	105 [4.13]	100 [3.94]	140 [5.51]	130 [5.12]	180 [7.09]	-
	B8	19t 10/20	18t 8/16	19t 8/16	24t 8/16	28t 8/16	25t 8/12	26t 6/12	41t 6/12	-
	B9	-	-	76 [2.99]	-	-	-	120 [4.72]	-	-
	B10	-	-	108 [4.25]	-	-	-	132 [5.2]	-	-
	C1	0	0	0	0	54 [2.13]	0	54 [2.13]	0	-
	C2	84 [3.31]	84 [3.31]	114 [4.49]	140 [5.51]	170 [6.69]	140 [5.51]	170 [6.69]	180 [7.09]	-
	СЗ	1"	1"	1-1/4"	1-1/2"	2"	2"	2"	2"	2"

The dimensions shown above are approximate and subject to change without notice. Before finalising your installation, please ask for a copy of the latest issue drawing.

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MOTOR INSTALL ATION AND APPLICATION

GENERAL

The following information is for general guidance only. Contact Rotary Power to discuss individual applications.

- Always examine the motor externally to check that damage has not occurred during transit
- Ensure the areas around the protective plugs are clean and remove all protective coatings
- Do not remove protective plugs from the main ports or drain connections until the system flushing is complete. Once plugs are removed, immediate connection to the circuit should be made

CASE MOUNTING

Provision is made for locating the motor by means of a spigot diameter on the motor crankcase. The unit should be mounted on a flat machined face. The mounting surface pilot diameter should be machined to the nominal spigot diameter +0.0 to +0.05 mm. Clearance should be made for the fillet radius between the motor spigot and mounting face.

Depending on the size of the motor, fixing will be achieved by a number of mounting bolts. All fixing holes should be utilised and match the clearance holes in the mounting bracket. If heavy or frequent torque reversals are anticipated, one or more of the attachment holes should be reamed in conjunction with the mounting bracket and fitted bolts.

SHAFT DETAILS

C1/C1 HIGH POWER/C2 MODELS

Two standard forms of output shaft are offered on the SMA range. A cylindrical shaft with a parallel key and an involute side fit splined shaft. Motor drives should be designed to eliminate unnecessary axial and radial loads to prolong bearing life. A keyed shaft is recommended for a flexible coupling output connection and a splined shaft is recommended where the driven shaft is rigidly connected to the motor. Alignment of the two shafts should be maintained within 0.05 mm TIR.

Splined shaft motors should be assembled using molybdenum grease, or preferably in an oil bath. On keyed shaft motors operating in applications where the pressures are high, where the motor is subject to reverse loadings or shock loads; the adapter, gear pinion etc. should be shrunk onto the shaft to provide an interference fit.

B1 MODEL

This motor type is supplied with a cylindrical shaft and parallel key. The connection should be either an interference shrink fit or clamped into position. In applications where the driven load is constrained by any means other than a single drive motor, please consult Rotary Power.

E1/E1 HIGH POWER MODELS

The spigot diameter on the motor shaft or port block (if fitted) should be used to accurately position the motor. The unit should be mounted onto a flat, machined face. The mounting surface pilot diameter should be machined to the nominal spigot diameter +0.0 to +0.05 mm as case mounting. Clearance should be made for the fillet radius between the motor spigot and the mounting face.

Fixing is achieved by a number of mounting bolts. All fixing holes should be utilised and match the clearance holes in the mounting bracket. Fixing bolts should be tightened to the recommended torque settings shown in the relevant installation information. If heavy or frequent torque reversals are anticipated, one or more of the attachment holes should be reamed in conjunction with the mounting bracket and corresponding fitted bolts used. For special models or applications where the driven load is constrained by any other means, please contact Rotary Power.

Please note: hammering or pressing components onto the shaft will damage the crankshaft bearings.

CASE DRAINS

Rotating shaft motors are provided with two or more main drain ports located in the main crankcase. Rotating case motors are supplied with either one or two drain ports. The drain port should be installed in the highest possible position. The bore size of the drain line should be big enough to minimise case pressure and under all conditions within the maximum value given in the relevant technical data section. Leakage rate values can be obtained from Rotary Power and must be considered together with any other requirements dictated by the application. High crankcase pressures will affect the shaft seal life and minimum boost pressure requirements for the correct motor operation.

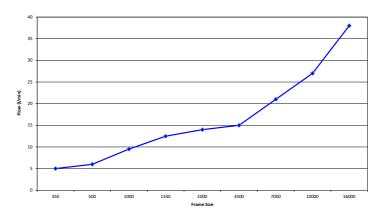
A top vent port must be used for shaft up applications and a distributor end vent port must be used, together with the main drain ports, for shaft down applications. The main drain port must be looped up to the level of the top or distributor end vent to prevent siphoning.

RADIAL LOADS

The SMA motor accepts high radial and external loads. For individual motor information contact Rotary Power.

FLUSHING FLOW

A case warming flow may be required if temperature differentials of 30 °C are envisaged between motor temperature and bulk supply oil temperature. The flow rate required depends upon the temperature differential, motor size and motor running speeds under application conditions.



FREE WHEELING

True freewheel running is achieved by isolating the motor main ports from the pressure supply and connecting them directly to the tank. Additionally, case pressure should be developed by adding flow to the motor case and creating a back pressure (nominally 2 bar above any remaining port pressure) in the drain line. This retracts and holds the pistons in their respective bores and provides internal lubrication to the hydrostatic bearings. It is possible to engage and disengage freewheel whilst an SMA motor is rotating. However, due to the high flow rates, the high risk of pump cavitation damage and excessive motor case pressures, it is recommended to engage and disengage freewheel whilst SMA motors are stationary.

Recirculating freewheel is also possible by connecting the main ports together and applying a boost pressure. If this condition is to occur for long periods, it is recommended that a purge system is also incorporated.

FLUIDS

The SMA motor will run on a wide variety of hydraulic fluids. Derating factors are set out as below:

Fluid type	% of maximum catalogue speed rate	% of maximum catalogue pressure rating
HF-A high water base	66	50
HF-B water in oil	75	60
HF-C water glycol	50	50
HF-D phosphate ester*	100	100
HF-E synthetic	100	100

^{*}Viton seals must be specified. Please contact Rotary Power if high speed running is to be part of the duty cycle or if any other special fluid will be used

OUT OF BALANCE FORCES

The orbiting motion of the cylinder block in a rotating shaft motor creates out of balance forces. This rarely has a detectable effect, but for applications where the speed is high or the mass is low, it may be beneficial to install a calculated amount of counter balance.

SEALING

All standard motors are fitted with nitrile sealing systems compatible with mineral hydraulic oils and capable of operating up to 8 bar case pressure. Please refer to the options section for further details.

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MOTOR INSTALLATION

- During system assembly thoroughly descale, clean and flush the pipework, fittings and the reservoir. Fill the systems with
 new filtered fluid ensuring that it meets the required viscosity specifications at envisaged operating temperature, type and
 cleanliness for all components. The motor case must be filled through the motor case drain port on a rotating shaft motor,
 or through one of the case vent ports located in the crankcase on a rotating case motor. Ensure that the case drain line is
 filled and all connections are tightened.
- 2. Check the rotation flow information provided on the installation drawings.
- 3. Start up the pump drive slowly. For engines, turn on the starter motor for a few seconds at a time. For electric motors, start up by a series of rapid on/off cycles. This is to ensure that the pump internal components are filled with oil. Run the system at high flow and low pressure and actuate all systems in modes until the air in the system has been released as this could cause pulsation. The motor should run smoothly after approximately ten minutes of operation.
- 4. After the motor rotation has been proved under no-load conditions, it may be operated up to maximum pressure.
- 5. Top up fluid levels if necessary.
- 6. Check the motor case pressure in all operating modes to ensure that the maximum allowable value for a specific motor model is not exceeded.
- 7. Adjust all settings in compliance with system requirement instructions.
- 8. The steady state operating temperature should be in accordance with the system and component requirements.
- 9. Check for and repair any leaks.
- 10. After the first few running hours, clean or renew all filters as appropriate.
- 11. After 100 hours of operation, check the security of all mounting bolts and socket head screws used in the assembly of the motor. Check the security of the drive coupling and pipe connections and clean or replace filter elements.

NOTES

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UK

Rotary Power Waldridge Way Simonside East Industrial Park South Shields Tyne and Wear NE34 9PZ

T: +44 (0) 191 276 4444 F: +44 (0) 191 276 4462 E: enquiries@rotarypower.com

USA

Rotary Power Inc. 3952 West Tickman Street Unit 4 Sioux Falls SD 57107

T: +1 (605) 361 5155 F: +1 (605) 362 1949 E: info@rotarypower.com

Germany

Rotary Power Lukasstraße 25a 52070 Aachen Germany

T: +49 (0) 241 955 190 E: info.ac@rotarypower.com

India

Rotary Power 6A, Attibele Industrial Area Anekal Taluk Bangalore 562 107

T: +91 (80) 782 0011 F: +91 (80) 782 0013

E: indiaenquiries@rotarypower.com

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