





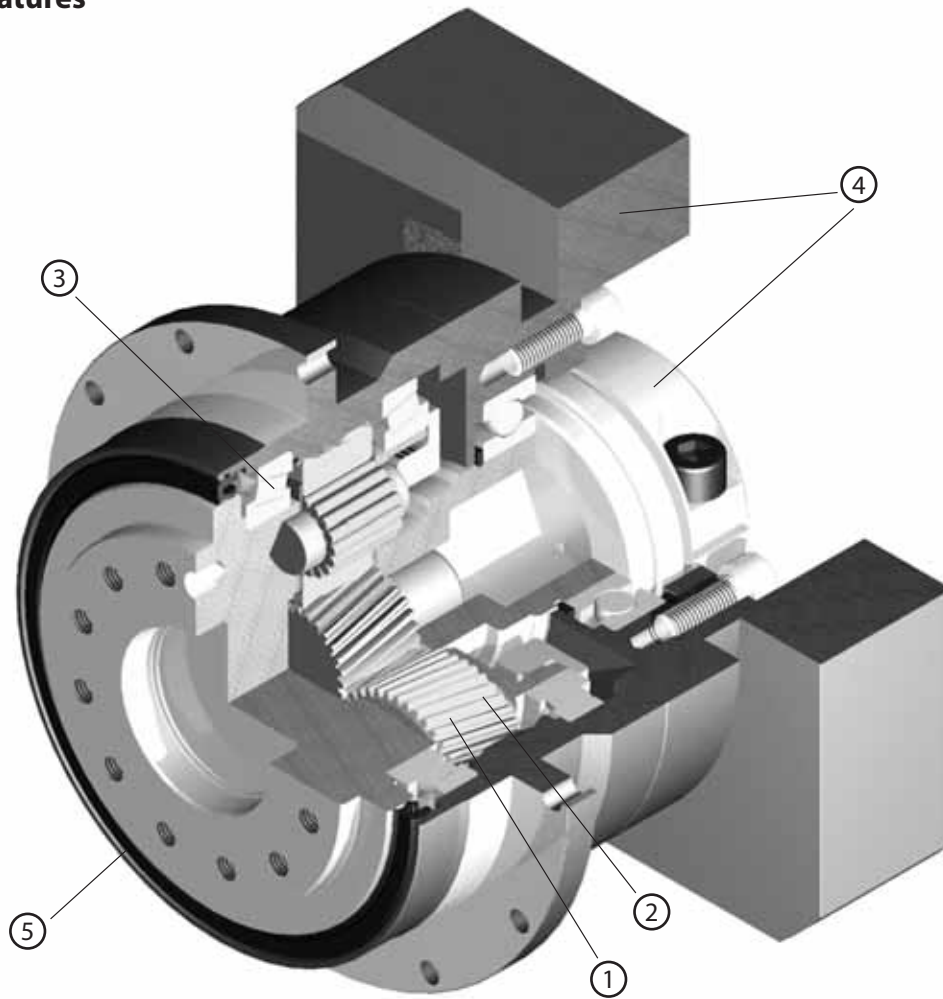
VRT

### VRT-SERIES

- ISO9409 robotics industry mounting interface
- Superior flexibility in mounting of pinions, pulleys and turntables
- Exceptional torsional rigidity for high positional accuracy needs
- Nice compact and robust design
- Impressive radial and axial load capability

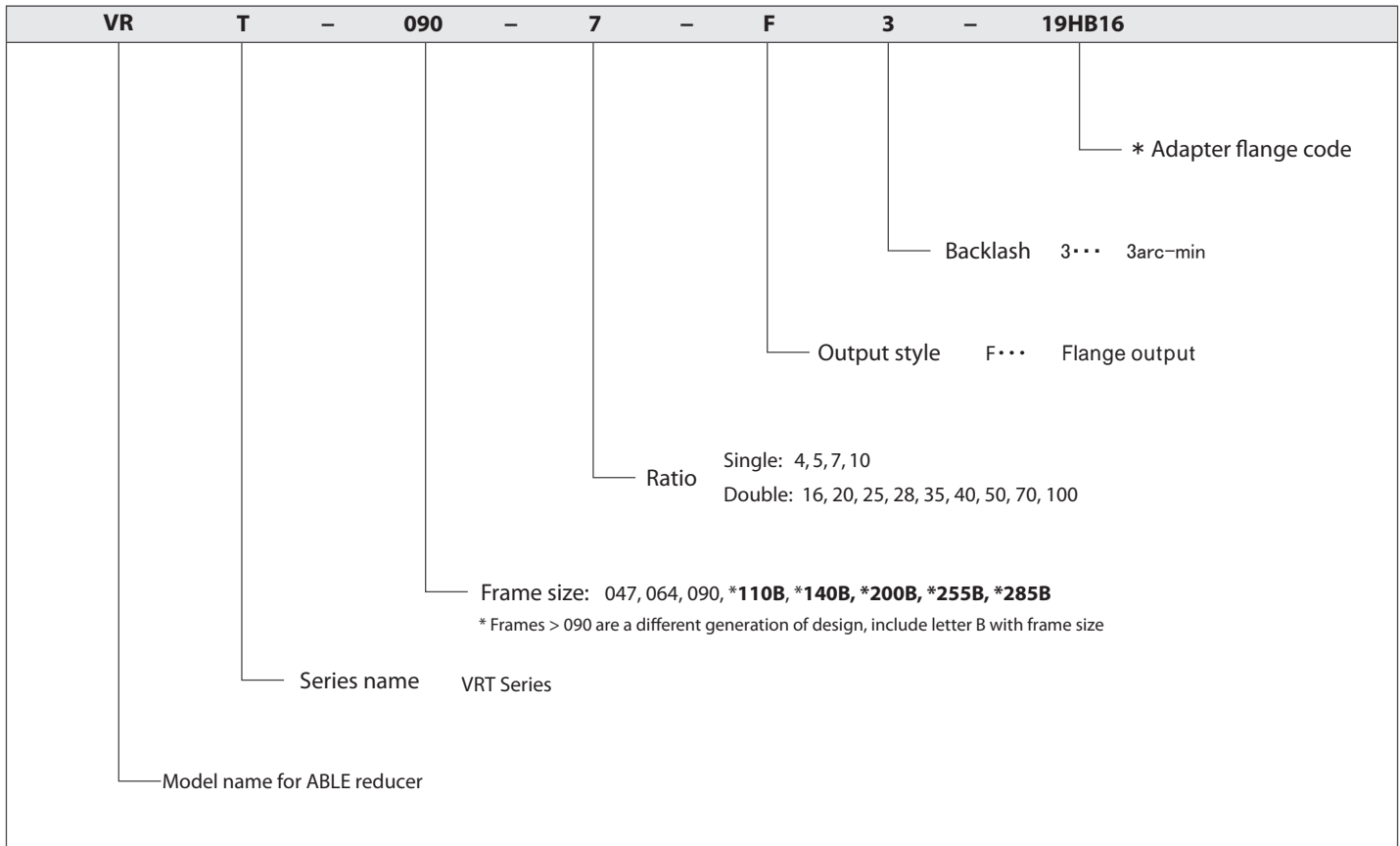
# VRT-SERIES Inline shaft

## VRT-Series – Features



- ① High precision: Standard backlash is 3 arc-min, ideal for higher levels of positional accuracy
- ② High rigidity & torque: Rigidity and torque capacity are achieved by using uncaged needle roller bearings
- ③ High load capacity: Tapered roller bearings were added to the output section to increase radial and axial load ratings on most frame sizes
- ④ Adapter-bushing connection: Enables a simple, effective attachment to most servo motors
- ⑤ No leakage through the seal: High viscosity, anti-separation grease does not liquefy and does not migrate away from the gears
- ⑥ Maintenance-free: No need to replace the grease for the life of the unit. The reducer can be positioned in any orientation

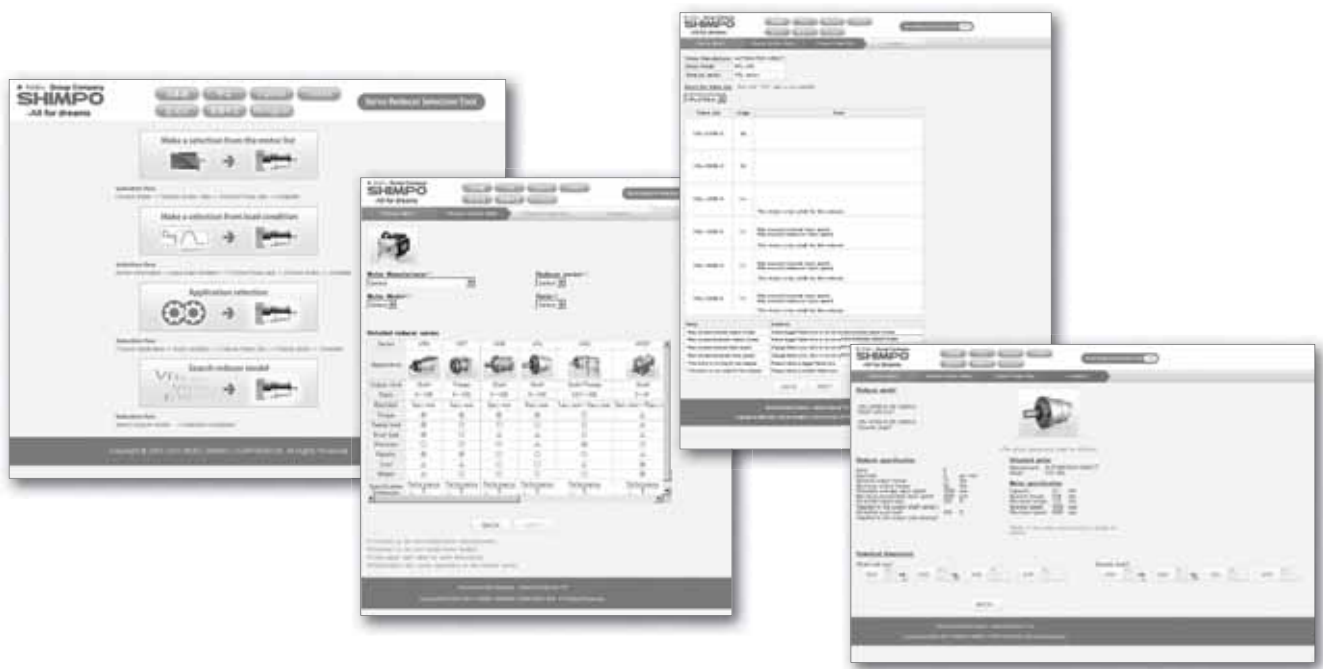
## VRT-Series – Model Code



VRT

\*1) Adapter flange code  
 Adapter flange code varies depending on the motor.

**Contact us for additional information or refer to our online reducer selection tool.**  
 Selection tool [www.nidec-shimpo.co.jp/selection/eng](http://www.nidec-shimpo.co.jp/selection/eng)



## VRT-047 – 1-Stage Specifications

Frame Size	047										
Stage	1-Stage										
Ratio	Unit	Notes	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	9	9	9	9	9	6	6		
Maximum Acceleration Torque	[Nm]	*2	18	18	18	18	18	12	12		
Emergency Stop Torque	[Nm]	*3	35	35	35	35	35	30	30		
Nominal Input Speed	[rpm]	*4	4000								
Maximum Input Speed	[rpm]	*5	8000								
No Load Running Torque	[Nm]	*6	0.03								
Permitted Radial Load	[N]	*7	270	300	310	330	350	360	370		
Permitted Axial Load	[N]	*8	300	330	360	390	410	430	450		
Maximum Radial Load	[N]	*9	1100								
Maximum Axial Load	[N]	*10	550								
Moment of Inertia ( $\leq \emptyset 8$ )	[kgcm <sup>2</sup> ]	--	0.052	0.043	0.038	0.036	0.034	0.033	0.032		
Moment of Inertia ( $\leq \emptyset 14$ )	[kgcm <sup>2</sup> ]	--	0.090	0.081	0.077	0.074	0.072	0.071	0.071		
Efficiency	[%]	*11	95								
Torsional Rigidity	[Nm/arc-min]	*12	2								
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$								
Noise Level	[dB]	*13	$\leq 61$								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	0.7								

## VRT-047 – 2-Stage Specifications

Frame Size	047										
Stage	2-Stage										
Ratio	Unit	Notes	16	20	25	28	35	40	45		
Nominal Output Torque	[Nm]	*1	9	9	9	9	9	9	6		
Maximum Acceleration Torque	[Nm]	*2	18	18	18	18	18	18	12		
Emergency Stop Torque	[Nm]	*3	35	35	35	35	35	35	30		
Nominal Input Speed	[rpm]	*4	4000								
Maximum Input Speed	[rpm]	*5	8000								
No Load Running Torque	[Nm]	*6	0.01								
Permitted Radial Load	[N]	*7	440	470	510	530	570	590	620		
Permitted Axial Load	[N]	*8	550	550	550	550	550	550	550		
Maximum Radial Load	[N]	*9	1100								
Maximum Axial Load	[N]	*10	550								
Moment of Inertia ( $\leq \emptyset 8$ )	[kgcm <sup>2</sup> ]	--	0.039	0.035	0.034	0.038	0.034	0.030	0.034		
Moment of Inertia ( $\leq \emptyset 14$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	--	--		
Efficiency	[%]	*11	90								
Torsional Rigidity	[Nm/arc-min]	*12	2								
Maximum Torsional Backlash	[arc-min]	--	$\leq 5$								
Noise Level	[dB]	*13	$\leq 61$								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	0.8								

## VRT-047 – 2-Stage Specifications

Frame Size	047								
Stage	2-Stage								
Ratio	Unit	Notes	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	9	9	9	9	6	6	
Maximum Acceleration Torque	[Nm]	*2	18	18	18	18	12	12	
Emergency Stop Torque	[Nm]	*3	35	35	35	35	30	30	
Nominal Input Speed	[rpm]	*4	4000						
Maximum Input Speed	[rpm]	*5	8000						
No Load Running Torque	[Nm]	*6	0.01						
Permitted Radial Load	[N]	*7	640	680	710	750	780	800	
Permitted Axial Load	[N]	*8	550	550	550	550	550	550	
Maximum Radial Load	[N]	*9	1100						
Maximum Axial Load	[N]	*10	550						
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	0.030	0.030	0.030	0.030	0.030	0.030	
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	--	
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	2						
Maximum Torsional Backlash	[arc-min]	--	$\leq 5$						
Noise Level	[dB]	*13	$\leq 61$						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0 - 40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	0.8						

\*1) At nominal input speed, service life is 20,000 hours

\*2) The maximum torque when starting or stopping operation

\*3) The maximum torque allowed under a stress situation (Permitted 1,000 times during service life)

\*4) The average input speed

\*5) The maximum intermittent input speed

\*6) This is the torque at no load applied on the input shaft. The input speed is 4,000 rpm for VRT 047

\*7) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side bearing)

\*8) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output flange center)

\*9) The maximum radial load that the reducer can accept

\*10) The maximum axial load that the reducer can accept

\*11) The efficiency at the nominal torque rating

\*12) This does not include the lost motion

\*13) Contact NIDEC-SHIMPO for the testing conditions and environment

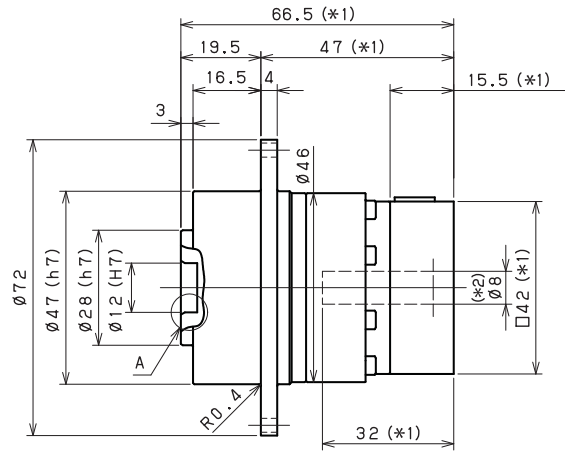
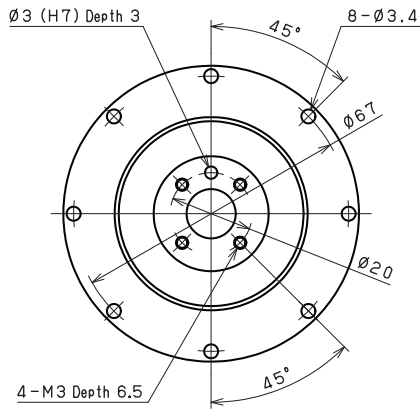
\*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details and our food grade options

\*15) The weight may vary slightly between models

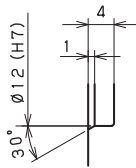
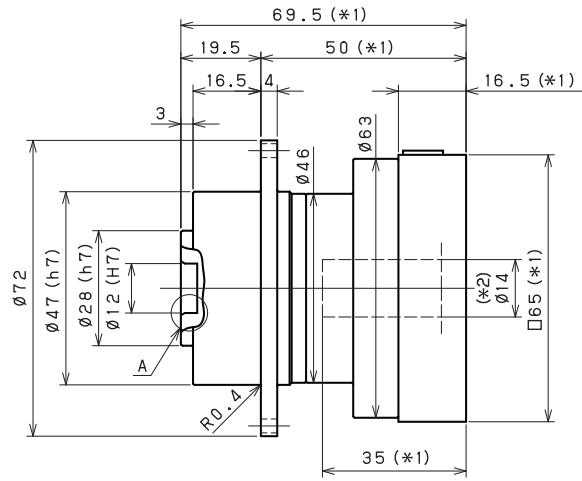
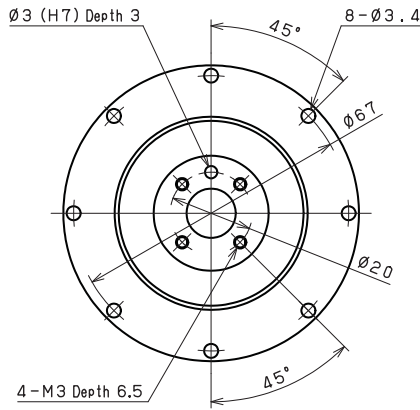
# VRT-SERIES Inline shaft

## VRT-047 – 1-Stage Dimensions

Input shaft bore  $\leq \phi 8$



Input shaft bore  $\leq \phi 14$



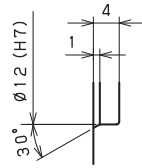
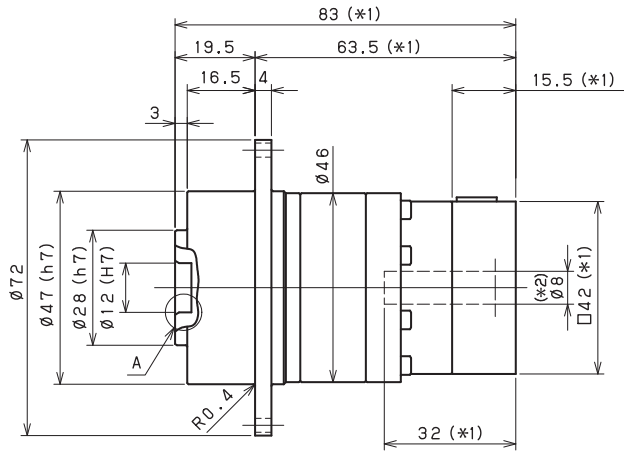
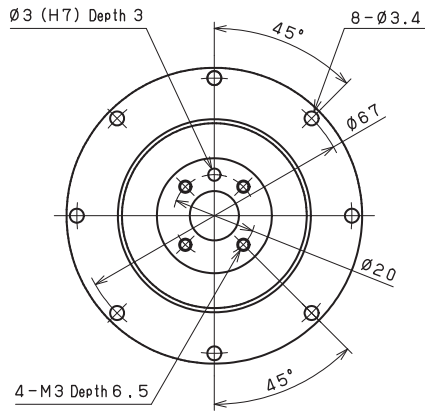
Enlarged detail A

\*1) Length will vary depending on motor

\*2) Bushing will be inserted to adapt to motor shaft

VRT-047 – 2-Stage Dimensions

Input shaft bore  $\leq \phi 8$



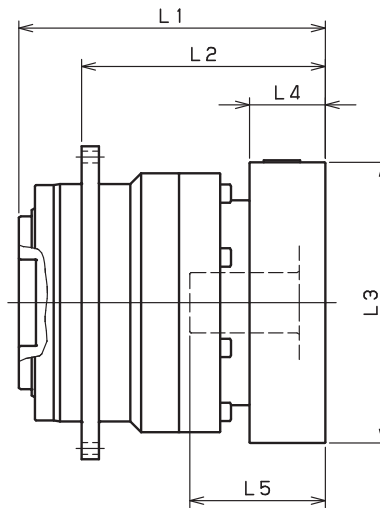
Enlarged detail A

- \*1) Length will vary depending on motor
- \*2) Bushing will be inserted to adapt to motor shaft

VRT



## VRT-047 – 1-Stage Adapter Dimensions



Model Number	**: Adapter Code	1-Stage					
		L1	L*	L2	L3	L4	L5
VRT-047-□-□-58** (Input shaft bore ≤ φ8)	AA·AC·AD·AF·AG	66.5	51	47	□42	15.5	32
	AB·AE·AH·AJ·AK	71.5	51	52	□42	20.5	37
	BC·BF	66.5	51	47	□60	15.5	32
	CA	71.5	51	52	□60	20.5	37
VRT-047-□-□-14** (Input shaft bore ≤ φ14)	BA·BB·BD·BE·BF·BG·BJ·BK·BP	69.5	53	50	□65	16.5	35
	BC·BH·BM·BN	74.5	53	55	□65	21.5	40
	BL	79.5	53	60	□65	26.5	45

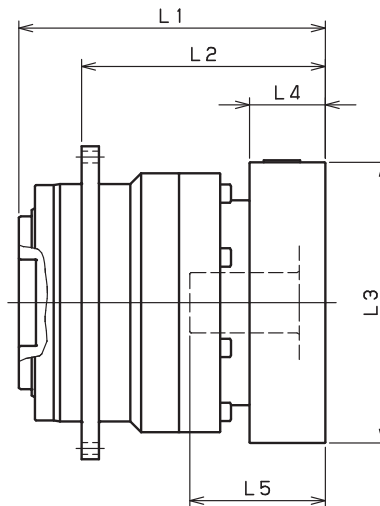
\*1) Single reduction : 1/4 - 1/10

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-047 – 2-Stage Adapter Dimensions



Model Number	**: Adapter Code	2-Stage					
		L1	L*	L2	L3	L4	L5
VRT-047-□-□-58** (Input shaft bore ≤ φ8)	AA·AC·AD·AF·AG	83	67.5	63.5	□42	15.5	32
	AB·AE·AH·AJ·AK	88	67.5	68.5	□42	20.5	37
	BC·BF	83	67.5	63.5	□60	15.5	32
	CA	88	67.5	68.5	□60	20.5	37
VRT-047-□-□-14** (Input shaft bore ≤ φ14)	BA·BB·BD·BE·BF·BG·BJ·BK·BP	--	--	--	--	--	--
	BC·BH·BM·BN	--	--	--	--	--	--
	BL	--	--	--	--	--	--

\*1) Double reduction : 1/16 - 1/100

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-064 – 1-Stage Specifications

Frame Size	064										
Stage	1-Stage										
Ratio	Unit	Note	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	27	27	27	27	27	18	18		
Maximum Acceleration Torque	[Nm]	*2	50	50	50	50	50	35	35		
Emergency Stop Torque	[Nm]	*3	100	100	100	100	100	80	80		
Nominal Input Speed	[rpm]	*4	3000								
Maximum Input Speed	[rpm]	*5	6000								
No Load Running Torque	[Nm]	*6	0.08								
Permitted Radial Load	[N]	*7	370	400	420	440	460	480	500		
Permitted Axial Load	[N]	*8	360	390	430	460	480	510	530		
Maximum Radial Load	[N]	*9	1500								
Maximum Axial Load	[N]	*10	750								
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	0.130	0.100	0.085	0.075	0.068	0.064	0.062		
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.210	0.180	0.170	0.150	0.150	0.140	0.140		
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	0.400	0.400	0.400	0.400	0.400	0.400	0.400		
Efficiency	[%]	*11	95								
Torsional Rigidity	[Nm/arc-min]	*12	3								
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$								
Noise Level	[dB]	*13	$\leq 66$								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	1.4								

## VRT-064 – 2-Stage Specifications

Frame Size	064										
Stage	2-Stage										
Ratio	Unit	Note	16	20	25	28	35	40	45		
Nominal Output Torque	[Nm]	*1	27	27	27	27	27	27	18		
Maximum Acceleration Torque	[Nm]	*2	50	50	50	50	50	50	35		
Emergency Stop Torque	[Nm]	*3	100	100	100	100	100	100	80		
Nominal Input Speed	[rpm]	*4	3000								
Maximum Input Speed	[rpm]	*5	6000								
No Load Running Torque	[Nm]	*6	0.04								
Permitted Radial Load	[N]	*7	580	630	680	700	760	790	820		
Permitted Axial Load	[N]	*8	650	720	750	750	750	750	750		
Maximum Radial Load	[N]	*9	1500								
Maximum Axial Load	[N]	*10	750								
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	0.059	0.055	0.054	0.056	0.053	0.049	0.530		
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.140	0.140	0.130	0.140	0.130	0.130	0.130		
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	0.360	0.350	0.350	0.360	0.350	0.340	0.350		
Efficiency	[%]	*11	90								
Torsional Rigidity	[Nm/arc-min]	*12	3								
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$								
Noise Level	[dB]	*13	$\leq 66$								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	1.6								

## VRT-064 – 2-Stage Specifications

Frame Size	064								
Stage	2-Stage								
Ratio	Unit	Note	50	60	70	80	90	100	
Nominal Output Torque	[Nm]	*1	27	27	27	27	18	18	
Maximum Acceleration Torque	[Nm]	*2	50	50	50	50	35	35	
Emergency Stop Torque	[Nm]	*3	100	100	100	100	80	80	
Nominal Input Speed	[rpm]	*4	3000						
Maximum Input Speed	[rpm]	*5	6000						
No Load Running Torque	[Nm]	*6	0.04						
Permitted Radial Load	[N]	*7	850	910	950	1000	1000	1100	
Permitted Axial Load	[N]	*8	750	750	750	750	750	750	
Maximum Radial Load	[N]	*9	1500						
Maximum Axial Load	[N]	*10	750						
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	0.049	0.049	0.049	0.049	0.049	0.049	
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.130	0.130	0.130	0.130	0.130	0.130	
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	0.340	0.340	0.340	0.340	0.340	0.340	
Efficiency	[%]	*11	90						
Torsional Rigidity	[Nm/arc-min]	*12	3						
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$						
Noise Level	[dB]	*13	$\leq 66$						
Protection Class	--	*14	IP54 (IP65)						
Ambient Temperature	[°C]	--	0 - 40						
Permitted Housing Temperature	[°C]	--	90						
Weight	[kg]	*15	1.6						

\*1) At nominal input speed, service life is 20,000 hours

\*2) The maximum torque when starting or stopping operation

\*3) The maximum torque allowed under a stress situation (Permitted 1,000 times during service life)

\*4) The average input speed

\*5) The maximum intermittent input speed

\*6) This is the torque at no load applied on the input shaft. The input speed is 3,000 rpm for VRT 064

\*7) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side bearing)

\*8) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output flange center)

\*9) The maximum radial load that the reducer can accept

\*10) The maximum axial load that the reducer can accept

\*11) The efficiency at the nominal torque rating

\*12) This does not include the lost motion

\*13) Contact NIDEC-SHIMPO for the testing conditions and environment

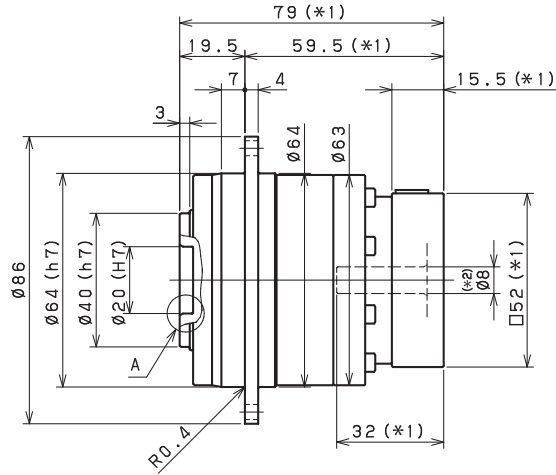
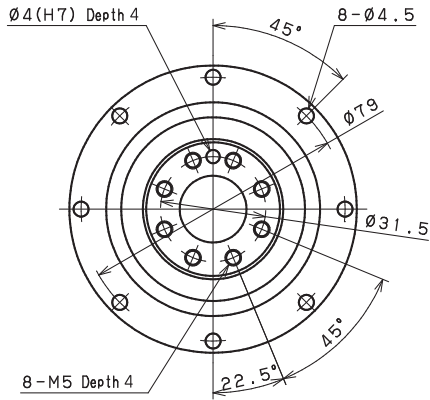
\*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details and our food grade options

\*15) The weight may vary slightly between models

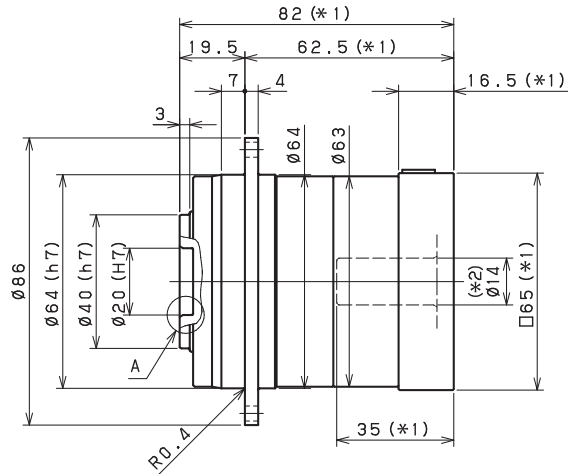
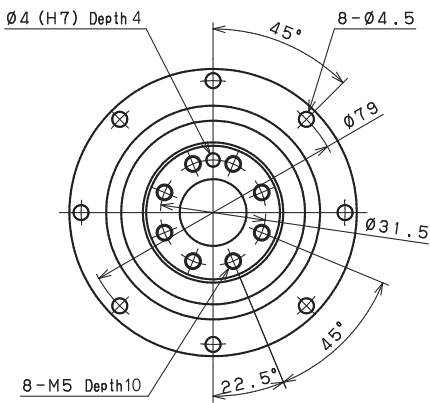
# VRT-SERIES Inline shaft

## VRT-o64 - 1-Stage Dimensions

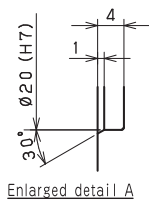
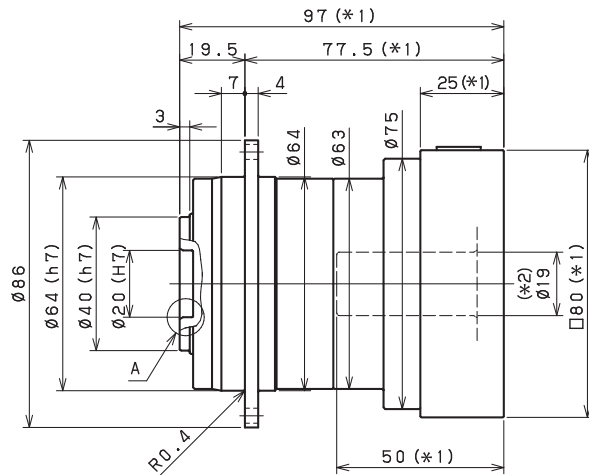
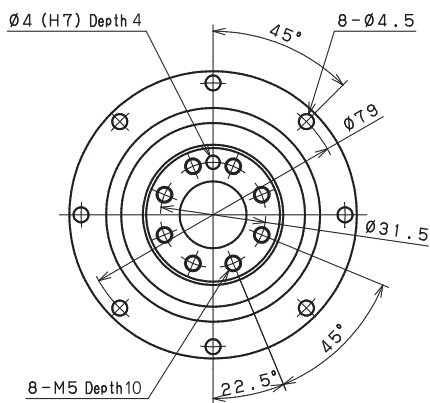
Input shaft bore  $\cong \phi 8$



Input shaft bore  $\cong \phi 14$



Input shaft bore  $\cong \phi 19$

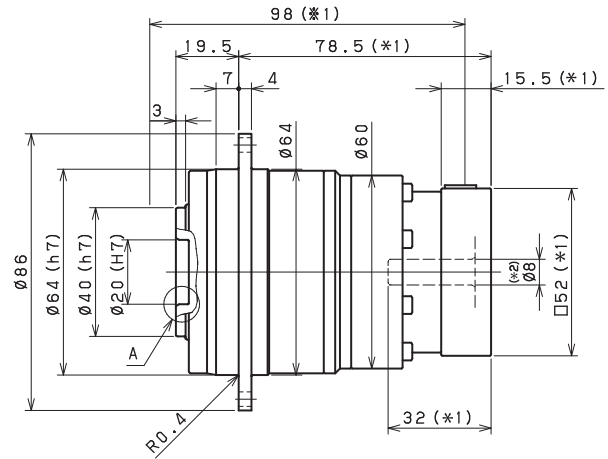
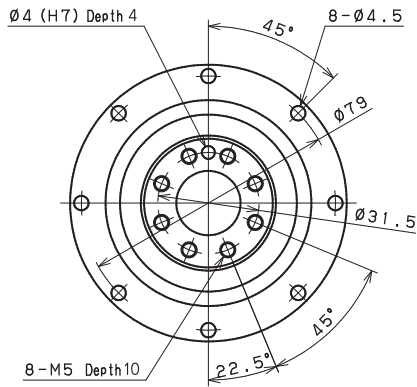


\*1) Length will vary depending on motor

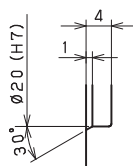
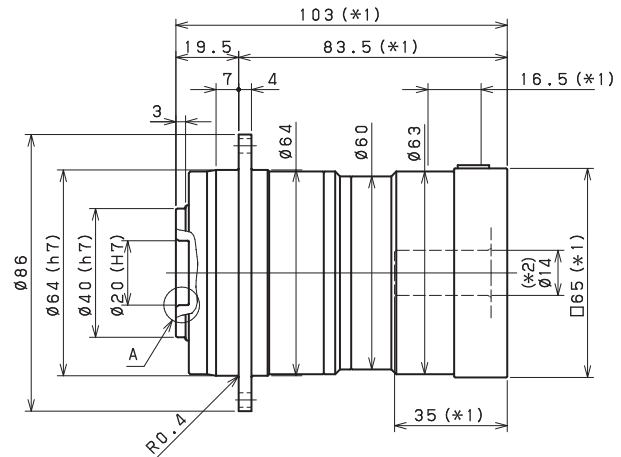
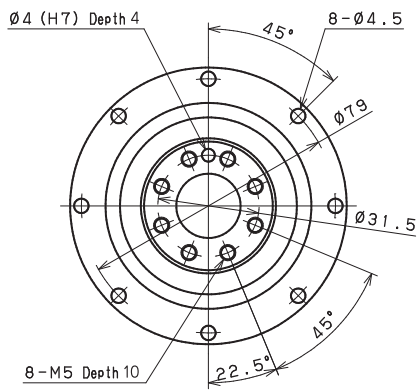
\*2) Bushing will be inserted to adapt to motor shaft

## VRT-o64 – 2-Stage Dimensions

Input shaft bore  $\leq \phi 8$



Input shaft bore  $\leq \phi 14$

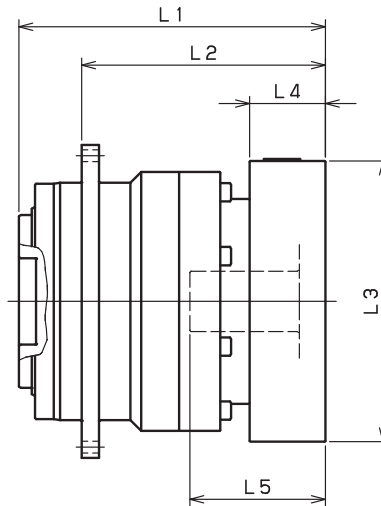


Enlarged detail A

\*1) Length will vary depending on motor

\*2) Bushing will be inserted to adapt to motor shaft

## VRT-064 – 1-Stage Adapter Dimensions



Model Number	**: Adapter Code	1-Stage					
		L1	L*	L2	L3	L4	L5
VRT-064-□-□-8** (Input shaft bore ≤ φ8)	AA·AC·AD·AF·AG·AL·AM·AN·AQ	79	63.5	59.5	□52	15.5	32
	AB·AE·AH·AJ·AK	84	63.5	64.5	□52	20.5	37
	BA·BB·BD·BE·BG·BH·BJ	79	63.5	59.5	□60	15.5	32
	BC·BF	84	63.5	64.5	□60	20.5	37
	CA	84	63.5	64.5	□70	20.5	37
VRT-064-□-□-14** (Input shaft bore ≤ φ14)	BA·BB·BD·BE·BF·BG·BH·BJ·BK·BP	82	65.5	62.5	□65	16.5	35
	BC·BH·BM·BN	87	65.5	67.5	□65	21.5	40
	BL	92	65.5	72.5	□65	26.5	45
	CA·CC	82	65.5	62.5	□70	16.5	35
	CB	87	65.5	67.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH·DJ	82	65.5	62.5	□80	16.5	35
	DE·DL	87	65.5	67.5	□80	21.5	40
	DG·DK	92	65.5	72.5	□80	26.5	45
	EA·EB·EC·EF·EG·EK·EL	82	65.5	62.5	□90	16.5	35
	EJ·EM	87	65.5	67.5	□90	21.5	40
	ED·EE·EH	92	65.5	72.5	□90	26.5	45
	FA	82	65.5	62.5	□100	16.5	35
FB	82	65.5	62.5	□115	16.5	35	
VRT-064-□-□-19** (Input shaft bore ≤ φ19)	DA·DB·DC	97	72	77.5	□80	25	50
	DD	107	72	87.5	□80	35	60
	DE	102	72	82.5	□80	30	55
	EA	102	72	82.5	□90	30	55
	EB·ED	97	72	77.5	□90	25	50
	EC	107	72	87.5	□90	35	60
	FA	97	72	77.5	□100	25	50
FB	107	72	87.5	□100	35	60	

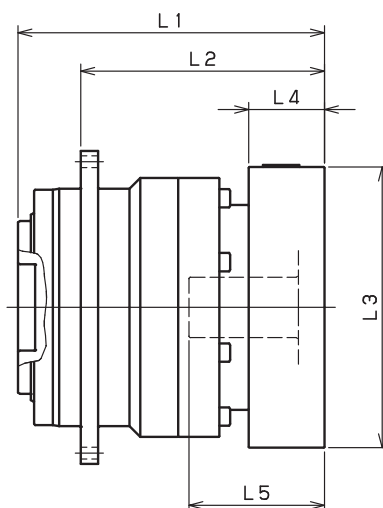
\*1) Single reduction : 1/4 - 1/10

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-064 – 2-Stage Adapter Dimensions



Model Number	**: Adapter Code	2-Stage					
		L1	L*	L2	L3	L4	L5
VRT-064-□-□-8** (Input shaft bore ≤ φ8)	AA·AC·AD·AF·AG·AL·AM·AN·AQ	98	82.5	78.5	□52	15.5	32
	AB·AE·AH·AJ·AK	103	82.5	83.5	□52	20.5	37
	BA·BB·BD·BE·BG·BH·BJ	98	82.5	78.5	□60	15.5	32
	BC·BF	103	82.5	83.5	□60	20.5	37
	CA	103	82.5	83.5	□70	20.5	37
VRT-064-□-□-14** (Input shaft bore ≤ φ14)	BA·BB·BD·BE·BF·BG·BH·BJ·BK·BP	103	86.5	83.5	□65	16.5	35
	BC·BH·BM·BN	108	86.5	88.5	□65	21.5	40
	BL	113	86.5	93.5	□65	26.5	45
	CA·CC	103	86.5	83.5	□70	16.5	35
	CB	108	86.5	88.5	□70	21.5	40
	DA·DB·DC·DD·DF·DH·DJ	103	86.5	83.5	□80	16.5	35
	DE·DL	108	86.5	88.5	□80	21.5	40
	DG·DK	113	86.5	93.5	□80	26.5	45
	EA·EB·EC·EF·EG·EK·EL	103	86.5	83.5	□90	16.5	35
	EJ·EM	108	86.5	88.5	□90	21.5	40
	ED·EE·EH	113	86.5	93.5	□90	26.5	45
	FA	103	86.5	83.5	□100	16.5	35
	FB	103	86.5	83.5	□115	16.5	35
VRT-064-□-□-19** (Input shaft bore ≤ φ19)	DA·DB·DC	118	93	98.5	□80	25	50
	DD	128	93	108.5	□80	35	60
	DE	123	93	103.5	□80	30	55
	EA	123	93	103.5	□90	30	55
	EB·ED	118	93	98.5	□90	25	50
	EC	128	93	108.5	□90	35	60
	FA	118	93	98.5	□100	25	50
FB	128	93	108.5	□100	35	60	

\*1) Double reduction : 1/16 - 1/100

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.



## VRT-090 – 1-Stage Specifications

Frame Size	090										
Stage	1-Stage										
Ratio	Unit	Note	4	5	6	7	8	9	10		
Nominal Output Torque	[Nm]	*1	75	75	75	75	75	50	50		
Maximum Acceleration Torque	[Nm]	*2	125	125	125	125	125	80	80		
Emergency Stop Torque	[Nm]	*3	250	250	250	250	250	200	200		
Nominal Input Speed	[rpm]	*4	3000								
Maximum Input Speed	[rpm]	*5	6000								
No Load Running Torque	[Nm]	*6	0.17								
Permitted Radial Load	[N]	*7	720	780	830	870	910	950	980		
Permitted Axial Load	[N]	*8	620	680	740	790	830	880	920		
Maximum Radial Load	[N]	*9	3300								
Maximum Axial Load	[N]	*10	1700								
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	-	-	-	-	-	-	-		
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.770	0.580	0.480	0.410	0.370	0.350	0.330		
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	1.200	1.000	0.940	0.880	0.840	0.810	0.800		
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	2.900	2.900	2.800	2.800	2.800	2.800	2.800		
Efficiency	[%]	*11	95								
Torsional Rigidity	[Nm/arc-min]	*12	10								
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$								
Noise Level	[dB]	*13	$\leq 67$								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	3.6								

## VRT-090 – 2-Stage Specifications

Frame Size	090									
Stage	2-Stage									
Ratio	Unit	Note	16	20	25	28	35	40		
Nominal Output Torque	[Nm]	*1	75	75	75	75	75	75		
Maximum Acceleration Torque	[Nm]	*2	125	125	125	125	125	125		
Emergency Stop Torque	[Nm]	*3	250	250	250	250	250	250		
Nominal Input Speed	[rpm]	*4	3000							
Maximum Input Speed	[rpm]	*5	6000							
No Load Running Torque	[Nm]	*6	0.05							
Permitted Radial Load	[N]	*7	1200	1200	1300	1400	1500	1600		
Permitted Axial Load	[N]	*8	1100	1200	1400	1400	1600	1700		
Maximum Radial Load	[N]	*9	3300							
Maximum Axial Load	[N]	*10	1700							
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	0.160	0.140	0.130	0.140	0.130	0.100		
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.310	0.290	0.280	0.300	0.280	0.250		
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	0.750	0.730	0.720	0.730	0.720	0.700		
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	2.800	2.700	2.700	2.800	2.700	2.600		
Efficiency	[%]	*11	90							
Torsional Rigidity	[Nm/arc-min]	*12	10							
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$							
Noise Level	[dB]	*13	$\leq 67$							
Protection Class	--	*14	IP54 (IP65)							
Ambient Temperature	[°C]	--	0 - 40							
Permitted Housing Temperature	[°C]	--	90							
Weight	[kg]	*15	4							

## VRT-090 – 2-Stage Specifications

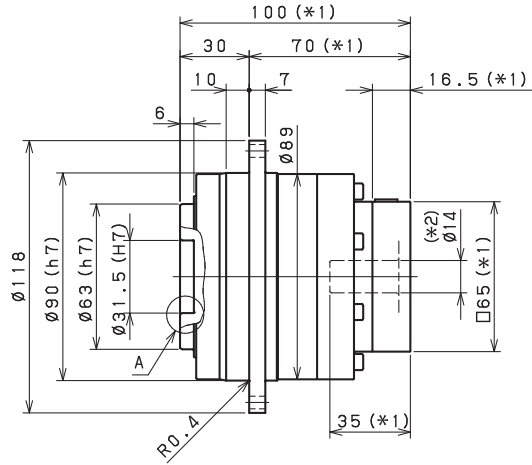
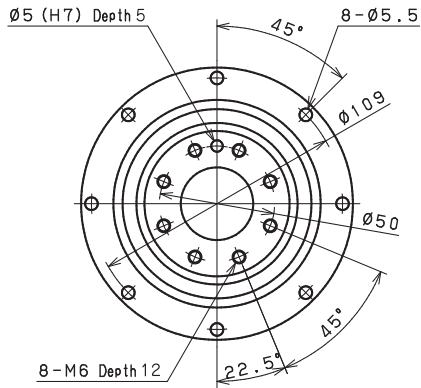
Frame Size	090										
Stage	2-Stage										
Ratio	Unit	Note	45	50	60	70	80	90	100		
Nominal Output Torque	[Nm]	*1	50	75	75	75	75	50	50		
Maximum Acceleration Torque	[Nm]	*2	80	125	125	125	125	80	80		
Emergency Stop Torque	[Nm]	*3	200	250	250	250	250	200	200		
Nominal Input Speed	[rpm]	*4	3000								
Maximum Input Speed	[rpm]	*5	6000								
No Load Running Torque	[Nm]	*6	0.05								
Permitted Radial Load	[N]	*7	1600	1700	1800	1900	2000	2000	2100		
Permitted Axial Load	[N]	*8	1700	1700	1700	1700	1700	1700	1700		
Maximum Radial Load	[N]	*9	3300								
Maximum Axial Load	[N]	*10	1700								
Moment of Inertia ( $\leq \varnothing 8$ )	[kgcm <sup>2</sup> ]	--	0.120	0.100	0.099	0.098	0.098	0.098	0.098		
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.270	0.250	0.250	0.250	0.250	0.250	0.250		
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	0.710	0.700	0.700	0.690	0.690	0.690	0.690		
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	2.700	2.600	2.600	2.600	2.600	2.600	2.600		
Efficiency	[%]	*11	90								
Torsional Rigidity	[Nm/arc-min]	*12	10								
Maximum Torsional Backlash	[arc-min]	--	$\leq 3$								
Noise Level	[dB]	*13	$\leq 67$								
Protection Class	--	*14	IP54 (IP65)								
Ambient Temperature	[°C]	--	0 - 40								
Permitted Housing Temperature	[°C]	--	90								
Weight	[kg]	*15	4								

- \*1) At nominal input speed, service life is 20,000 hours
- \*2) The maximum torque when starting or stopping operation
- \*3) The maximum torque allowed under a stress situation (Permitted 1,000 times during service life)
- \*4) The average input speed
- \*5) The maximum intermittent input speed
- \*6) This is the torque at no load applied on the input shaft. The input speed is 3,000 rpm for VRT 090
- \*7) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side bearing)
- \*8) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output flange center)
- \*9) The maximum radial load that the reducer can accept
- \*10) The maximum axial load that the reducer can accept
- \*11) The efficiency at the nominal torque rating
- \*12) This does not include the lost motion
- \*13) Contact NIDEC-SHIMPO for the testing conditions and environment
- \*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details and our food grade options
- \*15) The weight may vary slightly between models

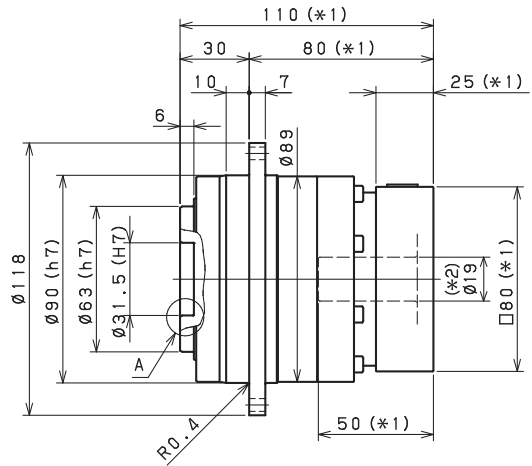
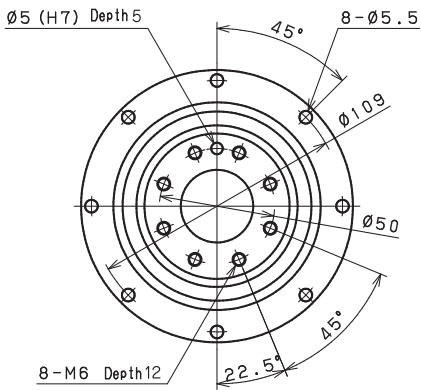
# VRT-SERIES Inline shaft

## VRT-090 – 1-Stage Dimensions

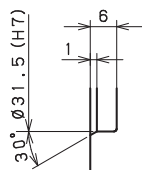
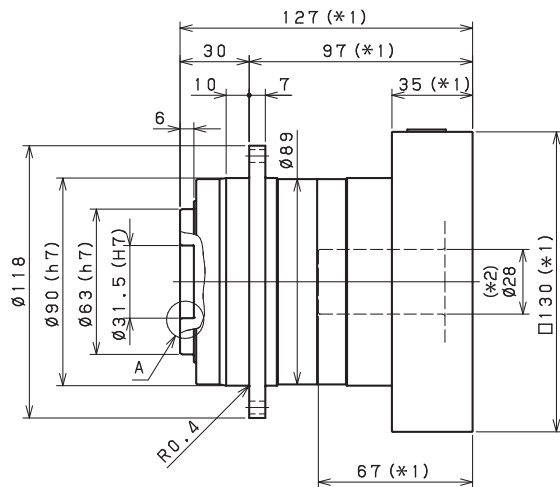
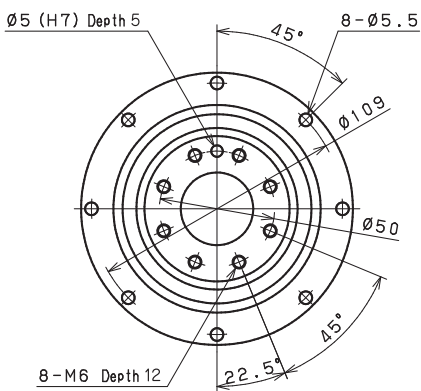
Input shaft bore  $\leq \phi 14$



Input shaft bore  $\leq \phi 19$



Input shaft bore  $\leq \phi 28$



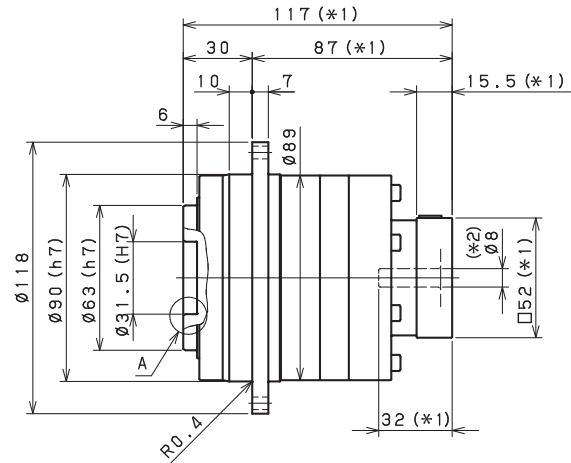
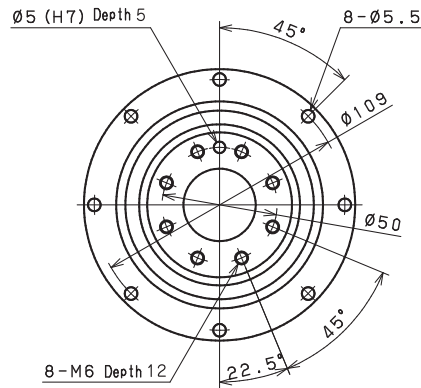
Enlarged detail A

\*1) Length will vary depending on motor

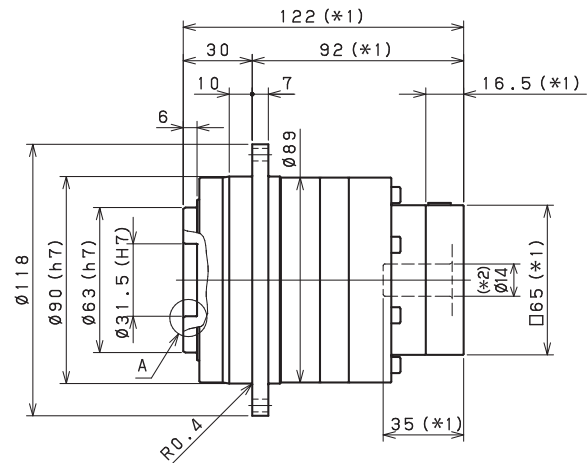
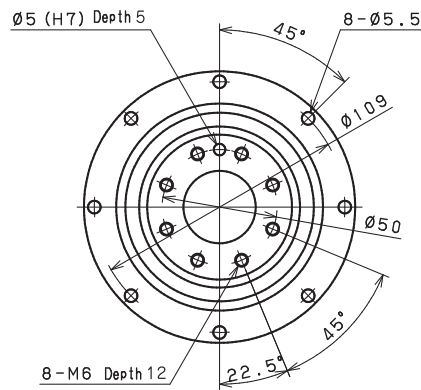
\*2) Bushing will be inserted to adapt to motor shaft

## VRT-090 – 2-Stage Dimensions

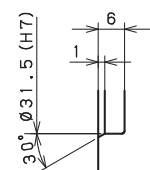
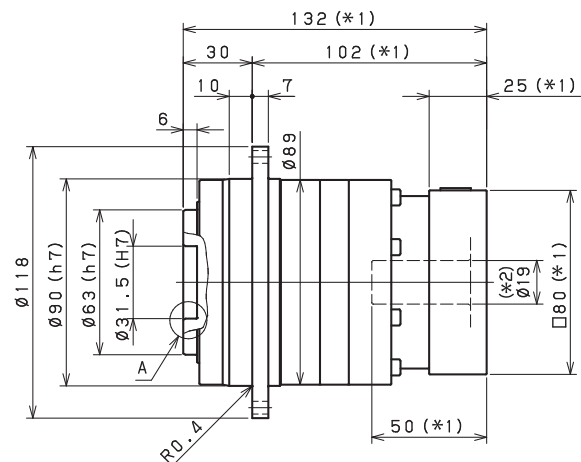
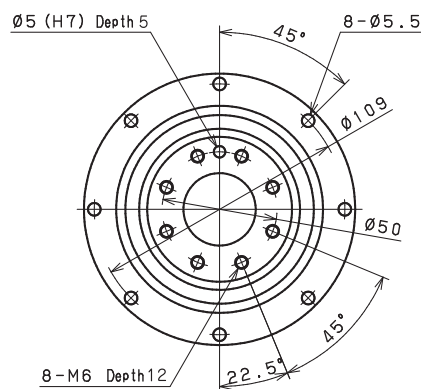
Input shaft bore  $\leq \phi 8$



Input shaft bore  $\leq \phi 14$



Input shaft bore  $\leq \phi 19$



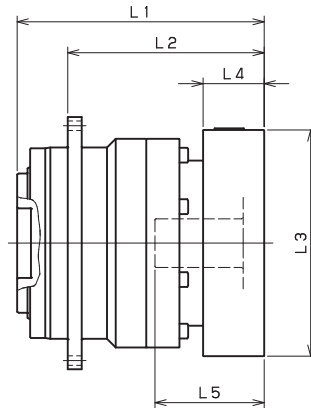
Enlarged detail A

\*1) Length will vary depending on motor

\*2) Bushing will be inserted to adapt to motor shaft

# VRT-SERIES Inline shaft

## VRT-090 – 1-Stage Adapter Dimensions



Model Number	**: Adapter Code	1-Stage					
		L1	L*	L2	L3	L4	L5
VRT-090-□-□-8** (Input shaft bore ≤ φ8)	AA·AC·AD·AF·AG·AL·AM·AN·AQ	--	--	--	--	--	--
	AB·AE·AH·AJ·AK	--	--	--	--	--	--
	BA·BB·BD·BE·BG·BH·BJ	--	--	--	--	--	--
	CA	--	--	--	--	--	--
VRT-090-□-□-14** (Input shaft bore ≤ φ14)	BA·BB·BD·BE·BF·BG·BH·BJ·BK·BP	100	83.5	70	□65	16.5	35
	BC·BH·BM·BN	105	83.5	75	□65	21.5	40
	CA·CC	100	83.5	70	□70	16.5	35
	DA·DB·DC·DD·DF·DH·DJ	100	83.5	70	□80	16.5	35
	EA·EB·EC·EF·EG·EK·EL	100	83.5	70	□90	16.5	35
	FA	100	83.5	70	□100	16.5	35
	FB	110	83.5	80	□100	26.5	45
VRT-090-□-□-19** (Input shaft bore ≤ φ19)	JA	115	83.5	85	□150	31.5	50
	DA·DB·DC	110	85	80	□80	25	50
	EB·ED	110	85	80	□90	25	50
	FA	110	85	80	□100	25	50
	FB	120	85	90	□100	35	60
	GA·GC·GH	115	85	85	□115	30	55
	GB·GD·GJ	110	85	80	□115	25	50
	GE·GF	120	85	90	□115	35	60
	HA	110	85	80	□130	25	50
	HB	125	85	95	□130	40	65
	HC·HD·HE	115	85	85	□130	30	55
VRT-090-□-□-28** (Input shaft bore ≤ φ28)	JA	120	85	90	□150	35	60
	JB	125	85	95	□150	40	65
	FA·FB·FC	127	92	97	□100	35	67
	FD·FE	122	92	92	□100	30	62
	GA·GB·GC·GD·GE·GF·GG·GH	127	92	97	□115	35	67
	HA·HC·HD	127	92	97	□130	35	67
	HB	137	92	107	□130	45	77
	HE	142	92	112	□130	50	82
	HF	122	92	92	□130	30	62
JA·JB·JC·JF	127	92	97	□150	35	67	
JD	147	92	117	□150	55	87	
JE	137	92	107	□150	45	77	

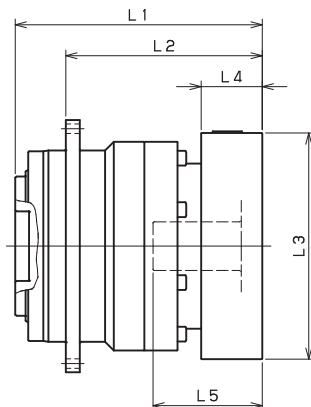
\*1) Single reduction : 1/3~ 1/10

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-090 – 2-Stage Adapter Dimensions



Model Number	**: Adapter Code	2-Stage					
		L1	L*	L2	L3	L4	L5
VRT-090-□-□-8** (Input shaft bore ≤ φ8)	AA·AC·AD·AF·AG·AL·AM·AN·AQ	117	101.5	87	□52	15.5	32
	AB·AE·AH·AJ·AK	122	101.5	92	□52	20.5	37
	BA·BB·BD·BE·BG·BH·BJ	117	101.5	87	□60	15.5	32
	CA	122	101.5	92	□70	20.5	37
VRT-090-□-□-14** (Input shaft bore ≤ φ14)	BA·BB·BD·BE·BF·BG·BH·BJ·BK·BP	122	105.5	92	□65	16.5	35
	BC·BH·BM·BN	127	105.5	97	□65	21.5	40
	CA·CC	122	105.5	92	□70	16.5	35
	DA·DB·DC·DD·DF·DH·DJ	122	105.5	92	□80	16.5	35
	EA·EB·EC·EF·EG·EK·EL	122	105.5	92	□90	16.5	35
	FA	122	105.5	92	□100	16.5	35
	FB	132	105.5	102	□100	26.5	45
JA	137	105.5	107	□150	31.5	50	
VRT-090-□-□-19** (Input shaft bore ≤ φ19)	DA·DB·DC	132	107	102	□80	25	50
	EB·ED	132	107	102	□90	25	50
	FA	132	107	102	□100	25	50
	FB	142	107	112	□100	35	60
	GA·GC·GH	137	107	107	□115	30	55
	GB·GD·GJ	132	107	102	□115	25	50
	GE·GF	142	107	112	□115	35	60
	HA	132	107	102	□130	25	50
	HB	147	107	117	□130	40	65
	HC·HD·HE	137	107	107	□130	30	55
	JA	142	107	112	□150	35	60
JB	147	107	117	□150	40	65	
VRT-090-□-□-28** (Input shaft bore ≤ φ28)	FA·FB·FC	151	116	121	□100	35	67
	FD·FE	146	116	116	□100	30	62
	GA·GB·GC·GD·GE·GF·GG·GH	151	116	121	□115	35	67
	HA·HC·HD	151	116	121	□130	35	67
	HB	161	116	131	□130	45	77
	HE	166	116	136	□130	50	82
	HF	146	116	116	□130	30	62
	JA·JB·JC·JF	151	116	121	□150	35	67
	JD	171	116	141	□150	55	87
JE	161	116	131	□150	45	77	

\*1) Double reduction : 1/15~ 1/100

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-110 – 1-Stage Specifications

Frame Size	110					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	120	180	180	120
Maximum Output Torque	[Nm]	*2	330	330	330	225
Emergency Stop Torque	[Nm]	*3	625	625	625	500
Nominal Input Speed	[rpm]	*4	3000			
Maximum Input Speed	[rpm]	*5	6000			
No Load Running Torque	[Nm]	*6	0.77			
Permitted Radial Load	[N]	*7	4700	5000	5600	6200
Permitted Axial Load	[N]	*8	3200	3400	3800	4200
Maximum Radial Load	[N]	*9	12000			
Maximum Axial Load	[N]	*10	8800			
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	3.100	2.300	1.500	1.100
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	5.100	4.300	3.500	3.100
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	13.000	12.000	11.000	11.000
Efficiency	[%]	*11	95			
Torsional Rigidity	[Nm/arcmin]	*12	31			
Maximum Torsional Backlash	[Arc-min]	--	$\leq 3$			
Noise Level	[dB]	*13	$\leq 71$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	7.8			

## VRT-110 – 2-Stage Specifications

Frame Size	110					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	180	180	180	180
Maximum Output Torque	[Nm]	*2	330	330	330	330
Emergency Stop Torque	[Nm]	*3	625	625	625	625
Nominal Input Speed	[rpm]	*4	3000			
Maximum Input Speed	[rpm]	*5	6000			
No Load Running Torque	[Nm]	*6	0.17			
Permitted Radial Load	[N]	*7	7100	7600	8200	8500
Permitted Axial Load	[N]	*8	4800	5200	5500	5700
Maximum Radial Load	[N]	*9	12000			
Maximum Axial Load	[N]	*10	8800			
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	1.000	0.800	0.700	0.900
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	1.500	1.200	1.200	1.400
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	3.400	3.100	3.100	3.300
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	11.000	11.000	11.000	11.000
Efficiency	[%]	*11	90			
Torsional Rigidity	[Nm/arcmin]	*12	31			
Maximum Torsional Backlash	[Arc-min]	--	$\leq 3$			
Noise Level	[dB]	*13	$\leq 71$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	8.6			

## VRT-110 – 2-Stage Specifications

Frame Size	110							
Stage	2-Stage							
Ratio	Unit	Note	35	40	50	70	100	
Nominal Output Torque	[Nm]	*1	180	180	180	180	120	
Maximum Output Torque	[Nm]	*2	330	330	330	330	225	
Emergency Stop Torque	[Nm]	*3	625	625	625	625	500	
Nominal Input Speed	[rpm]	*4	3000					
Maximum Input Speed	[rpm]	*5	6000					
No Load Running Torque	[Nm]	*6	0.17					
Permitted Radial Load	[N]	*7	9000	9400	10000	11000	12000	
Permitted Axial Load	[N]	*8	6100	6400	6800	7500	8400	
Maximum Radial Load	[N]	*9	12000					
Maximum Axial Load	[N]	*10	8800					
Moment of Inertia ( $\leq \varnothing 14$ )	[kgcm <sup>2</sup> ]	--	0.700	0.400	0.400	0.400	0.400	
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	--	1.100	0.800	0.800	0.800	0.800	
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	3.100	2.800	2.800	2.700	2.700	
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	11.000	10.000	10.000	10.000	10.000	
Efficiency	[%]	*11	--					
Torsional Rigidity	[Nm/arcmin]	*12	31					
Maximum Torsional Backlash	[Arc-min]	--	$\leq 3$					
Noise Level	[dB]	*13	$\leq 71$					
Protection Class	--	*14	IP54 (IP65)					
Ambient Temperature	[°C]	--	0 - 40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*15	8.6					

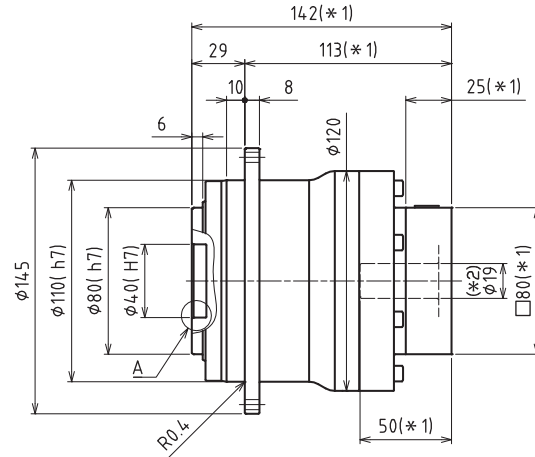
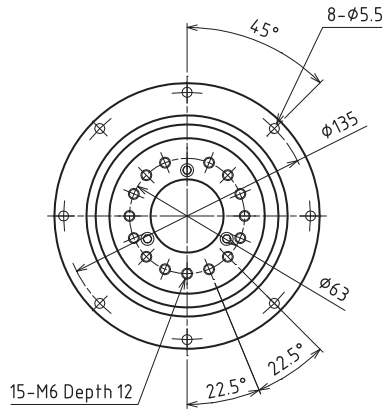
- \*1) At nominal input speed, service life is 20,000 hours
- \*2) The maximum torque when starting or stopping operation
- \*3) The maximum torque allowed under a stress situation (Permitted 1,000 times during service life)
- \*4) The average input speed
- \*5) The maximum intermittent input speed
- \*6) This is the torque at no load applied on the input shaft. The input speed is 3,000 rpm for VRT 110
- \*7) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side bearing)
- \*8) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output flange center)
- \*9) The maximum radial load that the reducer can accept
- \*10) The maximum axial load that the reducer can accept
- \*11) The efficiency at the nominal torque rating
- \*12) This does not include the lost motion
- \*13) Contact NIDEC-SHIMPO for the testing conditions and environment
- \*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details and our food grade options
- \*15) The weight may vary slightly between models



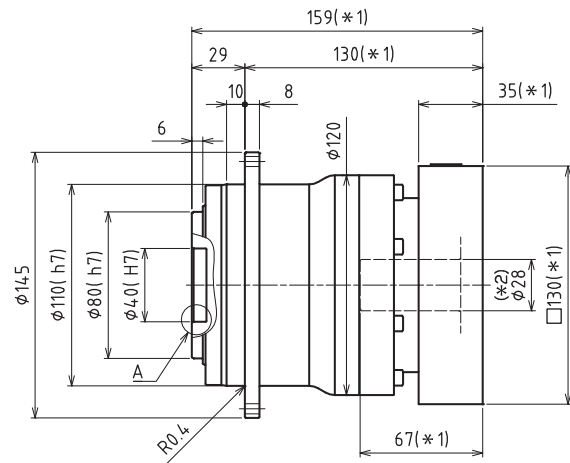
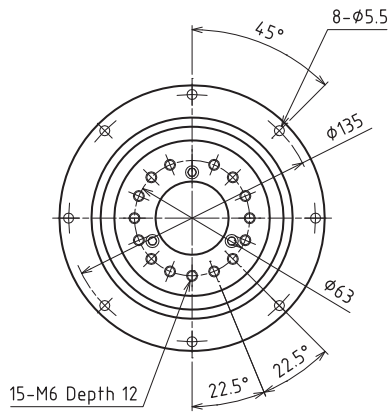
# VRT-SERIES Inline shaft

## VRT-110 – 1-Stage Dimensions

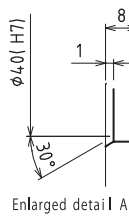
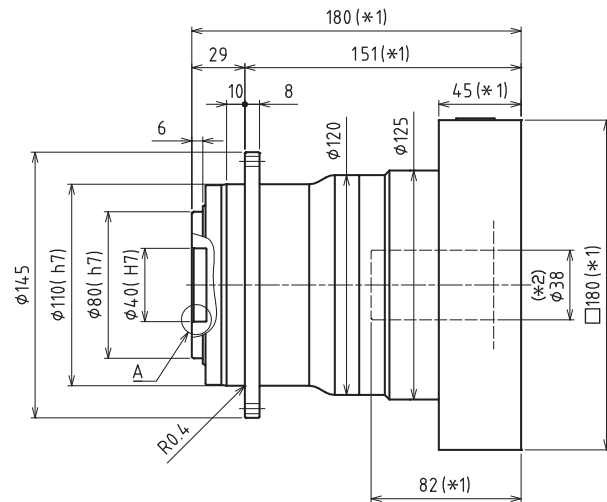
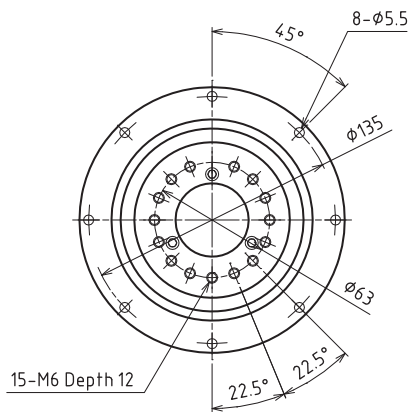
Input shaft bore  $\leq \phi 19$



Input shaft bore  $\leq \phi 28$



Input shaft bore  $\leq \phi 38$

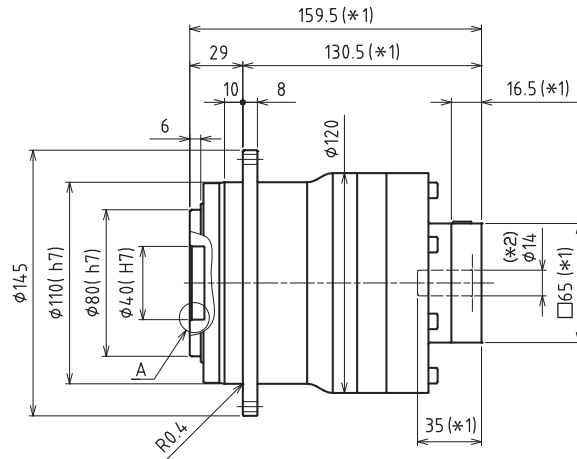
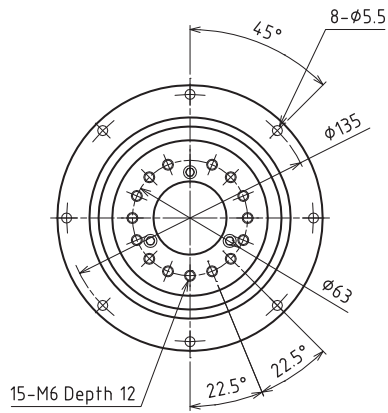


\*1) Length will vary depending on motor

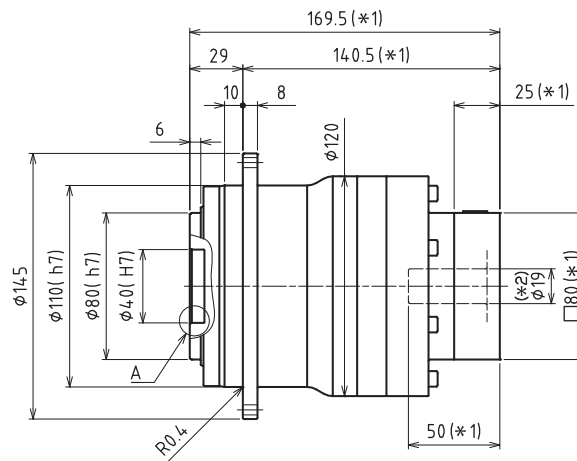
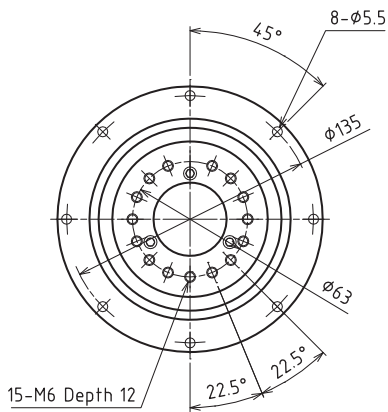
\*2) Bushing will be inserted to adapt to motor shaft

## VRT-110 – 2-Stage Dimensions

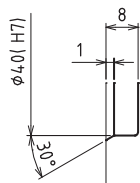
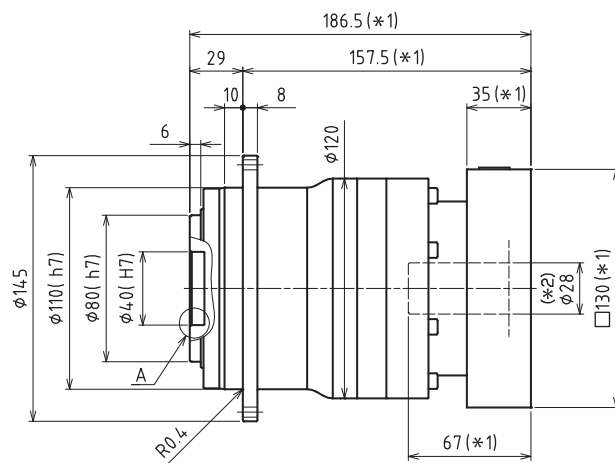
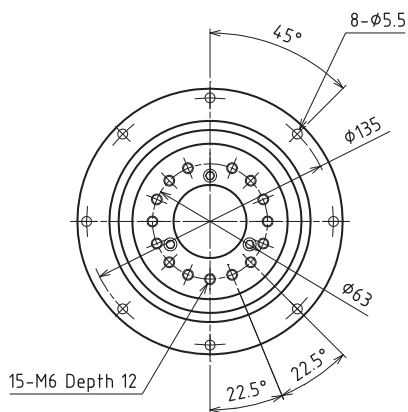
Input shaft bore  $\leq \phi 14$



Input shaft bore  $\leq \phi 19$



Input shaft bore  $\leq \phi 28$

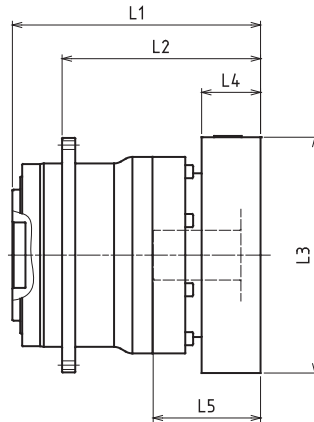


Enlarged detail A

\*1) Length will vary depending on motor

\*2) Bushing will be inserted to adapt to motor shaft

## VRT-110 – 1-Stage Adapter Dimensions



Model Number	**: Adapter Code	1-Stage					
		L1	L*	L2	L3	L4	L5
VRT-110-□-□-14** (Input shaft bore ≤ φ14)	BA•BB•BD•BE•BF•BG•BH•BJ•BK•BP	--	--	--	--	--	--
	BC•BH•BM•BN	--	--	--	--	--	--
	CA•CC	--	--	--	--	--	--
	DA•DB•DC•DD•DF•DH•DJ	--	--	--	--	--	--
	EA•EB•EC•EF•EG•EK•EL	--	--	--	--	--	--
	FA	--	--	--	--	--	--
	FB	--	--	--	--	--	--
VRT-110-□-□-19** (Input shaft bore ≤ φ19)	DA • DB • DC	124.5	99.5	95.5	□80	25	50
	EB	124.5	99.5	95.5	□90	25	50
	FA	124.5	99.5	95.5	□100	25	50
	FB	134.5	99.5	105.5	□100	35	60
	GB • GD	124.5	99.5	95.5	□115	25	50
	HA	134.5	99.5	105.5	□115	35	60
	--	124.5	99.5	95.5	□130	25	50
	--	139.5	99.5	110.5	□130	40	65
	--	129.5	99.5	100.5	□130	30	55
VRT-110-□-□-28** (Input shaft bore ≤ φ28)	FA•FB•FC	141.5	106.5	112.5	□100	35	67
	GA•GB•GC•GD•GE•GF•GG•GH	141.5	106.5	112.5	□115	35	67
	HA•HC•HD	141.5	106.5	112.5	□130	35	67
	HB	151.5	106.5	122.5	□130	45	77
	HF	136.5	106.5	107.5	□130	30	62
	JA•JB•JC•JF	141.5	106.5	112.5	□150	35	67
	JD	161.5	106.5	132.5	□150	55	87
	JE	151.5	106.5	122.5	□150	45	77
	KA•KB•KE	141.5	106.5	112.5	□180	35	67
VRT-110-□-□-38** (Input shaft bore ≤ φ38)	KD	151.5	106.5	122.5	□180	45	77
	HA	162.5	117.5	133.5	□130	45	82
	HB•HE	157.5	117.5	128.5	□130	40	77
	JA	162.5	117.5	133.5	□150	45	82
	KA•KB•KC	162.5	117.5	133.5	□180	45	82
	KD	197.5	117.5	168.5	□180	80	117
KE	177.5	117.5	148.5	□180	60	97	

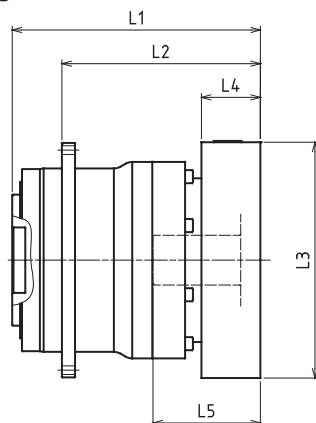
\*1) Single reduction : 1/3~ 1/10

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-110 – 2-Stage Adapter Dimensions



Model Number	**: Adapter Code	2-Stage					
		L1	L*	L2	L3	L4	L5
VRT-110-□-□-14** (Input shaft bore ≤ φ14)	BA•BB•BD•BE•BF•BG•BH•BJ•BK•BP	142	125.5	113	□65	16.5	35
	BC•BH•BM•BN	147	125.5	118	□65	21.5	40
	CA•CC	142	125.5	113	□70	16.5	35
	DA•DB•DC•DD•DF•DH•DJ	142	125.5	113	□80	16.5	35
	EA•EB•EC•EF•EG•EK•EL	142	125.5	113	□90	16.5	35
	FA	142	125.5	113	□100	16.5	35
	FB	152	125.5	123	□100	26.5	45
VRT-110-□-□-19** (Input shaft bore ≤ φ19)	JA	157	125.5	128	□150	31.5	50
	DA • DB • DC	152	127	123	□80	25	50
	EB	152	127	123	□90	25	50
	FA	152	127	123	□100	25	50
	FB	162	127	133	□100	35	60
	GB • GD	152	127	123	□115	25	50
	HA	162	127	133	□115	35	60
	--	152	127	123	□130	25	50
	--	167	127	138	□130	40	65
--	157	127	128	□130	30	55	
VRT-110-□-□-28** (Input shaft bore ≤ φ28)	HB	162	127	133	□150	35	60
	FA•FB•FC	169	134	140	□100	35	67
	GA•GB•GC•GD•GE•GF•GG•GH	169	134	140	□115	35	67
	HA•HC•HD	169	134	140	□130	35	67
	HB	179	134	150	□130	45	77
	HF	164	134	135	□130	30	62
	JA•JB•JC•JF	169	134	140	□150	35	67
	JD	189	134	160	□150	55	87
	JE	179	134	150	□150	45	77
VRT-110-□-□-38** (Input shaft bore ≤ φ38)	KA•KB•KE	169	134	140	□180	35	67
	KD	179	134	150	□180	45	77
	HA	186.5	141.5	157.5	□130	45	82
	HB•HE	181.5	141.5	152.5	□130	40	77
	JA	186.5	141.5	157.5	□150	45	82
	KA•KB•KC	186.5	141.5	157.5	□180	45	82
	KD	221.5	141.5	192.5	□180	80	117
	KE	201.5	141.5	172.5	□180	60	97

\*1) Double reduction : 1/15~ 1/100

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-140 – 1-Stage Specifications

Frame Size	140					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	240	360	360	240
Maximum Output Torque	[Nm]	*2	700	700	700	470
Emergency Stop Torque	[Nm]	*3	1250	1250	1250	1000
Nominal Input Speed	[rpm]	*4	2000			
Maximum Input Speed	[rpm]	*5	4000			
No Load Running Torque	[Nm]	*13	1.00			
Permitted Radial Load	[N]	*6	8000	8500	9400	10000
Permitted Axial Load	[N]	*7	5600	6000	6700	7400
Maximum Radial Load	[N]	*8	19000			
Maximum Axial Load	[N]	*9	14000			
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	*10	--	--	--	--
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	11.000	8.400	5.400	4.100
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	19.000	16.000	13.000	12.000
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	41.000	38.000	35.000	34.000
Efficiency	[%]	--	95			
Torsional Rigidity	[Nm/arcmin]	*11	60			
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$			
Noise Level	[dB]	--	$\leq 67$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	15			

## VRT-140 – 2-Stage Specifications

Frame Size	140					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	360	360	360	360
Maximum Output Torque	[Nm]	*2	700	700	700	700
Emergency Stop Torque	[Nm]	*3	1250	1250	1250	1250
Nominal Input Speed	[rpm]	*4	2000			
Maximum Input Speed	[rpm]	*5	4000			
No Load Running Torque	[Nm]	*13	0.54			
Permitted Radial Load	[N]	*6	12000	13000	14000	14000
Permitted Axial Load	[N]	*7	8500	9100	9800	10000
Maximum Radial Load	[N]	*8	19000			
Maximum Axial Load	[N]	*9	14000			
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	*10	3.800	2.600	2.500	3.400
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	5.800	4.600	4.500	5.400
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	13.000	12.000	12.000	13.000
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	35.000	34.000	34.000	35.000
Efficiency	[%]	--	90			
Torsional Rigidity	[Nm/arcmin]	*11	60			
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$			
Noise Level	[dB]	--	$\leq 67$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	17			

## VRT-140 – 2-Stage Specifications

Frame Size	140							
Stage	2-Stage							
Ratio	Unit	Note	35	40	50	70	100	
Nominal Output Torque	[Nm]	*1	360	360	360	360	240	
Maximum Output Torque	[Nm]	*2	700	700	700	700	470	
Emergency Stop Torque	[Nm]	*3	1250	1250	1250	1250	1000	
Nominal Input Speed	[rpm]	*4	2000					
Maximum Input Speed	[rpm]	*5	4000					
No Load Running Torque	[Nm]	*13	0.54					
Permitted Radial Load	[N]	*6	15000	16000	17000	19000	19000	
Permitted Axial Load	[N]	*7	11000	11000	12000	13000	14000	
Maximum Radial Load	[N]	*8	19000					
Maximum Axial Load	[N]	*9	14000					
Moment of Inertia ( $\leq \varnothing 19$ )	[kgcm <sup>2</sup> ]	*10	2.400	1.200	1.100	1.100	1.100	
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	--	4.400	3.100	3.100	3.100	3.100	
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	12.000	11.000	11.000	11.000	11.000	
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	34.000	33.000	33.000	33.000	33.000	
Efficiency	[%]	--	90					
Torsional Rigidity	[Nm/arcmin]	*11	60					
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$					
Noise Level	[dB]	--	$\leq 67$					
Protection Class	--	*14	IP54 (IP65)					
Ambient Temperature	[°C]	--	0 - 40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*15	17					

- \*1) At nominal input speed, service life is 20,000 hours
- \*2) The maximum torque when starting or stopping operation
- \*3) The maximum torque allowed under a stress situation (Permitted 1,000 times during service life)
- \*4) The average input speed
- \*5) The maximum intermittent input speed
- \*6) This is the torque at no load applied on the input shaft. The input speed is 2,000 rpm for VRT140
- \*7) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side bearing)
- \*8) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output flange center)
- \*9) The maximum radial load that the reducer can accept
- \*10) The maximum axial load that the reducer can accept
- \*11) The efficiency at the nominal torque rating
- \*12) This does not include the lost motion
- \*13) Contact NIDEC-SHIMPO for the testing conditions and environment
- \*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details and our food grade options
- \*15) The weight may vary slightly between models

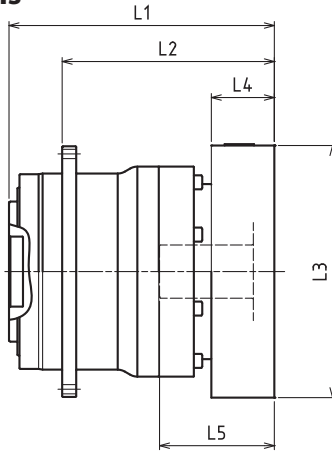






# VRT-SERIES Inline shaft

## VRT-140 – 1-Stage Adapter Dimensions



Model Number	**: Adapter Code	1-Stage					
		L1	L*	L2	L3	L4	L5
VRT-140-□-□-19** (Input shaft bore ≤ φ19)	DA·DB·DC	--	--	--	--	--	--
	EB·ED	--	--	--	--	--	--
	FA	--	--	--	--	--	--
	FB	--	--	--	--	--	--
	GB·GD·GJ	--	--	--	--	--	--
	HA	--	--	--	--	--	--
	HB	--	--	--	--	--	--
VRT-140-□-□-28** (Input shaft bore ≤ φ28)	FA·FB·FC	154	119	116	□100	35	67
	GA·GB·GC·GD·GE·GF·GG·GH	154	119	116	□115	35	67
	HA·HC·HD	154	119	116	□130	35	67
	HB	164	119	126	□130	45	77
	HF	149	119	111	□130	30	62
	JA·JB·JC·JF	154	119	116	□150	35	67
	KA·KB·KE	154	119	116	□180	35	67
	LA	154	119	116	□200	35	67
	LB	164	119	126	□200	45	77
	MA	154	119	116	□220	35	67
VRT-140-□-□-38** (Input shaft bore ≤ φ38)	MB	164	119	126	□220	45	77
	HA	169	124	131	□130	45	82
	HB·HE	164	124	126	□130	40	77
	JA	169	124	131	□150	45	82
	KA·KB·KC	169	124	131	□180	45	82
	KD	204	124	166	□180	80	117
	KE	184	124	146	□180	60	97
	LB	179	124	141	□200	55	92
	MA·MB	169	124	131	□220	45	82
VRT-140-□-□-48** (Input shaft bore ≤ φ48)	MC	184	124	146	□220	60	97
	MD	179	124	141	□220	55	92
	KA	210	135	172	□180	75	118
	KB·KC	190	135	152	□180	55	98
	LA	190	135	152	□200	55	98
MA	190	135	152	□220	55	98	
MB	210	135	172	□220	75	118	

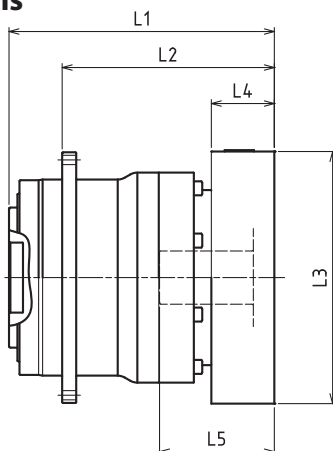
\*1) Single reduction : 1/3~ 1/10

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-140 – 2-Stage Adapter Dimensions



Model Number	**: Adapter Code	2-Stage					
		L1	L*	L2	L3	L4	L5
VRT-140-□-□-19** (Input shaft bore ≤ φ19)	DA·DB·DC	171.5	146.5	133.5	□80	25	50
	EB·ED	171.5	146.5	133.5	□90	25	50
	FA	171.5	146.5	133.5	□100	25	50
	FB	181.5	146.5	143.5	□100	35	60
	GB·GD·GJ	171.5	146.5	133.5	□115	25	50
	HA	171.5	146.5	133.5	□130	25	50
	HB	186.5	146.5	148.5	□130	40	65
	JA	181.5	146.5	143.5	□150	35	60
VRT-140-□-□-28** (Input shaft bore ≤ φ28)	FA·FB·FC	188.5	153.5	150.5	□100	35	67
	GA·GB·GC·GD·GE·GF·GG·GH	188.5	153.5	150.5	□115	35	67
	HA·HC·HD	188.5	153.5	150.5	□130	35	67
	HB	198.5	153.5	160.5	□130	45	77
	HF	183.5	153.5	145.5	□130	30	62
	JA·JB·JC·JF	188.5	153.5	150.5	□150	35	67
	KA·KB·KE	188.5	153.5	150.5	□180	35	67
	LA	188.5	153.5	150.5	□200	35	67
	LB	198.5	153.5	160.5	□200	45	77
	MA	188.5	153.5	150.5	□220	35	67
VRT-140-□-□-38** (Input shaft bore ≤ φ38)	HA	203.5	158.5	165.5	□130	45	82
	HB·HE	198.5	158.5	160.5	□130	40	77
	JA	203.5	158.5	165.5	□150	45	82
	KA·KB·KC	203.5	158.5	165.5	□180	45	82
	KD	238.5	158.5	200.5	□180	80	117
	KE	218.5	158.5	180.5	□180	60	97
	LB	213.5	158.5	175.5	□200	55	92
	MA·MB	203.5	158.5	165.5	□220	45	82
	MC	218.5	158.5	180.5	□220	60	97
MD	213.5	158.5	175.5	□220	55	92	
VRT-140-□-□-48** (Input shaft bore ≤ φ48)	KA	244.5	169.5	206.5	□180	75	118
	KB·KC	224.5	169.5	186.5	□180	55	98
	LA	224.5	169.5	186.5	□200	55	98
	MA	224.5	169.5	186.5	□220	55	98
	MB	244.5	169.5	206.5	□220	75	118

\*1) Double reduction : 1/15~ 1/100

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-200 – 1-Stage Specifications

Frame Size	200					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	750	750	750	500
Maximum Output Torque	[Nm]	*2	1400	1400	1400	970
Emergency Stop Torque	[Nm]	*3	2750	2750	2750	2200
Nominal Input Speed	[rpm]	*4	1500			
Maximum Input Speed	[rpm]	*5	3000			
No Load Running Torque	[Nm]	*13	1.9			
Permitted Radial Load	[N]	*6	18000	19000	21000	23000
Permitted Axial Load	[N]	*7	12000	13000	14000	16000
Maximum Radial Load	[N]	*8	40000			
Maximum Axial Load	[N]	*9	30000			
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	*10	--	--	--	--
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	54.000	39.000	25.000	18.000
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	76.000	61.000	47.000	40.000
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	140.000	120.000	110.000	100.000
Efficiency	[%]	--	95			
Torsional Rigidity	[Nm/arcmin]	*11	175			
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$			
Noise Level	[dB]	--	$\leq 67$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	42			

## VRT-200 – 2-Stage Specifications

Frame Size	200					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	750	750	750	750
Maximum Output Torque	[Nm]	*2	1400	1400	1400	1400
Emergency Stop Torque	[Nm]	*3	2750	2750	2750	2750
Nominal Input Speed	[rpm]	*4	1500			
Maximum Input Speed	[rpm]	*5	3000			
No Load Running Torque	[Nm]	*13	1.3			
Permitted Radial Load	[N]	*6	27000	28000	30000	31000
Permitted Axial Load	[N]	*7	18000	19000	21000	21000
Maximum Radial Load	[N]	*8	40000			
Maximum Axial Load	[N]	*9	30000			
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	*10	13.000	9.400	8.800	11.000
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	21.000	17.000	16.000	19.000
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	43.000	39.000	38.000	41.000
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--
Efficiency	[%]	--	90			
Torsional Rigidity	[Nm/arcmin]	*11	175			
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$			
Noise Level	[dB]	--	$\leq 67$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	43			

## VRT-200 – 2-Stage Specifications

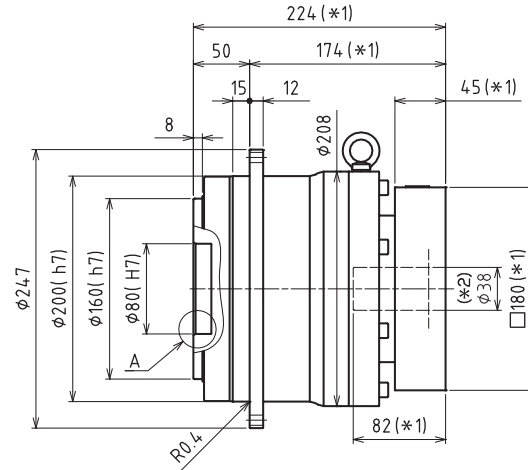
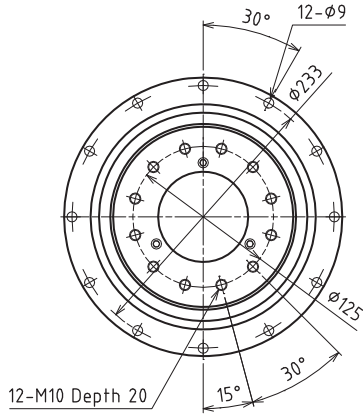
Frame Size	200							
Stage	2-Stage							
Ratio	Unit	Note	35	40	50	70	100	
Nominal Output Torque	[Nm]	*1	750	750	750	750	500	
Maximum Output Torque	[Nm]	*2	1400	1400	1400	1400	970	
Emergency Stop Torque	[Nm]	*3	2750	2750	2750	2750	2200	
Nominal Input Speed	[rpm]	*4	1500					
Maximum Input Speed	[rpm]	*5	3000					
No Load Running Torque	[Nm]	*13	1.3					
Permitted Radial Load	[N]	*6	34000	35000	37000	40000	40000	
Permitted Axial Load	[N]	*7	23000	24000	25000	28000	30000	
Maximum Radial Load	[N]	*8	40000					
Maximum Axial Load	[N]	*9	30000					
Moment of Inertia ( $\leq \varnothing 28$ )	[kgcm <sup>2</sup> ]	*10	8.200	4.400	4.200	4.100	4.000	
Moment of Inertia ( $\leq \varnothing 38$ )	[kgcm <sup>2</sup> ]	--	16.000	12.000	12.000	12.000	12.000	
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	--	38.000	34.000	34.000	34.000	34.000	
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	
Efficiency	[%]	--	90					
Torsional Rigidity	[Nm/arcmin]	*11	175					
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$					
Noise Level	[dB]	--	$\leq 67$					
Protection Class	--	*14	IP54 (IP65)					
Ambient Temperature	[°C]	--	0 - 40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*15	43					

- \*1) At nominal input speed, service life is 20,000 hours
- \*2) The maximum torque when starting or stopping operation
- \*3) The maximum torque allowed under a stress situation (Permitted 1,000 times during service life)
- \*4) The average input speed
- \*5) The maximum intermittent input speed
- \*6) This is the torque at no load applied on the input shaft. The input speed is 1,500 rpm for VRT 200
- \*7) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side bearing)
- \*8) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output flange center)
- \*9) The maximum radial load that the reducer can accept
- \*10) The maximum axial load that the reducer can accept
- \*11) The efficiency at the nominal torque rating
- \*12) This does not include the lost motion
- \*13) Contact NIDEC-SHIMPO for the testing conditions and environment
- \*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details and our food grade options
- \*15) The weight may vary slightly between models

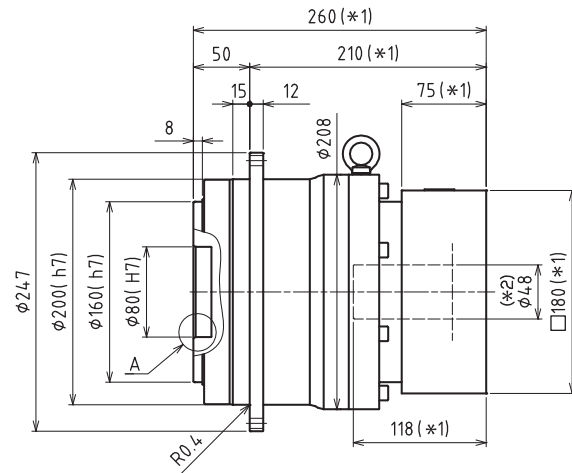
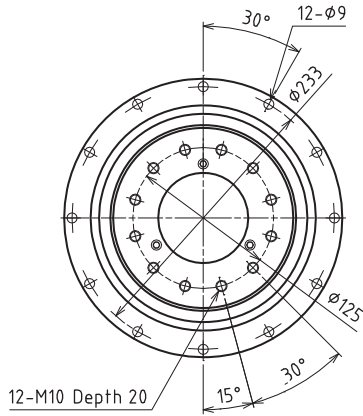
# VRT-SERIES Inline shaft

## VRT-200 – 1-Stage Dimensions

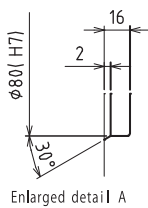
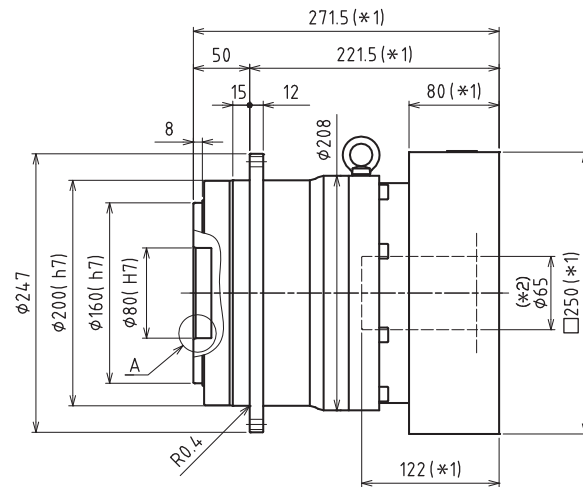
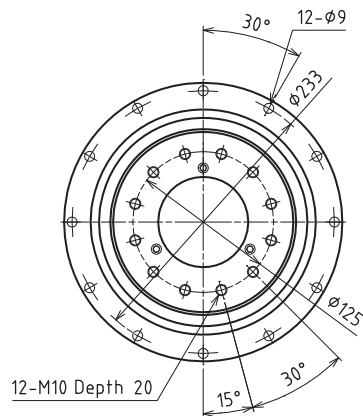
Input shaft bore  $\leq \phi 38$



Input shaft bore  $\leq \phi 48$



Input shaft bore  $\leq \phi 65$

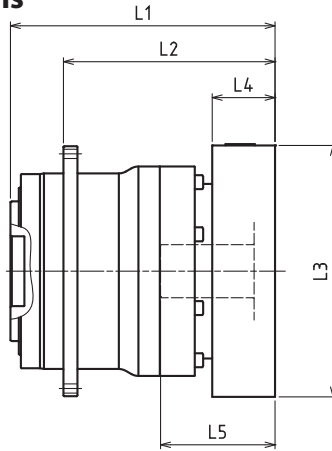


- \*1) Length will vary depending on motor
- \*2) Bushing will be inserted to adapt to motor shaft



# VRT-SERIES Inline shaft

## VRT-200 – 1-Stage Adapter Dimensions



Model Number	**: Adapter Code	1-Stage					
		L1	L*	L2	L3	L4	L5
VRT-200-□-□-28** (Input shaft bore ≤ φ28)	FA•FB•FC	--	--	--	--	--	--
	GA•GB•GC•GD•GE•GF•GG•GH	--	--	--	--	--	--
	HA•HC•HD	--	--	--	--	--	--
	HB	--	--	--	--	--	--
	HF	--	--	--	--	--	--
	JA•JB•JC•JF	--	--	--	--	--	--
	KA•KB•KE	--	--	--	--	--	--
	LA	--	--	--	--	--	--
	LB	--	--	--	--	--	--
	MA	--	--	--	--	--	--
VRT-200-□-□-38** (Input shaft bore ≤ φ38)	HA	192	147	142	□130	45	82
	HB•HE	187	147	137	□130	40	77
	JA	192	147	142	□150	45	82
	KA•KB•KC	192	147	142	□180	45	82
	KD	227	147	177	□180	80	117
	KE	207	147	157	□180	60	97
	LB	202	147	152	□200	55	92
	MA•MB	192	147	142	□220	45	82
	MC	207	147	157	□220	60	97
	MD	202	147	152	□220	55	92
VRT-200-□-□-48** (Input shaft bore ≤ φ48)	NA	192	147	142	□250	45	82
	KA	228	153	178	□180	75	118
	KB•KC	208	153	158	□180	55	98
	LA	208	153	158	□200	55	98
	MA	208	153	158	□220	55	98
	MB	228	153	178	□220	75	118
	NA	228	153	178	□250	75	118
VRT-200-□-□-65** (Input shaft bore ≤ φ65)	PA	228	153	178	□280	75	118
	MA•MB•MC•MD	239.5	159.5	189.5	□220	80	122
	NA•NC	239.5	159.5	189.5	□250	80	122
	NB•ND	269.5	159.5	219.5	□250	110	152
	PA	259.5	159.5	209.5	□280	100	142
PB	269.5	159.5	219.5	□280	110	152	

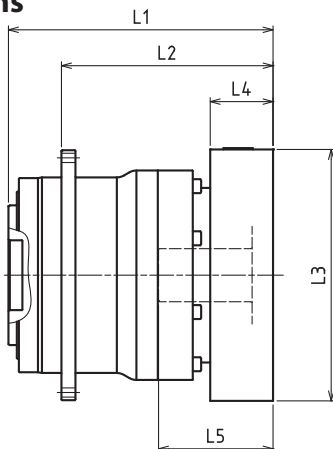
\*1) Single reduction : 1/3~ 1/10

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-200 – 2-Stage Adapter Dimensions



Model Number	**: Adapter Code	2-Stage					
		L1	L*	L2	L3	L4	L5
VRT-200-□-□-28** (Input shaft bore ≤ φ28)	FA•FB•FC	221.5	186.5	171.5	□100	35	67
	GA•GB•GC•GD•GE•GF•GG•GH	221.5	186.5	171.5	□115	35	67
	HA•HC•HD	221.5	186.5	171.5	□130	35	67
	HB	231.5	186.5	181.5	□130	45	77
	HF	216.5	186.5	166.5	□130	30	62
	JA•JB•JC•JF	221.5	186.5	171.5	□150	35	67
	KA•KB•KE	221.5	186.5	171.5	□180	35	67
	LA	221.5	186.5	171.5	□200	35	67
	LB	231.5	186.5	181.5	□200	45	77
	MA	221.5	186.5	171.5	□220	35	67
VRT-200-□-□-38** (Input shaft bore ≤ φ38)	MB	231.5	186.5	181.5	□220	45	77
	HA	236.5	191.5	186.5	□130	45	82
	HB•HE	231.5	191.5	181.5	□130	40	77
	JA	236.5	191.5	186.5	□150	45	82
	KA•KB•KC	236.5	191.5	186.5	□180	45	82
	KD	271.5	191.5	221.5	□180	80	117
	KE	251.5	191.5	201.5	□180	60	97
	LB	246.5	191.5	196.5	□200	55	92
	MA•MB	236.5	191.5	186.5	□220	45	82
	MC	251.5	191.5	201.5	□220	60	97
VRT-200-□-□-48** (Input shaft bore ≤ φ48)	MD	246.5	191.5	196.5	□220	55	92
	NA	236.5	191.5	186.5	□250	45	82
	KA	272.5	197.5	222.5	□180	75	118
	KB•KC	252.5	197.5	202.5	□180	55	98
	LA	252.5	197.5	202.5	□200	55	98
	MA	252.5	197.5	202.5	□220	55	98
	MB	272.5	197.5	222.5	□220	75	118
VRT-200-□-□-65** (Input shaft bore ≤ φ65)	NA	272.5	197.5	222.5	□250	75	118
	PA	272.5	197.5	222.5	□280	75	118
	MA•MB•MC•MD	--	--	--	--	--	--
	NA•NC	--	--	--	--	--	--
	NB•ND	--	--	--	--	--	--
PA	--	--	--	--	--	--	
PB	--	--	--	--	--	--	

\*1) Double reduction : 1/15~ 1/100

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.



## VRT-255 – 1-Stage Specifications

Frame Size	255					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	2400	2400	2400	1600
Maximum Output Torque	[Nm]	*2	3700	3700	3700	2600
Emergency Stop Torque	[Nm]	*3	8000	8000	8000	6000
Nominal Input Speed	[rpm]	*4	1000			
Maximum Input Speed	[rpm]	*5	2000			
No Load Running Torque	[Nm]	*13	2.5			
Permitted Radial Load	[N]	*6	31000	33000	36000	40000
Permitted Axial Load	[N]	*7	22000	24000	26000	29000
Maximum Radial Load	[N]	*8	64000			
Maximum Axial Load	[N]	*9	48000			
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	*10	--	--	--	--
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	200	170	130	110
Efficiency	[%]	--	95			
Torsional Rigidity	[Nm/arcmin]	*11	550			
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$			
Noise Level	[dB]	--	$\leq 62$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	84			

## VRT-255 – 2-Stage Specifications

Frame Size	255					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	2400	2400	2400	2400
Maximum Output Torque	[Nm]	*2	3700	3700	3700	3700
Emergency Stop Torque	[Nm]	*3	8000	8000	8000	8000
Nominal Input Speed	[rpm]	*4	1000			
Maximum Input Speed	[rpm]	*5	2000			
No Load Running Torque	[Nm]	*13	1.0			
Permitted Radial Load	[N]	*6	46000	49000	53000	55000
Permitted Axial Load	[N]	*7	34000	36000	38000	40000
Maximum Radial Load	[N]	*8	64000			
Maximum Axial Load	[N]	*9	48000			
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	*10	64.0	53.0	51.0	59.0
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--
Efficiency	[%]	--	90			
Torsional Rigidity	[Nm/arcmin]	*11	550			
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$			
Noise Level	[dB]	--	$\leq 62$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	89			

## VRT-255 – 2-Stage Specifications

Frame Size	255							
Stage	2-Stage							
Ratio	Unit	Note	35	40	50	70	100	
Nominal Output Torque	[Nm]	*1	2400	2400	2400	2400	1600	
Maximum Output Torque	[Nm]	*2	3700	3700	3700	3700	1800	
Emergency Stop Torque	[Nm]	*3	8000	8000	8000	8000	6000	
Nominal Input Speed	[rpm]	*4	1000					
Maximum Input Speed	[rpm]	*5	2000					
No Load Running Torque	[Nm]	*13	1.0					
Permitted Radial Load	[N]	*6	59000	61000	64000	64000	64000	
Permitted Axial Load	[N]	*7	42000	44000	47000	48000	48000	
Maximum Radial Load	[N]	*8	64000					
Maximum Axial Load	[N]	*9	48000					
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	*10	50.0	38.0	38.0	37.0	37.0	
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	
Efficiency	[%]	--	90					
Torsional Rigidity	[Nm/arcmin]	*11	550					
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$					
Noise Level	[dB]	--	$\leq 62$					
Protection Class	--	*14	IP54 (IP65)					
Ambient Temperature	[°C]	--	0 - 40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*15	89					

\*1) At nominal input speed, service life is 20,000 hours

\*2) The maximum torque when starting or stopping operation

\*3) The maximum torque allowed under a stress situation (Permitted 1,000 times during service life)

\*4) The average input speed

\*5) The maximum intermittent input speed

\*6) This is the torque at no load applied on the input shaft. The input speed is 1,000 rpm for 255

\*7) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side bearing)

\*8) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output flange center)

\*9) The maximum radial load that the reducer can accept

\*10) The maximum axial load that the reducer can accept

\*11) The efficiency at the nominal torque rating

\*12) This does not include the lost motion

\*13) Contact NIDEC-SHIMPO for the testing conditions and environment

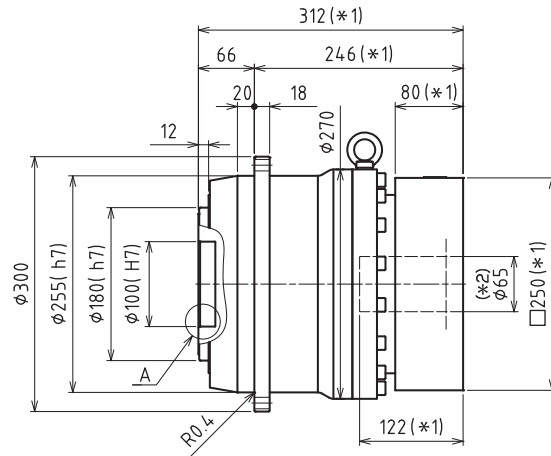
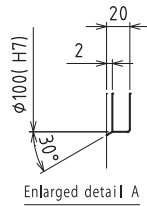
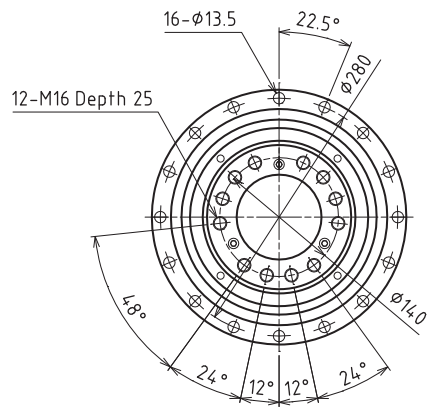
\*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details and our food grade options

\*15) The weight may vary slightly between models

# VRT-SERIES Inline shaft

## VRT-255 – 1-Stage Dimensions

Input shaft bore  $\leq \phi 65$

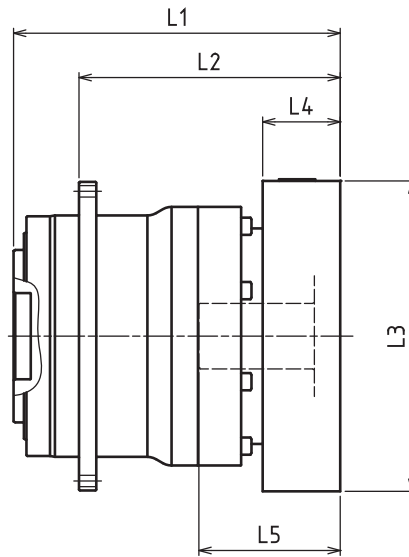


\*1) Length will vary depending on motor

\*2) Bushing will be inserted to adapt to motor shaft



## VRT-255 – 1-Stage Adapter Dimensions



Model Number	**: Adapter Code	1-Stage					
		L1	L*	L2	L3	L4	L5
VRT-255-□-□-48** (Input shaft bore ≤ φ48)	KA	--	--	--	--	--	--
	KB-KC	--	--	--	--	--	--
	LA	--	--	--	--	--	--
	MA	--	--	--	--	--	--
	MB	--	--	--	--	--	--
	NA	--	--	--	--	--	--
	PA	--	--	--	--	--	--
VRT-255-□-□-65** (Input shaft bore ≤ φ65)	MA•MB•MC•MD	272	192	206	□220	80	122
	NA•NC	272	192	206	□250	80	122
	NB•ND	302	192	236	□250	110	152
	PA	292	192	226	□280	100	142
	PB	302	192	236	□280	110	152
	QA•QB	292	192	226	□320	100	142

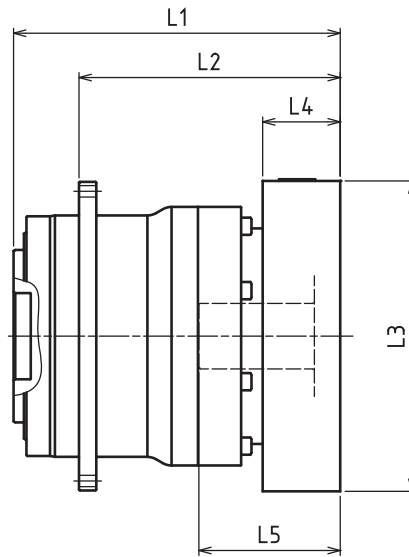
\*1) Single reduction : 1/4 - 1/10

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-255 – 2-Stage Adapter Dimensions



Model Number	**: Adapter Code	2-Stage					
		L1	L*	L2	L3	L4	L5
VRT-255-□-□-48** (Input shaft bore ≤ φ48)	KA	322.5	247.5	256.5	□180	75	118
	KB-KC	302.5	247.5	236.5	□180	55	98
	LA	302.5	247.5	236.5	□200	55	98
	MA	302.5	247.5	236.5	□220	55	98
	MB	322.5	247.5	256.5	□220	75	118
	NA	322.5	247.5	256.5	□250	75	118
	PA	322.5	247.5	256.5	□280	75	118
VRT-255-□-□-65** (Input shaft bore ≤ φ65)	MA•MB•MC•MD	--	--	--	--	--	--
	NA•NC	--	--	--	--	--	--
	NB•ND	--	--	--	--	--	--
	PA	--	--	--	--	--	--
	PB	--	--	--	--	--	--
	QA•QB	--	--	--	--	--	--

\*1) Double reduction : 1/16 - 1/100

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

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## VRT-285 – 1-Stage Specifications

Frame Size	285					
Stage	1-Stage					
Ratio	Unit	Note	4	5	7	10
Nominal Output Torque	[Nm]	*1	3300	3300	3300	2200
Maximum Output Torque	[Nm]	*2	5300	5300	5300	3700
Emergency Stop Torque	[Nm]	*3	12000	12000	12000	10000
Nominal Input Speed	[rpm]	*4	1000			
Maximum Input Speed	[rpm]	*5	2000			
No Load Running Torque	[Nm]	*13	2.7			
Permitted Radial Load	[N]	*6	40000	42000	47000	52000
Permitted Axial Load	[N]	*7	34000	36000	40000	45000
Maximum Radial Load	[N]	*8	86000			
Maximum Axial Load	[N]	*9	64000			
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	*10	--	--	--	--
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	250	200	140	120
Efficiency	[%]	--	95			
Torsional Rigidity	[Nm/arcmin]	*11	850			
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$			
Noise Level	[dB]	--	$\leq 63$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	110			

## VRT-285 – 2-Stage Specifications

Frame Size	285					
Stage	2-Stage					
Ratio	Unit	Note	16	20	25	28
Nominal Output Torque	[Nm]	*1	2750	3300	3300	3300
Maximum Output Torque	[Nm]	*2	5300	5300	5300	5300
Emergency Stop Torque	[Nm]	*3	12000	12000	12000	12000
Nominal Input Speed	[rpm]	*4	1000			
Maximum Input Speed	[rpm]	*5	2000			
No Load Running Torque	[Nm]	*13	0.6			
Permitted Radial Load	[N]	*6	60000	64000	69000	71000
Permitted Axial Load	[N]	*7	51000	55000	59000	61000
Maximum Radial Load	[N]	*8	86000			
Maximum Axial Load	[N]	*9	64000			
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	*10	48.0	42.0	41.0	42.0
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--
Efficiency	[%]	--	90			
Torsional Rigidity	[Nm/arcmin]	*11	850			
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$			
Noise Level	[dB]	--	$\leq 63$			
Protection Class	--	*14	IP54 (IP65)			
Ambient Temperature	[°C]	--	0 - 40			
Permitted Housing Temperature	[°C]	--	90			
Weight	[kg]	*15	120			

## VRT-285 – 2-Stage Specifications

Frame Size	285							
Stage	2-Stage							
Ratio	Unit	Note	35	40	50	70	100	
Nominal Output Torque	[Nm]	*1	3300	3300	3300	3300	2200	
Maximum Output Torque	[Nm]	*2	5300	5300	5300	5300	2500	
Emergency Stop Torque	[Nm]	*3	12000	12000	12000	12000	10000	
Nominal Input Speed	[rpm]	*4	1000					
Maximum Input Speed	[rpm]	*5	2000					
No Load Running Torque	[Nm]	*13	0.6					
Permitted Radial Load	[N]	*6	76000	79000	85000	86000	86000	
Permitted Axial Load	[N]	*7	64000	64000	64000	64000	64000	
Maximum Radial Load	[N]	*8	86000					
Maximum Axial Load	[N]	*9	64000					
Moment of Inertia ( $\leq \varnothing 48$ )	[kgcm <sup>2</sup> ]	*10	39.0	36.0	35.0	35.0	35.0	
Moment of Inertia ( $\leq \varnothing 65$ )	[kgcm <sup>2</sup> ]	--	--	--	--	--	--	
Efficiency	[%]	--	90					
Torsional Rigidity	[Nm/arcmin]	*11	850					
Maximum Torsional Backlash	[Arc-min]	*12	$\leq 3$					
Noise Level	[dB]	--	$\leq 63$					
Protection Class	--	*14	IP54 (IP65)					
Ambient Temperature	[°C]	--	0 - 40					
Permitted Housing Temperature	[°C]	--	90					
Weight	[kg]	*15	120					

\*1) At nominal input speed, service life is 20,000 hours

\*2) The maximum torque when starting or stopping operation

\*3) The maximum torque allowed under a stress situation (Permitted 1,000 times during service life)

\*4) The average input speed

\*5) The maximum intermittent input speed

\*6) This is the torque at no load applied on the input shaft. The input speed is 1,000 rpm for VRT285

\*7) At this load and nominal input speed, service life will be 20,000 hours. (The radial load applied to the output side bearing)

\*8) At this load and nominal input speed, service life will be 20,000 hours. (The axial load applied to the output flange center)

\*9) The maximum radial load that the reducer can accept

\*10) The maximum axial load that the reducer can accept

\*11) The efficiency at the nominal torque rating

\*12) This does not include the lost motion

\*13) Contact NIDEC-SHIMPO for the testing conditions and environment

\*14) IP65 (wash-down) is available as an option. Contact NIDEC-SHIMPO for more details and our food grade options

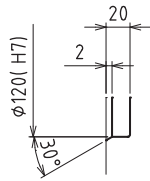
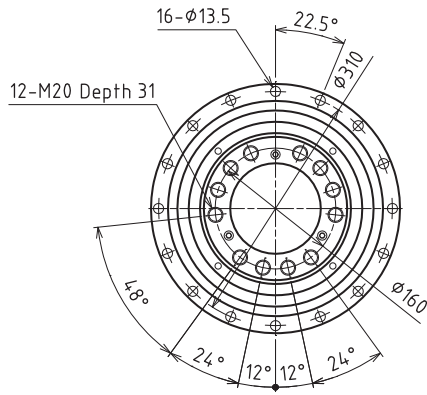
\*15) The weight may vary slightly between models



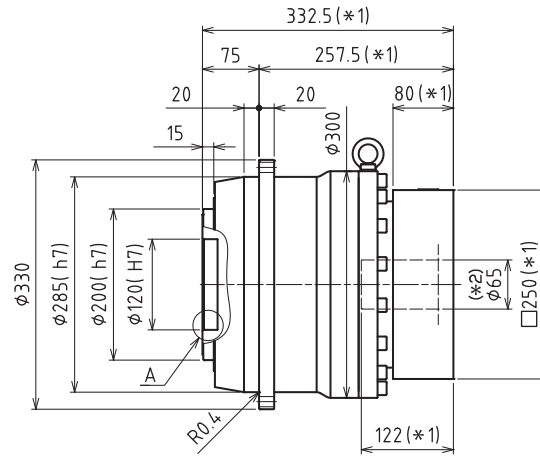
# VRT-SERIES Inline shaft

## VRT-285 – 1-Stage Dimensions

Input shaft bore  $\cong \phi 65$



Enlarged detail A



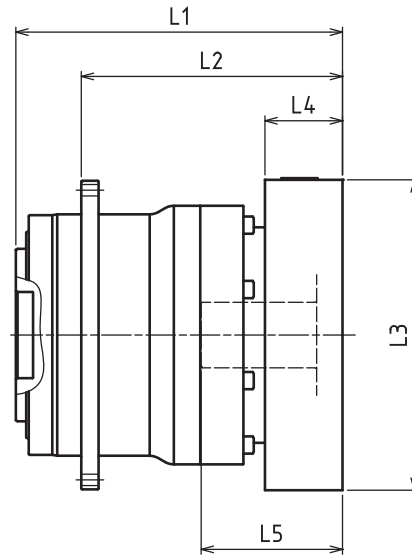
\*1) Length will vary depending on motor

\*2) Bushing will be inserted to adapt to motor shaft



# VRT-SERIES Inline shaft

## VRT-285 – 1-Stage Adapter Dimensions



Model Number	**: Adapter Code	1-Stage					
		L1	L*	L2	L3	L4	L5
VRT-285-□-□-48** (Input shaft bore ≤ φ48)	KA	--	--	--	--	--	--
	KB-KC	--	--	--	--	--	--
	LA	--	--	--	--	--	--
	MA	--	--	--	--	--	--
	MB	--	--	--	--	--	--
	NA	--	--	--	--	--	--
	PA	--	--	--	--	--	--
VRT-285-□-□-65** (Input shaft bore ≤ φ65)	MA•MB•MC•MD	283.5	203.5	208.5	□220	80	122
	NA•NC	283.5	203.5	208.5	□250	80	122
	NB•ND	313.5	203.5	238.5	□250	110	152
	PA	303.5	203.5	228.5	□280	100	142
	PB	313.5	203.5	238.5	□280	110	152
	QA•QB	303.5	203.5	228.5	□320	100	142

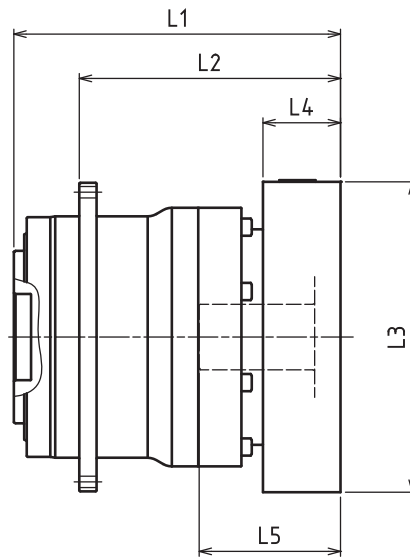
\*1) Single reduction : 1/3~ 1/10

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

A more comprehensive adapter flange offering can be found using the NIDEC-SHIMPO Online Selector Tool. The variety is constantly expanding and being updated on the Selector Tool. If you have any questions or need any support, contact NIDEC-SHIMPO.

## VRT-285 – 2-Stage Adapter Dimensions



Model Number	**: Adapter Code	2-Stage					
		L1	L*	L2	L3	L4	L5
VRT-285-□-□-48** (Input shaft bore ≤ φ48)	KA	339	264	264	□180	75	118
	KB-KC	319	264	244	□180	55	98
	LA	319	264	244	□200	55	98
	MA	319	264	244	□220	55	98
	MB	339	264	264	□220	75	118
	NA	339	264	264	□250	75	118
	PA	339	264	264	□280	75	118
VRT-285-□-□-65** (Input shaft bore ≤ φ65)	MA-MB-MC-MD	--	--	--	--	--	--
	NA-NC	--	--	--	--	--	--
	NB-ND	--	--	--	--	--	--
	PA	--	--	--	--	--	--
	PB	--	--	--	--	--	--
	QA-QB	--	--	--	--	--	--

\*1) Double reduction : 1/15~ 1/100

\*2) Bushing will be inserted to adapt to motor shaft

For an explanation on the Adapter Flange Code, please turn to page 422.

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