

Solutions for hygienic and sterile production

For motion control applications in hygienic and sterile production environments, Nidec Drive Technology offers products with optimal geometry and cleanability. The HRV inline planetary series features 316L stainless construction, allowing for direct integration into equipment and eliminating the need for protective covers. Smooth, rounded edges prevent bacteria growth and other contamination. IP69K rating along with high temperature seals and o-rings enable efficient, high-pressure cleaning with water, steam or caustic chemicals. A laser etched nameplate ensures traceability after several years of operation. The HRV is designed to mount seamlessly to stainless steel servomotors with B14 style output flanges.



HRV Series at a glance

- Frame sizes 070, 090, 120
- Ratios 3:1 – 100:1
- Backlash from ≤ 8 to ≤ 14 arc-min
- Hygienic 316L stainless steel construction and smooth rounded surfaces with Ra value $< 0.8 \mu\text{m}$
- IP69K Ingress Protection with FDA approved Viton seals
- NSF H1 Synthetic Food Grade Grease
- Certified FDA, NSF, EHEDG, 3A
- Mounting for stainless servomotors with B14 flanges such as Allen-Bradley VPH/VPS/MPS, Kollmorgen AKMH/AKMA, Beckhoff AM880, Yaskawa M5, Siemens S-1FS2 and others
- Maximum corrosion protection and cleanability

Design Features & Benefits

FDA approved Viton shaft seals and O-rings provide IP69K protection against high pressure, high temperature water jets and steam

316L grade austenitic stainless steel housing, smooth rolled finish to $< 0.8 \mu\text{m}$ Ra with rounded corners and edges

Laser etched name plate ensures traceability after several years of operation



316L grade austenitic stainless steel output shaft and key for maximum resistance to corrosion and oxidation

NSF H1 high performance 100% synthetic food grade lubrication allows incidental contact with food and can be used in processing areas. Allows flexible mounting in any orientation

Seamless mounting for stainless steel servomotors with B14 flanges

Specifications and Materials

Frame Size	Unit	HRV-070	HRV-090	HRV-120
Reduction Ratios		Single Stage: 3, 4, 5, 7, 10 Two Stage: 12, 16, 20, 25, 30, 35, 40, 50, 70, 100	Single Stage: 3, 4, 5, 7, 10 Two Stage: 12, 16, 20, 25, 30, 35, 40, 50, 70, 100	Single Stage: 3, 4, 5, 7, 10 Two Stage: 12, 16, 20, 25, 30, 35, 40, 50, 70, 100
Nominal Output Torque	Nm	16 - 44	40 - 100	100 - 210
Maximum Output Torque	Nm	24 - 55	75 - 125	180 - 255
Emergency Stop Torque	Nm	62 - 84	160 - 216	200 - 480
Nominal Input Speed	rpm	3500	3000	2500
Maximum Input Speed	rpm	6000	6000	5000
No Load Running Torque	Nm	0.17	0.33	0.60
Maximum Radial Load	N	910	950	2100
Maximum Axial Load	N	500	1800	3200
Moment of Inertia (≤ Ø 14)	kg/cm ²	0.32 - 0.43	0.69 - 1.15	--
Moment of Inertia (≤ Ø 19)	kg/cm ²	0.52 - 0.65	0.89 - 1.38	2.16 - 5.79
Moment of Inertia (≤ Ø 24)	kg/cm ²	--	1.81 - 2.67	2.63 - 6.27
Moment of Inertia (≤ Ø 32)	kg/cm ²	--	--	2.97 - 6.60
Efficiency	%	1-Stage: 92 / 2-Stage: 90	1-Stage: 92 / 2-Stage: 90	1-Stage: 92 / 2-Stage: 90
Torsional Rigidity	Nm/arc-min	1.35 - 2.4	3.4 - 7.1	8.3 - 17
Maximum Torsional Backlash	arc-min	1-Stage: ≤ 10 / 2-Stage ≤ 14	1-Stage: ≤ 10 / 2-Stage ≤ 14	1-Stage: ≤ 8 / 2-Stage ≤ 12
Noise Level	dB[A]	≤ 64	≤ 65	≤ 68
Service Life	hrs	30,000	30,000	30,000
Protection Class	IP	IP69K	IP69K	IP69K
Seal Material	--	FDA Viton	FDA Viton	FDA Viton
Lubrication	--	NSF H1 Food Grade Grease	NSF H1 Food Grade Grease	NSF H1 Food Grade Grease
Output Shaft Material	--	316L Grade Stainless Steel	316L Grade Stainless Steel	316L Grade Stainless Steel
Housing Material	--	316L Grade Stainless Steel	316L Grade Stainless Steel	316L Grade Stainless Steel
Ambient Temperature	°C	-25 to +90	-25 to +90	-25 to +90
Permitted Housing Temperature	°C	90	90	90
Weight	kg	3.0 - 3.5	8.5 - 9.4	13.5 - 16.1

Ordering Codes

HRV	—	090	—	10	—	K	—	10	—	AA
Series Name		Frame Size		Ratio		Output Mounting Style		Backlash		Motor Mounting Code
HRV		070 090 120		1 Stage: 3 4 5 7 10 2 Stage: 12 16 20 25 30 35 40 50 70 100		K: Keyed Shaft S: Smooth shaft		1 Stage: ≤ 8-10 arc-min 2 Stage: ≤ 12-14 arc-min		Motor mounting code varies depending on the motor