

# INTERNATIONAL STANDARD

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**AMENDMENT 1**  
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## Seal-less rotodynamic pumps — Class II — Specification

### AMENDMENT 1

*Pompes rotodynamiques sans dispositif d'étanchéité d'arbre —  
Classe II — Spécifications*

*AMENDEMENT 1*

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## Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

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## Seal-less rotodynamic pumps — Class II — Specification

### AMENDMENT 1

*Pages 40 and 41, Annex F*

Replace the existing “Table F.1 — Internationally and nationally accepted materials for pump parts” by the following:

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Table F.1 — Internationally and nationally accepted materials for pump parts

Material class	Applications	International Standard ISO	USA		UNS <sup>a</sup>	EN <sup>b</sup>	Europe		Japan JIS
			ASTM				Designation	Number	
Cast iron	Pressure castings	185/Gr. 250	A 278 Class 30	F12401	EN 1561	EN-GJL-250	JL1040	G 5501, Gr. FC 250	
	General castings	185/Gr. 300	A 48 Class 25/30/40	F11701/ F12101	1561	EN-GJL-250 EN-GJL-300	JL1040 JL1050	G 5501, Gr. FC 250 G 5501, Gr. FC 300	
Ductile iron	General castings	1083, 400-18	A 536 Gr 60-40-18	F32800	1563	EN-GJS-400-18	JS1020	G5502, Gr.FCD400-18	
Ni-resist	Special castings	2892, L-NiCuCr 15 6 3 2892, S-NiCr 20 2	A 436 Type 1	F41000	13835	EN-GJLA-XNiCuCr15-6-2		G5510, Gr.FCA- NiCuCr1563	
			A 439 Type D-2	F43000	13835	EN-GJSA-XNiCr20-2	—	G5510, Gr.FCDA- NiCr202	
Carbon steel	Pressure castings	4991 C23-45AH	A 216 Gr WCB	J03002	10213-2	GP 240 GH	1.0619	G 5151, CI SCPL 2	
	Low-temperature castings	4991, C23-45BL	A 352 Gr LCB	J 03003	10213-3	G18M65	1.5422	G5152, CI SCPL1	
4991, C43E2aL		A 352 Gr LC2	J 22500	10213-3	G20M65	1.6220	G5152, CI SCPL11		
4991, C43L		A 352 Gr LC3	J 31550	10213-3	G9Ni10	1.5636	G5152, CI SCPL21		
Wrought/ forgings	683-18-C25, 9327-2 - PH26-PH31, 9327-4	A 266 Class 2	K03506	10222-2	P 280 GH	1.0426	G 3202, CI SFVC 2A		
		A 696 Gr B40	G10200	10273	P 295 GH	1.0481	G 4051, CI S25C		
Bar stock: pressure	683-18-C 25, 9327-2, PH26-PH31, 9327-4	A 576 Gr 1045	G10450	10083-2	C 45	1.0503	G 4051, CI S45C		
		A 193 Gr B7	G41400	10269	42 Cr Mo 4	1.7225	G 4107, Class 2, SNB7		
Bolts and studs (general)	683-1-C35e	A 194 Gr 2H	K04002	10269	C 35 E	1.1181	G 4051, CI S45C		
		9328-4, P 355 TN/PL 355 TN	K02403/ K02700	10028-3 10028-2	P 355 N P 355 NL1 P 295 GH P 355 GH	1.0562 1.0566 1.0481 1.0473	G 3106, Gr. SM400B		

Table F.1 (continued)

Material class	Applications	International Standard ISO	USA		EN <sup>b</sup>	Europe		Japan JIS
			ASTM	UNS <sup>a</sup>		Designation	Number	
Carbon steel (cont.)	Pipe	9329-2, PH26-PH35	A 106 GrB	K03006	10208-1	L 245 GA	1.0459	G 3456, Gr. STPT 370/410
	Fittings	—	A 105	K03504	—	—	—	G 4051, CI S25C G 3202, CI SFVC 2A, SFVC2B
AISI 4140 Chromium steel	Bar stock	—	A 434 Class BB A 434 Class BC	G41400 <sup>c</sup>	10083-1	42 Cr Mo 4	1.7225	G 4105, CI SCM 440
	Bolts and studs	—	A 193 Gr B7	G41400	10269	42 Cr Mo 4	1.7225	G 4107, Class 2, SNB7
	Nuts	9327-2-F31	A 194 Gr 2H	K04002	10269	C 45 E	1.1191	G 4051, CI S45C
			A 217 Gr CA 15	J91150	10213-2	GX 8 Cr Ni 12	1.4107	G 5121, CI SCS 1
12% Chromium steel	Pressure castings	—	A 487 Gr CA6NM	J91540	10213-2	GX 4 Cr Ni 13-4	1.4317	G 5121, CI SCS 6, CI SCS 6X
	General castings	—	A 743 Gr CA 15	J91150	10283	GX 12 Cr 12	1.4011	G 5121, CI SCS1, CI SCS1X
12% Chromium steel	General castings	—	A 743 Gr CA6NM	J91540	10283	GX 4 Cr Ni 13-4	1.4317	G 5121, CI SCS6, CI SCS6X
			Wrought/forgings: pressure	A 182 Gr F6a CI 1 A 182 Gr F 6 NM	S41000 S41500	10250-4 10222-5	X12 Cr 13 X 3 Cr NiMo 13-4-1	1.4006 1.4313
	Wrought/forgings: general	—	A 473 Type 410	S41000	10088-3	X 12 Cr 13	1.4006	G 3214, Gr. SUS 410-A
	Bar stock: pressure	—	A 479 Type 410	S41000	10272	X12 Cr 13	1.4006	G 4303, Gr. SUS 410 or 403
	Bar stock: general	—	A 276 Type 410	S41400	10088-3	X 12 Cr 13	1.4006	G 4303, Gr. SUS 410 or 403
	Bar stock: forgings <sup>c</sup>	—	A 276 Type 420	S42000	10088-3	X 20 Cr 13	1.4021	G 4303, Gr. SUS 420J1
			A 473 Type 416	S41600	1.4005	X 20 Cr S 13	1.4005	or 420J2
			A 582 Type 416	S41600	1.4005	X 20 Cr S 13	1.4005	

Table F.1 (continued)

Material class	Applications	International Standard ISO	USA		UNS <sup>a</sup>	EN <sup>b</sup>	Europe		Number	Japan JIS	
			ASTM				Designation				
12% Chromium steel (cont.)	Bolts and studs <sup>d</sup>	3506-1, C4-70	A 193 Gr B6		S41000	10269	X22CrMoV 12-1		1.4923	G 4303, Gr. SUS 410 or 403	
	Nuts <sup>d</sup>	3506-2, C4-70	A 194 Gr 6		S41000	10269	X22CrMoV 12-1		1.4923	G 4303, Gr. SUS 410 or 403	
	Plate	—	A 240 Type 410		S41000	10088-2	X 12 Cr 13		1.4006	G 4304/4305 Gr. SUS 410 or 403	
Austenitic stainless steel	Pressure castings	11972, GX2CrNi18-10	A 351 Gr CF3		J92500	10213-4	GX2 Cr Ni 19-11		1.4309	G 5121, CI SCS 19A	
		11972, GX2CrNiMo19-11-2	A 351 Gr CF3M		J92800	10213-4	GX2 Cr Ni Mo 19-11-2		1.4409	G 5121, CI SCS 16A G5121, CI SCS16AX	
	General castings	11972, GX2CrNi18-10	A 743 Gr CF3		J92500	10283	10283	GX2 Cr Ni 19-11		1.4309	G 5121, CI SCS 19A
		11972, GX2CrNiMo19-11-2	A 743 Gr CF3M		J92800	10283	10283	GX2 Cr Ni Mo 19-11-2		1.4409	G 5121, CI SCS 16A G5121, CI SCS16AX
Wrought/ forgings	9327-5, XCrNi18-10	A 182 Gr F 304L		S30403	10222-5	10222-5	X2 Cr Ni 19-11		1.4306	G 3214, Gr. SUS F 304 L	
	9327-5, XCrNiMo17-12	A 182 Gr F 316L		S31603	10222-5 10250-4	10222-5 10250-4	X2 Cr Ni Mo 17-12-2		1.4404	G 3214, Gr. SUS F 316 L	
Bar stock <sup>e</sup>		9327-5, X2CrNi18-10	A 479 Type 304L		S30403	10088-3	X2 Cr Ni 19-11		1.4306	G 4303, Gr. SUS 304 L	
		9327-5, X2CrNiMo17-12	A 479 Type 316L		S31603	10088-3	X2 Cr Ni Mo 17-12-2		1.4404	G 4303, Gr. SUS 316 L	
			A 479 Type 317		S31700	10088-3	10088-3	X2 Cr Ni Mo 18-15-4		1.4361	
			A 479 Type XM19		S20910	—	—	—		—	
Plate		—	A 240 Type XM19		S20910	—	—		—	—	
			A 240 Gr 304L / 316L		S30403 S31603	10028-7 10028-7	X2 Cr Ni 19-11 X2 Cr Ni Mo 17-12-2		1.4306 1.4404	G 4304/4305, Gr. SUS 304L/316L	
Pipe		9329-4, X2CrNi18-10, 9329-4, X2CrNiMo17-13,	A 312 Type 304L 316L		S30403 S31603	—	—		—	G 3459, Gr. SUS 304LTP/316LTP	

Table F.1 (continued)

Material class	Applications	International Standard	USA		EN <sup>b</sup>	Europe		Japan
			ASTM	UNS <sup>a</sup>		Designation	Number	
Austenitic stainless steel	Fittings	9327-5, X2CrNi18-10	A 182	S30403	10222-5	X2 Cr Ni 19-11	1.4306	G 3214, Gr. SUS F304L/F316L
		9327-5, X2CrNiMo17-12	Gr F304L, Gr 316L	S31603		X2 Cr Ni Mo 17-12-2	1.4404	
Bolts and studs	Nuts	3506-1, A4-70	A 193 Gr B8M	S31600	10250-4	X6 Cr Ni Mo Ti 17-12-2	1.4571	G 4303, Gr. SUS 316
		3506-2, A4-70	A 194 Gr B8M	S31600	10250-4	X6 Cr Ni Mo Ti 17-12-2	1.4571	G 4303, Gr. SUS 316
Precipitation hardened stainless steel	Pressure forgings	—	A 705 ("15-5 PH") A 705 ("17-4 PH")	S 15500 S 17400	—	—	—	—
		11972, GX2CrNiCuMoN 26 5 3 3	A 351 Gr CD4 MCu A 890 Gr 1 B	J93370 J93372	10213-4	GX2 CrNiMoCuN 25-6-3-3	1.4517	
Duplex stainless steel	Pressure castings	11972, GX2CrNiMoN 26 5 3	A 890 Gr 3A <sup>c</sup>	J93371	—	—	—	G 5121, Gr. SCS 11
		—	A 890 Gr 4A <sup>c</sup>	J92205	10213-4	GX2 CrNiMoN 22-5-3	1.4470	G 5121, Gr. SCS 10
Wrought/forgings	Bar stock	9327-5, X2CrNiMoN22-5-3	A 182 Gr F 51	S31803	10250-4 10222-5	X2 Cr Ni Mo N 22-5-3	1.4462	
		—	A 479	S32550	10088-3	X2 Cr Ni Mo Cu N 25-6-3	1.4507	
Plate	Pipe	9327-5, X2CrNiMoN22-5-3	A 276-S31803	S31803	10088-3	X2 Cr Ni Mo N 22-5-3	1.4462	G 4303, Gr. SUS 329J3L
		—	A 240-S31803	S31803	10028-7	X2 Cr Ni Mo N 22-5-3	1.4462	G 4304/G 4305, Gr. SUS 329J3L
Fittings	Bolts and studs	9327-5, X2CrNiMoN22-5-3	A 182 Gr F 51	S31803	10250-4 10222-5	X2 Cr Ni Mo N 22-5-3	1.4462	B 2312/B 2316 Gr. SUS329J3L
		9327-5, X2CrNiMoN22-5-3	A 276-S31803	S31803	10088-3	X2 Cr Ni Mo N 22-5-3	1.4462	G 4303, Gr. SUS 329J3L
Nuts	Nuts	9327-5, X2CrNiMoN22-5-3	A 276-S31803	S31803	10088-3	X2 Cr Ni Mo N 22-5-3	1.4462	G 4303, Gr. SUS 329J3L
		—	A 790-S31803	S31803	—	—	—	G 3459, Gr. SUS 329J3LTP