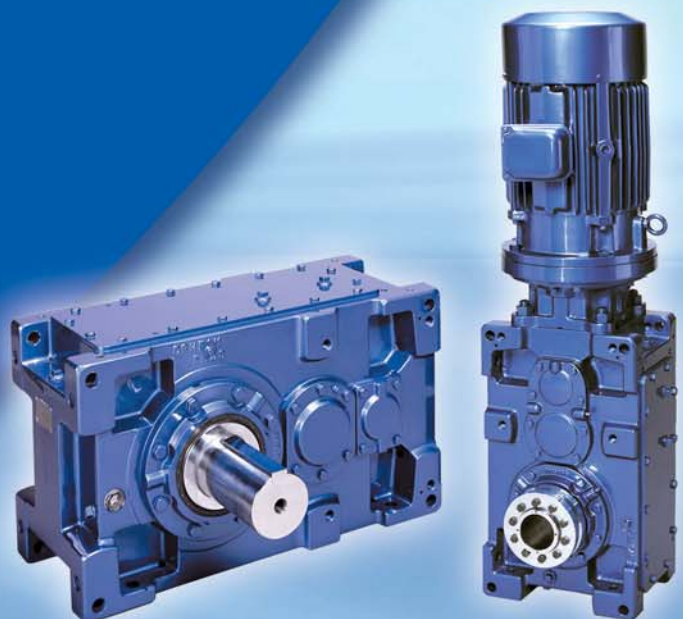


Sumitomo Drive Technologies
Always on the Move

PARAMAX[®]
9000 Series
Reducer & Drive Units



No. G2002E-5

PARAMAX[®] 9000 Option

Products covered in the PARAMAX[®] 9000 Series Catalog No. G2002E

Refer to Catalog No. G2002E for details on models and standard specifications for the PARAMAX[®] 9000 Series.

	Standard Specifications	Optional Specifications
Housing	Cast Iron Housing	
Slow / High Speed Shaft	Solid Single-end Shaft Slow Speed Shaft Hollow Shaft (Shrink) Slow Speed Shaft Hollow Shaft (Key)	Solid Both-end Shaft
Bearing		Heavy Duty LSS Bearing
Air Vent	Air Vent	Air Breather
Oil Gauge	Dip Stick Round Gauge	Oil Sight Gauge (Stick Type)
Drain	Drain Plug	Drain Valve
Auxiliary Cooling Unit		Cooling Fan
Hollow Shaft Auxiliary Unit		Torque Arm Mounting & Removal Kit
Coating	Standard Paint (indoor)	Rust-Proof Paint (Acrylic / Epoxy) Anticorrosion Paint (Epoxy / Polyurethane)

Coverage of this catalog - Optional Specifications

Main Parts

Housing



Ductile Iron HousingP. 5
Steel Fabricated HousingP. 5

Slow / High Speed Shaft



Keeper Plate with WasherP.17
Shaft-End Tapped Hole (LSS)P.20

Seal



Double Shaft Seals (LSS)P.21
FKM SealP.22
Taconite SealP.23

Backstop



Internal BackstopP.25

Air Vent



Washdown BreatherP.29
Anti-Dust BreatherP.32
Anti-Humidity BreatherP.33

Drain



Stainless Steel Drain ValveP.37

Auxiliary Cooling Unit



Split Fan Hood (Right Angle Shaft)P.41

Safety Cover



Shaft CapP.43

Accessory


Instruments / Switches



Oil Flow SwitchP.45
Oil Pressure SwitchP.46

External Parts

Options		Characteristics of Applications and Major Applications		
		Large moment applied on slow speed shaft	Moment applied on the slow speed shaft	Dusty environment Rotation in single direction
		Agitator	Aerator	Coal conveyor
Housing	Cast Iron Housing	C	C	C
	Steel Fabricated Housing			C
	Reversible Housing			C
High Speed Shaft	Both-end Shaft			C
Slow Speed Shaft	Both-end Shaft			C
	Keeper Plate with Washer	B	B	B
	Shaft-End Tapped Hole (LSS)	B	B	B
Bearing	Slow Speed Shaft Heavy Load Bearing	C	C	C
Seal	High speed shaft FKM seal	C	C	C
	Slow speed shaft FKM seal	C	C	C
	High speed shaft taconite seal			B
	Slow speed shaft taconite seal			B
Output Base	Drop bearing housing	C	A	
	LS base	B	C	
	Output flange	C		
Backstop	Internal Backstop	C	C	B
Air Vent	Air breather	B	B	C
	Washdown Breather	C	C	C
	Anti-Dust Breather			A
	Anti-Humidity Breather	C	C	
Oil Gauge	Oil Sight Gauge	B	B	B
Drain	Drain valve	B	B	B
	Stainless steel drain valve	C		
Auxiliary Cooling Unit	Cooling fan	C	C	C
	Split fan hood (Right angle shaft)			C
Auxiliary Hollow Shaft	Torque arm			B
	Heavy load torque arm			C
	Mounting / dismounting tools			C
Safety Cover	Shaft cap			B
Base	Motor adaptor	B	B	C
	Baseplate			C
	Heavy load bracket			
Instruments / Switches	Oil Flow Switch	B	B	C
	Oil Pressure Switch	B	B	C
Oil Lubrication	Pump mounted to shaft directly	A	A	
Grease Lubrication	Dry well	A	A	
Paint	Rust-Proof Paint (Epoxy / Acrylic)	A	A	B
	Anticorrosion Paint (Epoxy / Polyurethane)	C	C	C
	Anticorrosive paint on the underside		B	
	Undercoat only	C	C	C
	Paint color specified	C	C	C

 :Models shown in PARAMAX® 9000 Series catalog

 :Models shown in this catalog

 :Consult us for these models

A: Specification of the base unit as a standard specification

B: Recommended optional specification

C: Option required under some usage conditions

MEMO

Ductile Iron Housing

Ductile cast iron housing is more durable compared to the standard gray cast iron. It is suitable for applications requiring strength for housing, such as when impact load or upward load is applied on the slow speed shaft.

Specification

- Housing material: Spheroidal graphite cast iron, FCD450
(Standard housing: Gray cast iron)

Dimension

- Same as standard cast iron housing. Refer to the Catalog No. G2002E.

Example of Nomenclature

- PHA9055R3F - RL - 35.5
|
F: Ductile Cast Iron (FCD) housing

Steel Fabricated Housing

Steel housing is more durable compared to the standard gray cast iron. It is suitable for applications requiring strength for housing, such as when impact load or upward load is applied on the slow speed shaft.

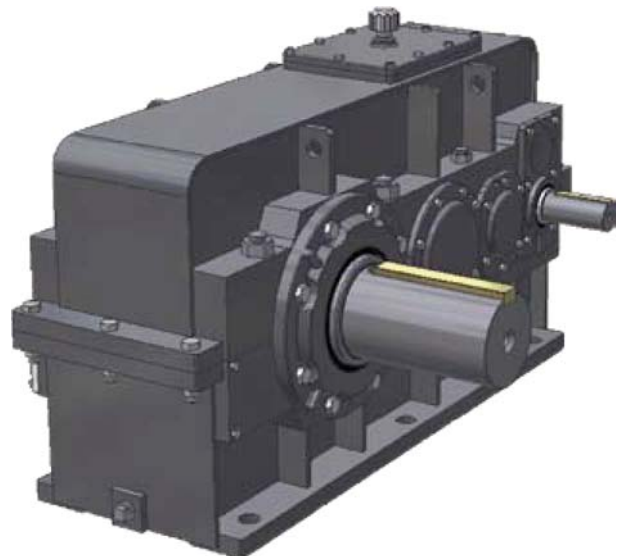
Specification

- Housing material: Rolled steel sheet SS400
(Standard housing: Gray cast iron)
- Steel housing models come with oil sight gauge and air breather.

Note: •The arrangement of the installation holes for this housing is different from that of the standard housing.
•Consult us on the hollow shaft type.

Example of Nomenclature

- PHD9055R3A - RL - 35.5
|
A: Steel fabricated housing

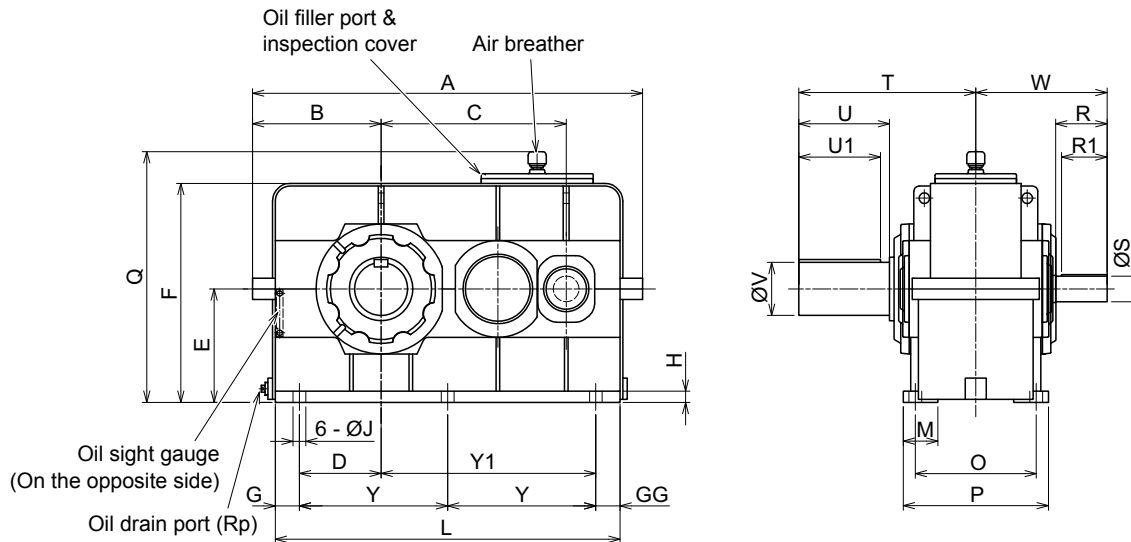


Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9015~9085 Parallel Shaft Double Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	Y1	M	O	P	Q
9015	475	175	194	95	135	262	30	30	19	15	375		220	65	185	220	367
9025	530	190	227	105	155	293	35	35	22	19	430		255	70	205	245	398
9030	610	210	264	115	160	316	45	45	25	24	510		305	75	230	275	421
9035	655	225	295	130	185	361	45	45	25	24	555		335	75	230	275	466
9040	685	235	306	140	200	381	45	50	25	28	585		350	85	260	315	486
9045	745	255	345	160	220	431	45	50	25	28	645	275		85	260	315	536
9050	805	275	358	165	210	417	50	55	27	28	685	290		90	290	345	522
9055	865	295	397	185	245	482	50	55	27	28	745	320		90	290	345	587
9060	915	310	414	195	265	510	55	60	29	35	795	340		105	340	410	615
9065	980	330	460	215	300	574	55	55	29	35	860	375		105	340	410	679
9070	1050	345	482	215	300	576	70	70	33	42	930	395		115	380	460	681
9075	1125	370	535	240	335	644	70	75	33	42	1005	430		115	380	460	749
9080	1205	395	556	240	335	644	80	85	37	42	1055	445		115	400	480	749
9085	1290	425	612	270	375	724	80	80	37	42	1140	490		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [l]
	W	R	S	R1	Key	T	U	V	U1	Key			
9015	211	80	30k6	70	8 x 7	245	110	58m6	95	18 x 11	3/4"	110	5
9025	226	80	35k6	70	10 x 8	285	140	70m6	125	20 x 12	3/4"	130	7
9030	269	110	40k6	95	12 x 8	330	170	80m6	150	25x 14	1"	185	10
9035	269	110	40k6	95	12 x 8	330	170	90m6	150	25x 14	1"	200	13
9040	284	110	50k6	95	14 x 9	349	170	95m6	150	25x 14	1"	260	17
9045	284	110	50k6	95	14 x 9	391	210	105m6	190	28 x 16	1"	320	21
9050	303	110	55m6	95	16 x 10	411	210	110m6	190	28 x 16	1"	410	24
9055	303	110	55m6	95	16 x 10	411	210	120m6	185	32 x 18	1"	450	31
9060	360	140	65m6	125	18 x 11	440	210	125m6	185	32 x 18	1 1/4"	580	32
9065	360	140	65m6	125	18 x 11	484	250	140m6	225	36 x 20	1 1/4"	665	41
9070	385	140	75m6	125	20 x 12	509	250	145m6	225	36 x 20	1 1/4"	830	47
9075	385	140	75m6	125	20 x 12	562	300	160m6	275	40 x 22	1 1/4"	1030	60
9080	434	170	85m6	150	22 x 14	582	300	165m6	275	40 x 22	1 1/4"	1200	66
9085	434	170	85m6	150	22 x 14	585	300	175m6	270	45 x 25	1 1/4"	1450	84

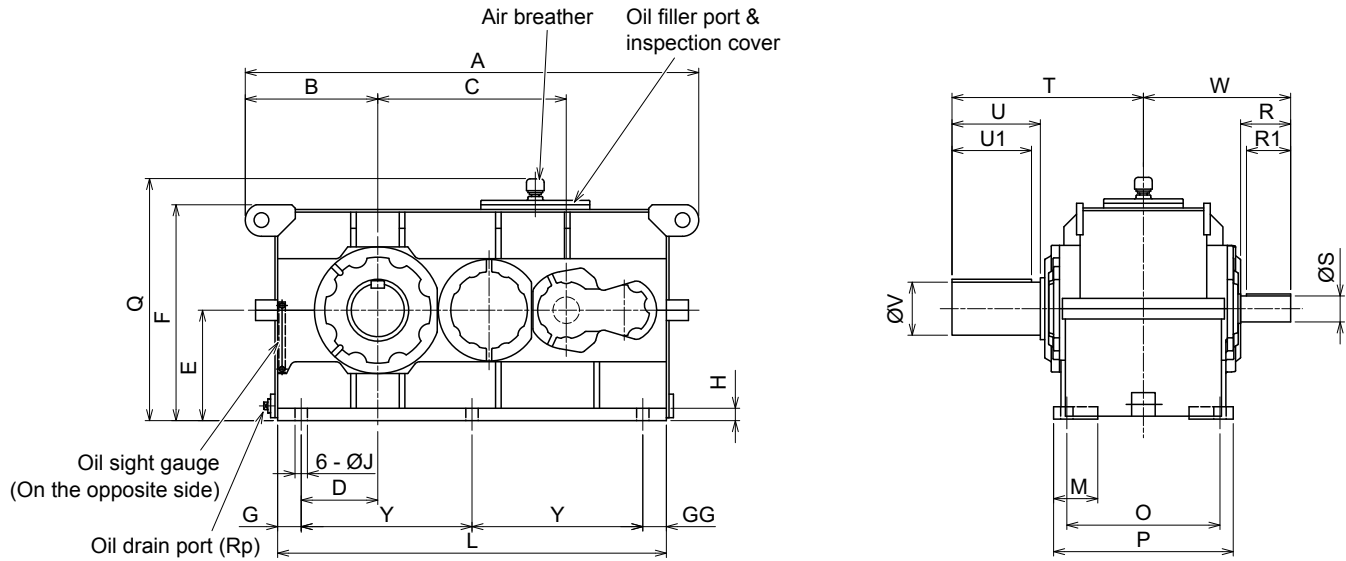
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090~9115 Parallel Shaft Double Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	M	O	P	Q
9090	1540	450	640	260	375	733	80	80	42	42	1320	580	150	520	610	822
9095	1600	480	670	285	400	783	85	95	42	42	1380	600	150	520	610	872
9100	1710	490	724	290	425	832	90	90	46	48	1490	655	150	570	660	921
9105	1780	525	758	315	450	882	100	100	46	48	1560	680	150	570	660	971
9110	1910	540	824	320	475	928	110	110	50	56	1690	735	165	630	730	1017
9115	2010	590	873	365	500	998	115	115	50	56	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	500	170	90m6	150	25 x 14	650	300	180m6	270	45 x 25	1 1/2"	2100	100
9095	500	170	90m6	150	25 x 14	700	350	190m6	320	45 x 25	1 1/2"	2300	120
9100	585	210	100m6	190	28 x 16	740	350	200m6	320	45 x 25	1 1/2"	2700	150
9105	585	210	100m6	190	28 x 16	740	350	220m6	320	50 x 28	1 1/2"	3300	170
9110	615	210	110m6	190	28 x 16	770	350	220m6	320	50 x 28	1 1/2"	4000	210
9115	615	210	110m6	190	28 x 16	830	410	240m6	375	56 x 32	1 1/2"	4400	250

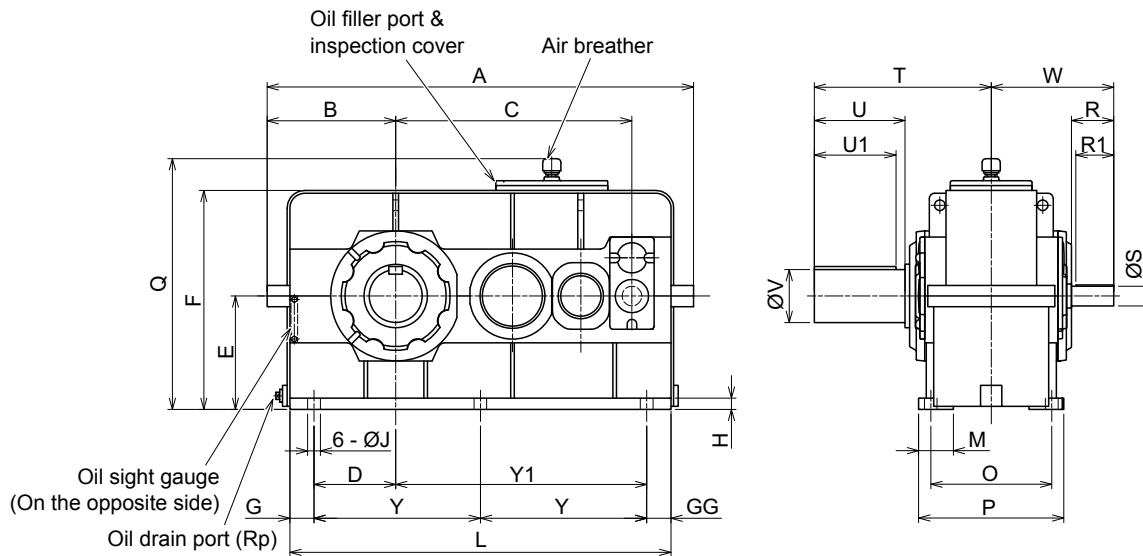
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9015~9085 Parallel Shaft Triple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	Y1	M	O	P	Q
9015	540	175	257	95	135	262	30	30	19	15	440		285	65	185	220	367
9025	605	190	306	105	155	293	35	35	22	19	505		330	70	205	245	398
9030	670	210	343	115	160	316	45	45	25	24	570		365	75	230	275	421
9035	715	225	374	130	185	361	45	50	25	24	615		390	75	230	275	466
9040	770	235	398	140	200	381	45	85	25	28	670		400	85	260	315	486
9045	825	255	437	160	220	431	45	50	25	28	725	315		85	260	315	536
9050	885	275	467	165	210	417	50	85	27	28	765	315		90	290	345	522
9055	945	295	506	185	245	482	50	55	27	28	825	360		90	290	345	587
9060	1005	310	540	195	265	510	55	90	29	35	885	370		105	340	410	615
9065	1070	330	586	215	300	574	55	55	29	35	950	420		105	340	410	679
9070	1145	345	630	215	300	576	70	115	33	42	1025	420		115	380	460	681
9075	1220	370	683	240	335	644	70	70	33	42	1100	480		115	380	460	749
9080	1325	395	725	240	335	644	80	95	37	42	1175	500		115	400	480	749
9085	1410	425	781	270	375	724	80	80	37	42	1260	550		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [l]
	W	R	S	R1	Key	T	U	V	U1	Key			
9015	190	60	25k6	50	8 x 7	245	110	58m6	95	18 x 11	3/4"	110	6
9025	204	60	28k6	50	8 x 7	285	140	70m6	125	20 x 12	3/4"	160	9
9030	241	80	30k6	70	8 x 7	330	170	80m6	150	25x 14	1"	200	11
9035	241	80	30k6	70	8 x 7	330	170	90m6	150	25x 14	1"	215	15
9040	256	80	35k6	70	10 x 8	349	170	95m6	150	25x 14	1"	285	20
9045	256	80	35k6	70	10 x 8	391	210	105m6	190	28 x 16	1"	350	25
9050	304	110	40k6	95	12 x 8	411	210	110m6	190	28 x 16	1"	440	28
9055	304	110	40k6	95	12 x 8	411	210	120m6	185	32 x 18	1"	485	36
9060	329	110	50k6	95	14 x 9	440	210	125m6	185	32 x 18	1 1/4"	630	41
9065	329	110	50k6	95	14 x 9	484	250	140m6	225	36 x 20	1 1/4"	720	51
9070	354	110	55m6	95	16 x 10	509	250	145m6	225	36 x 20	1 1/4"	900	60
9075	354	110	55m6	95	16 x 10	562	300	160m6	275	40 x 22	1 1/4"	1120	74
9080	405	140	65m6	125	18 x 11	582	300	165m6	275	40 x 22	1 1/4"	1300	82
9085	405	140	65m6	125	18 x 11	585	300	175m6	270	45 x 25	1 1/4"	1560	102

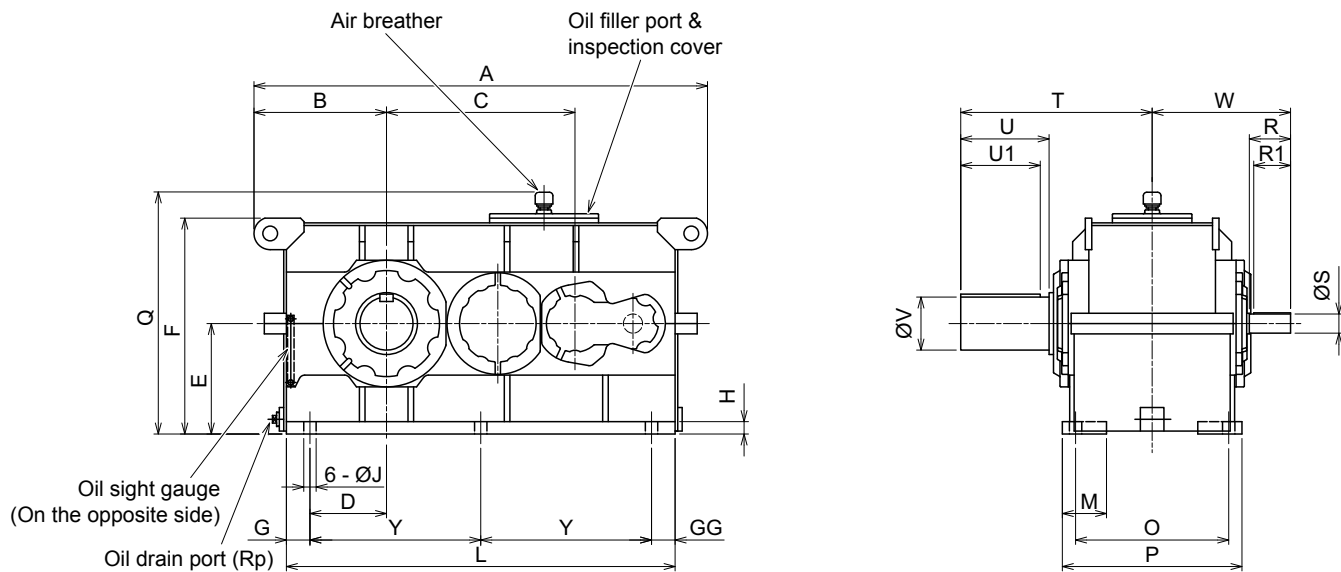
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090~9115 Parallel Shaft Triple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	M	O	P	Q
9090	1540	450	837	260	375	733	80	80	42	42	1320	580	150	520	610	822
9095	1600	480	867	285	400	783	85	95	42	42	1380	600	150	520	610	872
9100	1710	490	950	290	425	832	90	90	46	48	1490	655	150	570	660	921
9105	1780	525	984	315	450	882	100	100	46	48	1560	680	150	570	660	971
9110	1910	540	1050	320	475	928	110	110	50	56	1690	735	165	630	730	1017
9115	2010	590	1099	365	500	998	115	115	50	56	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	470	140	65m6	125	18 x 11	650	300	180m6	270	45 x 25	1 1/2"	2100	100
9095	470	140	65m6	125	18 x 11	700	350	190m6	320	45 x 25	1 1/2"	2400	130
9100	515	140	75m6	125	20 x 12	740	350	200m6	320	45 x 25	1 1/2"	2800	150
9105	515	140	75m6	125	20 x 12	740	350	220m6	320	50 x 28	1 1/2"	3300	190
9110	575	170	80m6	150	22 x 14	770	350	220m6	320	50 x 28	1 1/2"	4000	220
9115	575	170	80m6	150	22 x 14	830	410	240m6	375	56 x 32	1 1/2"	4500	280

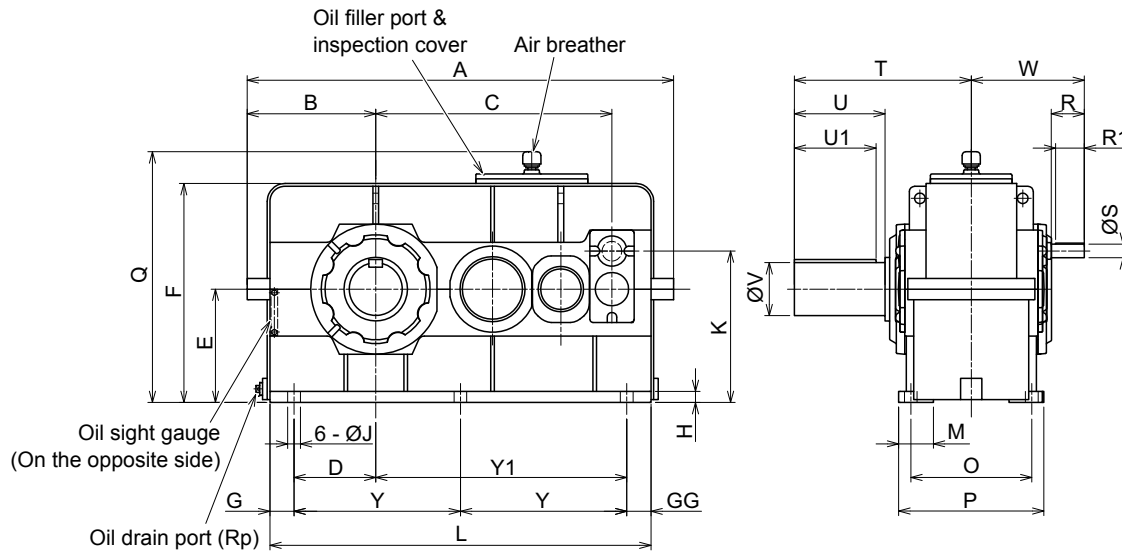
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9030~9085 Parallel Shaft Quadruple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	K	L	Y	Y1	M	O	P	Q
9030	670	210	343	115	160	316	45	45	25	24	223	570		365	75	230	275	421
9035	715	225	374	130	185	361	45	50	25	24	248	615		390	75	230	275	466
9040	770	235	398	140	200	381	45	85	25	28	279	670		400	85	260	315	486
9045	825	255	437	160	220	431	45	50	25	28	299	725	315		85	260	315	536
9050	885	275	467	165	210	417	50	85	27	28	289	765	315		90	290	345	522
9055	945	295	506	185	245	482	50	55	27	28	324	825	360		90	290	345	587
9060	1005	310	540	195	265	510	55	90	29	35	357	885	370		105	340	410	615
9065	1070	330	586	215	300	574	55	55	29	35	392	950	420		105	340	410	679
9070	1145	345	630	215	300	576	70	115	33	42	409	1025	420		115	380	460	681
9075	1220	370	683	240	335	644	70	70	33	42	444	1100	480		115	380	460	749
9080	1325	395	725	240	335	644	80	95	37	42	461	1175	500		115	400	480	749
9085	1410	425	781	270	375	724	80	80	37	42	501	1260	550		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9030	219	60	25k6	50	8 x 7	330	170	80m6	150	22 x 14	1"	205	17
9035	219	60	25k6	50	8 x 7	330	170	90m6	150	25 x 14	1"	220	21
9040	235	60	28k6	50	8 x 7	349	170	95m6	150	25 x 14	1"	290	29
9045	235	60	28k6	50	8 x 7	391	210	105m6	190	28 x 16	1"	350	34
9050	275	80	30k6	70	8 x 7	411	210	110m6	190	28 x 16	1"	440	39
9055	275	80	30k6	70	8 x 7	411	210	120m6	185	32 x 18	1"	490	48
9060	301	80	35k6	70	10 x 8	440	210	125m6	185	32 x 18	1 1/4"	625	46
9065	301	80	35k6	70	10 x 8	484	250	140m6	225	36 x 20	1 1/4"	720	57
9070	354	110	40k6	95	12 x 8	509	250	145m6	225	36 x 20	1 1/4"	905	69
9075	354	110	40k6	95	12 x 8	562	300	160m6	275	40 x 22	1 1/4"	1120	84
9080	374	110	45k6	95	14 x 9	582	300	165m6	275	40 x 22	1 1/4"	1300	94
9085	374	110	45k6	95	14 x 9	585	300	175m6	270	45 x 25	1 1/4"	1560	115

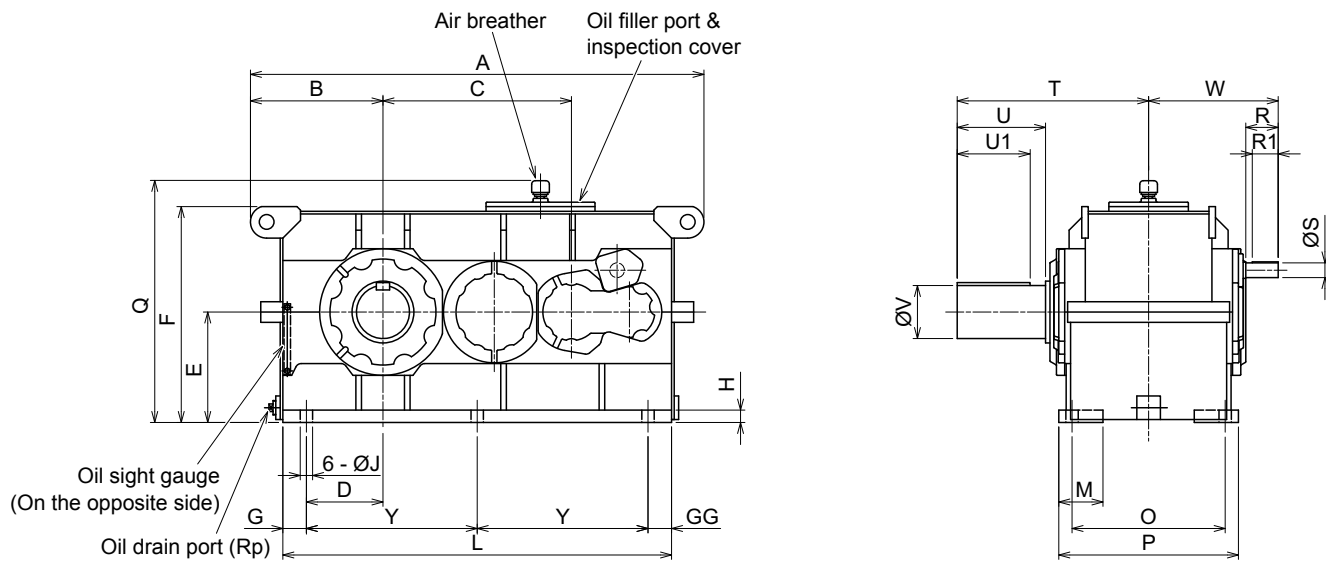
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090~9115 Parallel Shaft Quadruple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	K	L	Y	M	O	P	Q
9090	1540	450	795	260	375	733	80	80	42	42	517	1320	580	150	520	610	822
9095	1600	480	825	285	400	783	85	95	42	42	542	1380	600	150	520	610	872
9100	1710	490	901	290	425	832	90	90	46	48	587	1490	655	150	570	660	921
9105	1780	525	935	315	450	882	100	100	46	48	612	1560	680	150	570	660	971
9110	1910	540	1001	320	475	928	110	110	50	56	637	1690	735	165	630	730	1017
9115	2010	590	1050	365	500	998	115	115	50	56	662	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	440	110	50k6	95	14 x 9	650	300	180m6	270	45 x 25	1 1/2"	2200	130
9095	440	110	50k6	95	14 x 9	700	350	190m6	320	45 x 25	1 1/2"	2400	150
9100	515	140	60m6	125	18 x 11	740	350	200m6	320	45 x 25	1 1/2"	2800	190
9105	515	140	60m6	125	18 x 11	740	350	220m6	320	50 x 28	1 1/2"	3400	220
9110	545	140	60m6	125	18 x 11	770	350	220m6	320	50 x 28	1 1/2"	4100	260
9115	545	140	60m6	125	18 x 11	830	410	240m6	375	56 x 32	1 1/2"	4500	310

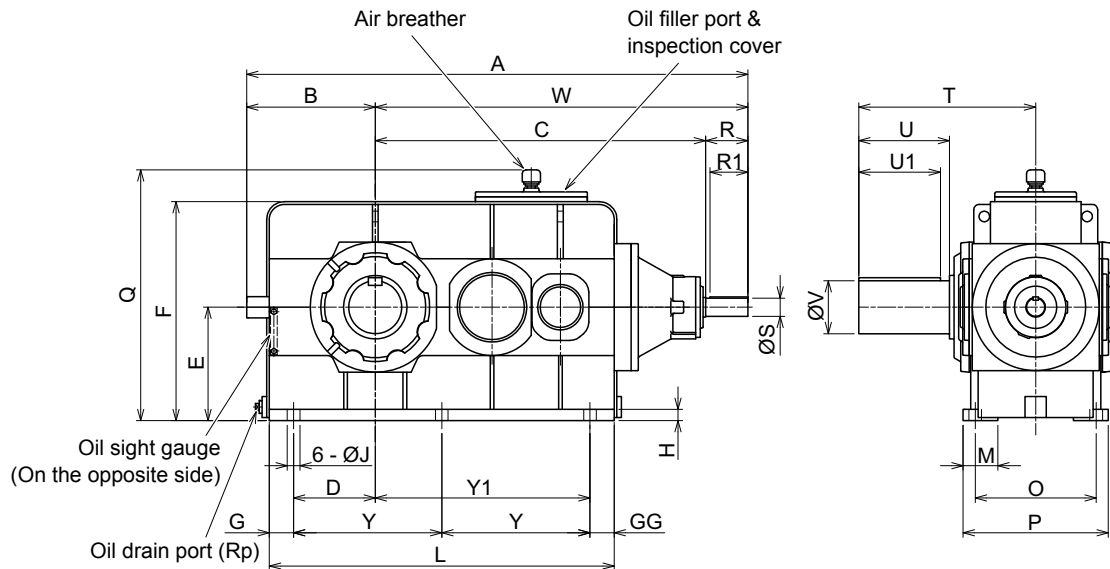
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9030~9085 Right Angle Shaft Triple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	Y1	M	O	P	Q
9030	866	210	576	115	160	316	45	45	25	24	510		305	75	230	275	421
9035	912	225	607	130	185	361	45	45	25	24	555		335	75	230	275	466
9040	951	235	636	140	200	381	45	50	25	28	585		350	85	260	315	486
9045	1010	255	675	160	220	431	45	50	25	28	645	275		85	260	315	536
9050	1083	275	728	165	210	417	50	55	27	28	685	290		90	290	345	522
9055	1142	295	767	185	245	482	50	55	27	28	745	320		90	290	345	587
9060	1249	310	829	195	265	510	55	60	29	35	795	340		105	340	410	615
9065	1315	330	875	215	300	574	55	55	29	35	860	375		105	340	410	679
9070	1372	345	917	215	300	576	70	70	33	42	930	395		115	380	460	681
9075	1450	370	970	240	335	644	70	75	33	42	1005	430		115	380	460	749
9080	1571	395	1036	240	335	644	80	85	37	42	1055	445		115	400	480	749
9085	1657	425	1092	270	375	724	80	80	37	42	1140	490		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9030	656	80	28k6	70	8 x 7	330	170	80m6	150	25x 14	1"	205	10
9035	687	80	28k6	70	8 x 7	330	170	90m6	150	25x 14	1"	220	13
9040	716	80	30k6	70	8 x 7	349	170	95m6	150	25x 14	1"	290	17
9045	755	80	30k6	70	8 x 7	391	210	105m6	190	28 x 16	1"	350	21
9050	808	80	35k6	70	10 x 8	411	210	110m6	190	28 x 16	1"	440	24
9055	847	80	35k6	70	10 x 8	411	210	120m6	185	32 x 18	1"	490	31
9060	939	110	45k6	95	14 x 9	440	210	125m6	185	32 x 18	1 1/4"	650	36
9065	985	110	45k6	95	14 x 9	484	250	140m6	225	36 x 20	1 1/4"	730	46
9070	1027	110	50k6	95	14 x 9	509	250	145m6	225	36 x 20	1 1/4"	925	54
9075	1080	110	50k6	95	14 x 9	562	300	160m6	275	40 x 22	1 1/4"	1140	67
9080	1176	140	60m6	125	18 x 11	582	300	165m6	275	40 x 22	1 1/4"	1330	73
9085	1232	140	60m6	125	18 x 11	585	300	175m6	270	45 x 25	1 1/4"	1580	92

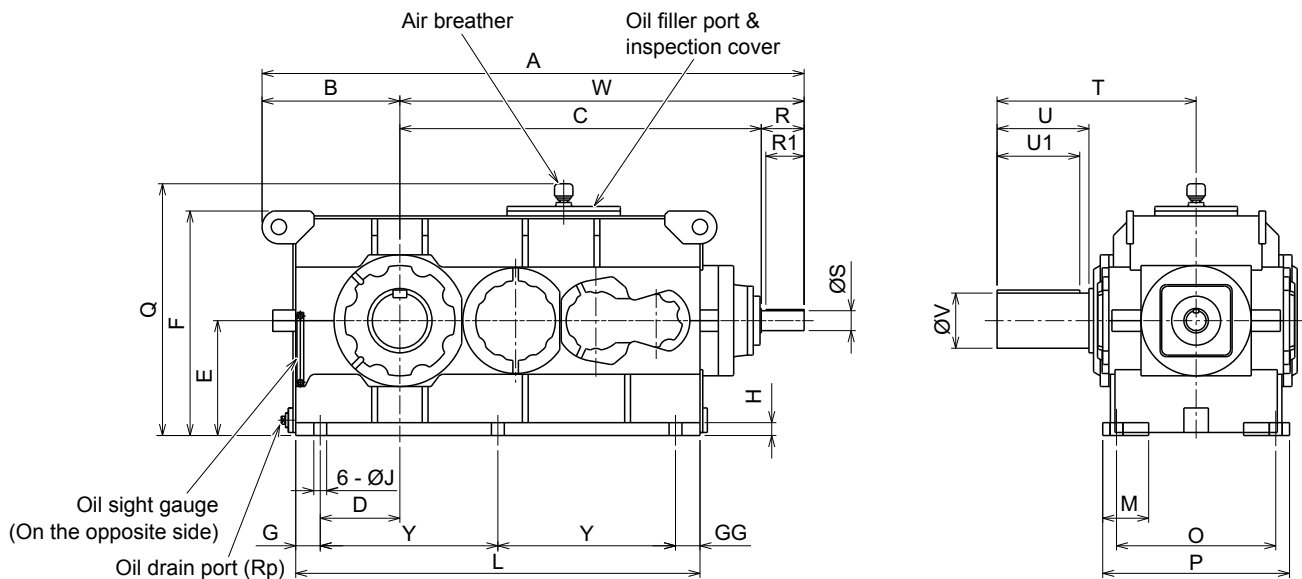
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090~9115 Right Angle Shaft Triple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	M	O	P	Q
9090	1770	450	1180	260	375	733	80	80	42	42	1320	580	150	520	610	822
9095	1830	480	1210	285	400	783	85	95	42	42	1380	600	150	520	610	872
9100	1964	490	1334	290	425	832	90	90	46	48	1490	655	150	570	660	921
9105	2033	525	1368	315	450	882	100	100	46	48	1560	680	150	570	660	971
9110	2224	540	1514	320	475	928	110	110	50	56	1690	735	165	630	730	1017
9115	2323	590	1563	365	500	998	115	115	50	56	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	1320	140	65m6	125	18 x 11	650	300	180m6	270	45 x 25	1 1/2"	2200	100
9095	1350	140	65m6	125	18 x 11	700	350	190m6	320	45 x 25	1 1/2"	2400	130
9100	1474	140	75m6	125	20 x 12	740	350	200m6	320	45 x 25	1 1/2"	2900	150
9105	1508	140	75m6	125	20 x 12	740	350	220m6	320	50 x 28	1 1/2"	3400	190
9110	1684	170	80m6	150	22 x 14	770	350	220m6	320	50 x 28	1 1/2"	4200	210
9115	1733	170	80m6	150	22 x 14	830	410	240m6	375	56 x 32	1 1/2"	4600	260

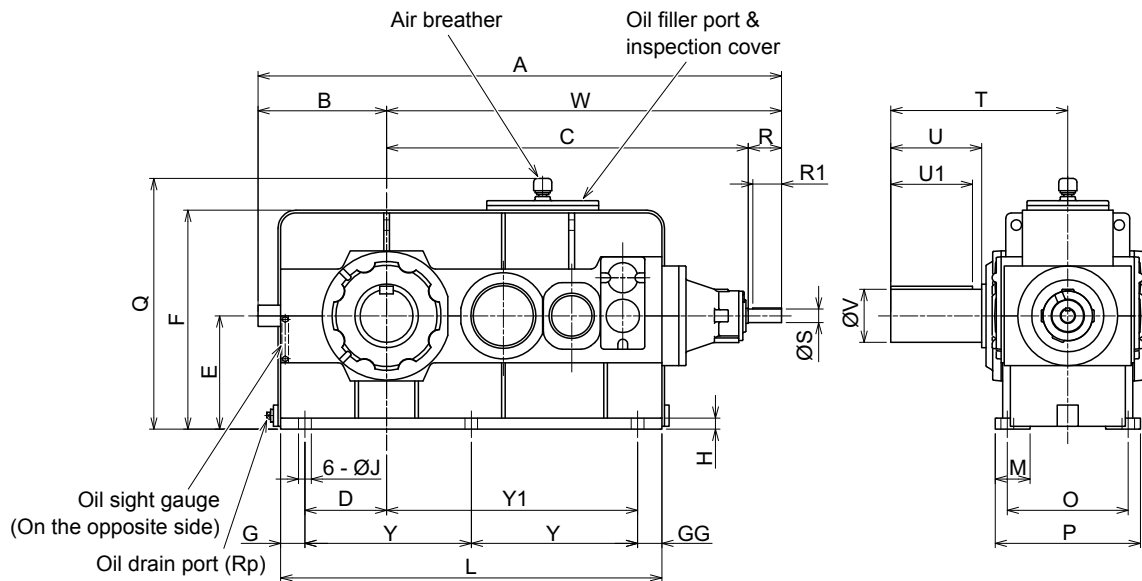
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9040~9085 Right Angle Shaft Quadruple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	Y1	M	O	P	Q
9040	1025	235	710	140	200	381	45	85	25	28	670		400	85	260	315	486
9045	1084	255	749	160	220	431	45	50	25	28	725	315		85	260	315	536
9050	1134	275	779	165	210	417	50	85	27	28	765	315		90	290	345	522
9055	1193	295	818	185	245	482	50	55	27	28	825	360		90	290	345	587
9060	1260	310	870	195	265	510	55	90	29	35	885	370		105	340	410	615
9065	1326	330	916	215	300	574	55	55	29	35	950	420		105	340	410	679
9070	1425	345	1000	215	300	576	70	115	33	42	1025	420		115	380	460	681
9075	1503	370	1053	240	335	644	70	70	33	42	1100	480		115	380	460	749
9080	1645	395	1140	240	335	644	80	95	37	42	1175	500		115	400	480	749
9085	1731	425	1196	270	375	724	80	80	37	42	1260	550		115	400	480	829

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [l]
	W	R	S	R1	Key	T	U	V	U1	Key			
9040	790	80	28k6	70	8 x 7	349	170	95m6	150	25 x 14	1"	310	20
9045	829	80	28k6	70	8 x 7	391	210	105m6	190	28 x 16	1"	375	25
9050	859	80	28k6	70	8 x 7	411	210	110m6	190	28 x 16	1"	460	28
9055	898	80	28k6	70	8 x 7	411	210	120m6	185	32 x 18	1"	505	36
9060	950	80	30k6	70	8 x 7	440	210	125m6	185	32 x 18	1 1/4"	950	47
9065	996	80	30k6	70	8 x 7	484	250	140m6	225	36 x 20	1 1/4"	740	58
9070	1080	80	35k6	70	10 x 8	509	250	145m6	225	36 x 20	1 1/4"	930	70
9075	1133	80	35k6	70	10 x 8	562	300	160m6	275	40 x 22	1 1/4"	1150	85
9080	1250	110	45k6	95	14 x 9	582	300	165m6	275	40 x 22	1 1/4"	1350	96
9085	1306	110	45k6	95	14 x 9	585	300	175m6	270	45 x 25	1 1/4"	1620	117

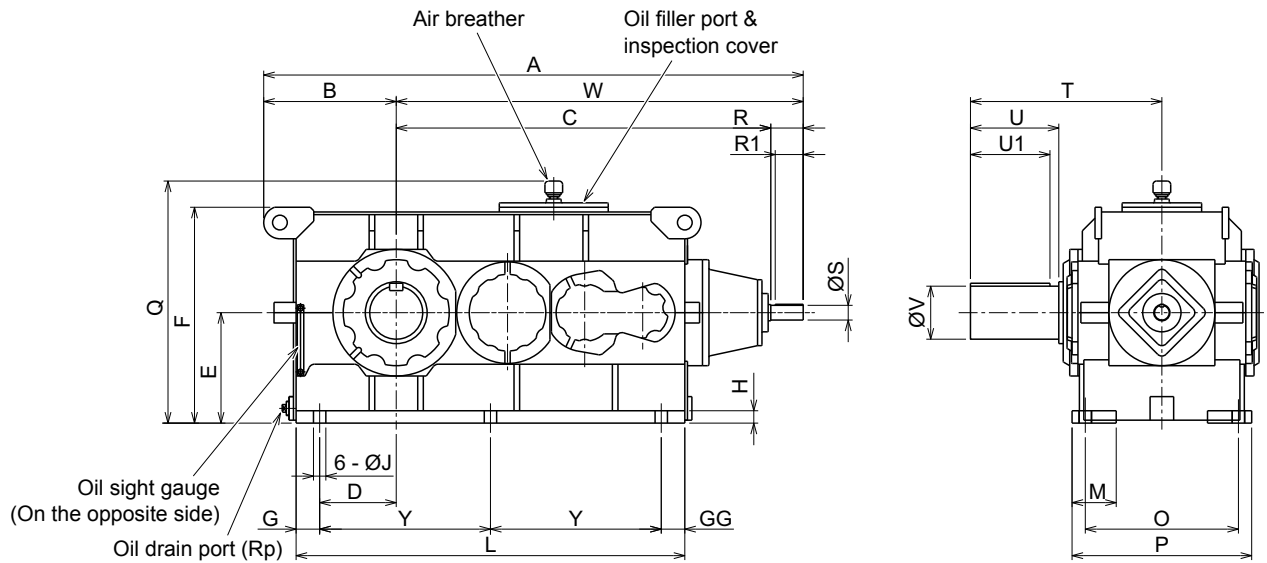
Unit: mm

Steel Fabricated Housing

Dimension

Horizontal Mounting

PHD9090~9115 Right Angle Shaft Quadruple Stage Reduction



Size	A	B	C	D	E	F	G	GG	H	J	L	Y	M	O	P	Q
9090	1832	450	1272	260	375	733	80	80	42	42	1320	580	150	520	610	822
9095	1892	480	1302	285	400	783	85	95	42	42	1380	600	150	520	610	872
9100	2060	490	1430	290	425	832	90	90	46	48	1490	655	150	570	660	921
9105	2129	525	1464	315	450	882	100	100	46	48	1560	680	150	570	660	971
9110	2210	540	1530	320	475	928	110	110	50	56	1690	735	165	630	730	1017
9115	2309	590	1579	365	500	998	115	115	50	56	1790	780	165	630	730	1087

Size	High speed shaft					Slow speed shaft					Rp	Approx. mass [kg]	Approx. oil quantity [ℓ]
	W	R	S	R1	Key	T	U	V	U1	Key			
9090	1382	110	50k6	95	14 x 9	650	300	180m6	270	45 x 25	1 1/2"	2200	130
9095	1412	110	50k6	95	14 x 9	700	350	190m6	320	45 x 25	1 1/2"	2400	150
9100	1570	140	60m6	125	18 x 11	740	350	200m6	320	45 x 25	1 1/2"	2900	180
9105	1604	140	60m6	125	18 x 11	740	350	220m6	320	50 x 28	1 1/2"	3400	220
9110	1670	140	60m6	125	18 x 11	770	350	220m6	320	50 x 28	1 1/2"	4100	260
9115	1719	140	60m6	125	18 x 11	830	410	240m6	375	56 x 32	1 1/2"	4500	310

Unit: mm

MEMO

Keeper Plate with Washer

Keeper plate is for retaining the high speed shaft, slow speed shaft, etc. It is attached when mounting coupling and gears.

Specification

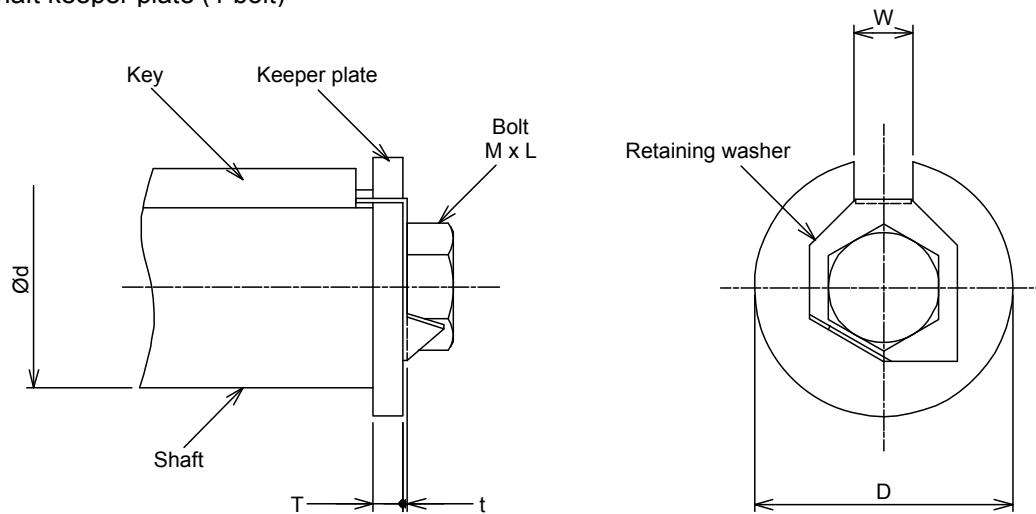
- There is a standard keeper plate for each shaft size.
- Keeper plate of high speed shaft is fixed by used by affixing a bolt by bending a retaining washer along the keyway.
- Keeper plate of slow speed shaft is used by affixing two bolts by bending a retaining washer.

Note: • Key length is shorter than the standard models for keeper plate on a high speed shaft. This is because the retaining washer is bent along the keyway.

- Two tap holes are added on the shaft end for keeper plate on slow speed shaft.

Dimension

High speed shaft keeper plate (1 bolt)



Shaft diameter d	Outer diameter D	Keyway width W	Thickness T	Thickness t	Nominal bolt diameter x Screw length M×L		Reduced key length
25	35	8	5	0.8	M10	25	5
28	35	8	5	0.8	M10	25	5
30	35	8	5	0.8	M10	25	5
35	45	10	5	0.8	M12	30	5
40 (a)	50	12	5	1.2	M16	40	5
40 (b)	50	14	6	1.2	M16	40	5
45	60	14	8	1.2	M16	40	5
50	60	14	8	1.2	M16	40	5
55	70	16	8	1.2	M20	45	5
58	75	18	8	1.2	M20	45	5
60	75	18	8	1.2	M20	45	5
65	75	18	8	1.2	M20	45	5
70	90	20	8	1.2	M20	45	5
75	90	20	8	1.2	M20	45	5
80	100	22	8	1.2	M20	45	5
85	100	22	8	1.2	M20	45	5
90	110	25	10	1.6	M24	55	6
95	120	25	10	1.6	M24	55	6
100	120	28	10	1.6	M24	55	6
105	130	28	10	1.6	M24	55	6
110	140	28	10	1.6	M24	55	6
120	140	32	10	1.6	M24	55	6
125	150	32	10	1.6	M24	55	6
130	160	32	10	1.6	M24	55	6

Refer to the shaft diameter table for the suitable reducer size that corresponds to a specific shaft diameter. Unit: mm

Keeper Plate with Washer

High speed shaft diameter

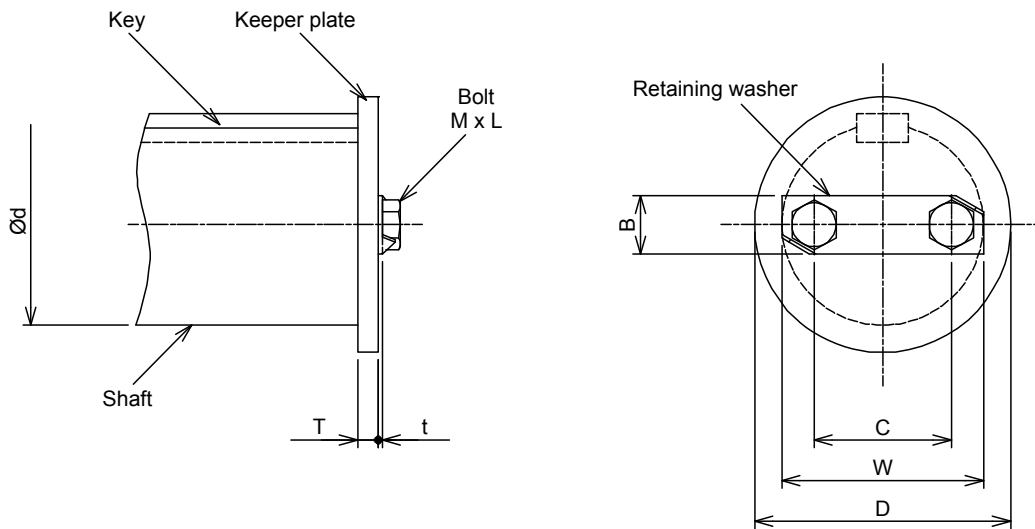
Size	P2	P3	P4	R2	R3	R4
9015	30	25	-	28	-	-
9025	35	28	-	35	-	-
9030	40 (a)	30	25	40 (b)	28	-
9035	40 (a)	30	25	40 (b)	28	-
9040	50	35	28	45	30	28
9045	50	35	28	45	30	28
9050	55	40 (a)	30	50	35	28
9055	55	40 (a)	30	50	35	28
9060	65	50	35	60	45	30
9065	65	50	35	60	45	30
9070	75	55	40 (a)	65	50	35
9075	75	55	40 (a)	65	50	35
9080	85	65	45	75	60	45
9085	85	65	45	75	60	45
9090	90	65	50	-	65	50
9095	90	65	50	90	65	50
9100	100	75	60	-	75	60
9105	100	75	60	100	75	60
9110	110	80	60	-	85	60
9115	110	80	60	110	85	60

Unit: mm

Keeper Plate with Washer

Dimension

Slow speed shaft keeper plate (2 bolts)



Size	Shaft diameter d	Pitch C	Outer diameter D	Thickness T	W	B	Thickness t	Nominal bolt diameter x Screw length M×L	
9015	58	42	75	9	65	25	0.8	M10	25
9025	70	46	85	9	75	25	0.8	M12	30
9030	80	50	100	9	77	25	0.8	M12	30
9035	90	55	105	9	85	25	1.2	M12	30
9040	95	60	120	12	95	32	1.2	M16	40
9045	105	60	120	12	95	32	1.2	M16	40
9050	110	75	140	12	110	32	1.2	M16	40
9055	120	75	140	12	110	32	1.2	M16	40
9060	125	85	150	16	130	40	1.2	M20	50
9065	140	95	175	16	140	40	1.2	M20	50
9070	145	95	175	16	140	40	1.2	M20	50
9075	160	110	190	16	155	40	1.2	M20	50
9080	165	110	190	16	155	40	1.2	M20	50
9085	175	130	210	16	175	40	1.2	M20	50
9090	180	130	210	16	175	40	1.2	M20	50
9095	190	140	220	16	185	40	1.2	M20	50
9100	200	145	230	16	197	48	1.2	M24	55
9105	220	165	250	16	217	48	1.2	M24	55
9110	220	165	250	16	217	48	1.2	M24	55
9115	240	180	270	16	232	48	1.2	M24	55
9118	260	190	290	18	254	55	1.6	M30	75
9121	280	200	310	18	264	55	1.6	M30	75
9126	300	220	330	18	284	55	1.6	M30	75
9128	320	200	350	21	272	64	1.6	M36	90
9131	340	215	370	21	287	64	1.6	M36	90
9136	360	230	390	21	302	64	1.6	M36	90

Unit: mm

Shaft-End Tapped Hole (LSS)

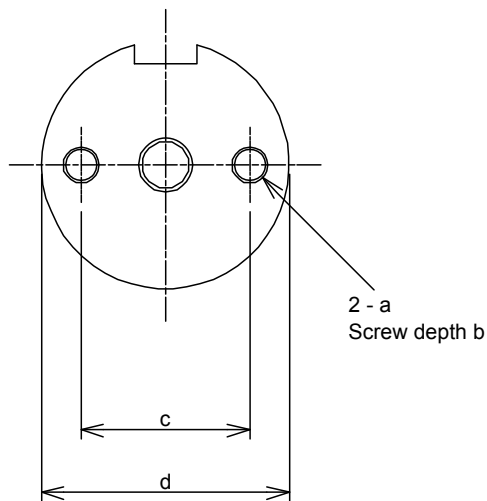
Shaft end tap on LSS end is to fix keeper plate etc. using two bolts.

Specification

- This adds two tap holes to the end of a standard low speed shaft, which has one tap hole at the center.

Dimension

Slow speed shaft

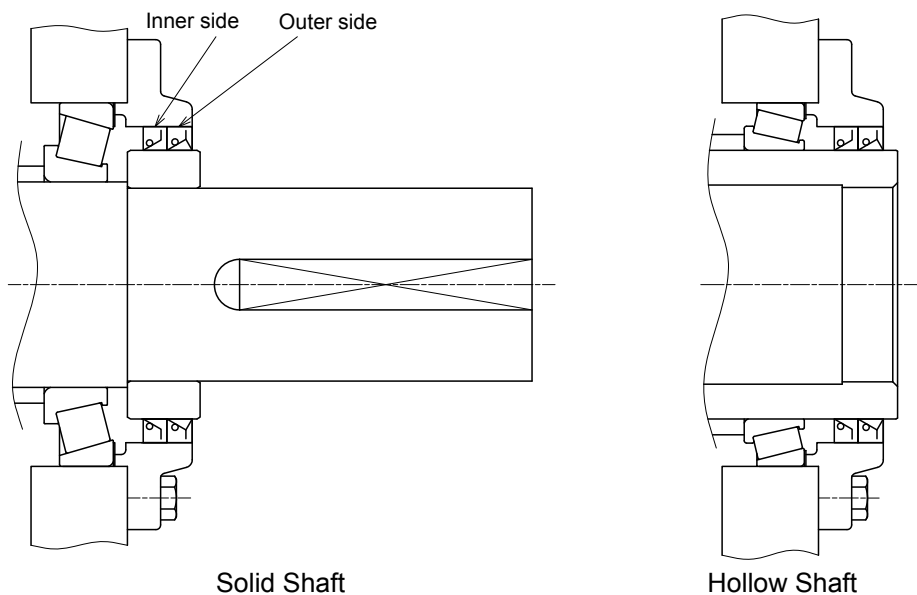


Size	d	a	b	c
9015	58	M10	20	42
9025	70	M12	25	46
9030	80	M12	25	50
9035	90	M12	25	55
9040	95	M16	30	60
9045	105	M16	30	60
9050	110	M16	30	75
9055	120	M16	30	75
9060	125	M20	38	85
9065	140	M20	38	95
9070	145	M20	38	95
9075	160	M20	38	110
9080	165	M20	38	110
9085	175	M20	38	130
9090	180	M20	38	130
9095	190	M20	38	140
9100	200	M24	45	145
9105	220	M24	45	165
9110	220	M24	45	165
9115	240	M24	45	180

Unit: mm

Double Shaft Seals (LSS)

Oil seal may be doubled in applications where oil leakage may have severe impact on production or the environment. Use of double oil seal enhance the reliability of the oil leakage prevention.



Specification

- This specification comes with double nitrile rubber oil seal.
- The optional double oil seals on slow speed shaft is available for the combinations marked with “S” in the table below.

Note: • Double oil seal on the slow speed shaft is standard for quadruple stage reduction horizontal mounting models, vertical mounting slow speed shaft models facing the bottom, and upright models.
 • Double oil seal is used only for the seal at the bottom for vertical mounting hollow shaft models.

Standard specifications of slow speed shaft oil seal

Installation	Number of reduction stage	Right angle shaft						Parallel shaft								
		RL	RR	RB	LR	LL	LB	RL	RR	RB	LR	LL	LB	BR	BL	BB
Horizontal	Double stage	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Triple stage	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
	Quadruple stage	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
Vertical	Double stage	D	S	-	-	-	-	D	S	-	-	-	-	-	-	-
	Triple stage	D	S	-	-	-	-	D	S	-	-	-	-	-	-	-
	Quadruple stage	-	-	-	S	D	-	D	S	-	-	-	-	-	-	-
Upright	Double stage	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	Triple stage	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
	Quadruple stage	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D

S: Single oil seal, D: Double oil seal

FKM seal has better heat resistance compared to the nitrile rubber seal. Use FKM seal when the ambient temperature is 60 degrees Celsius or higher.

FKM seal is also recommended for ambient environment requiring chemical resistance.

Specification

- This is an oil seal with dust lip made of fluorine-containing rubber.

Dimension

The installation dimension is the same as the standard oil seal.

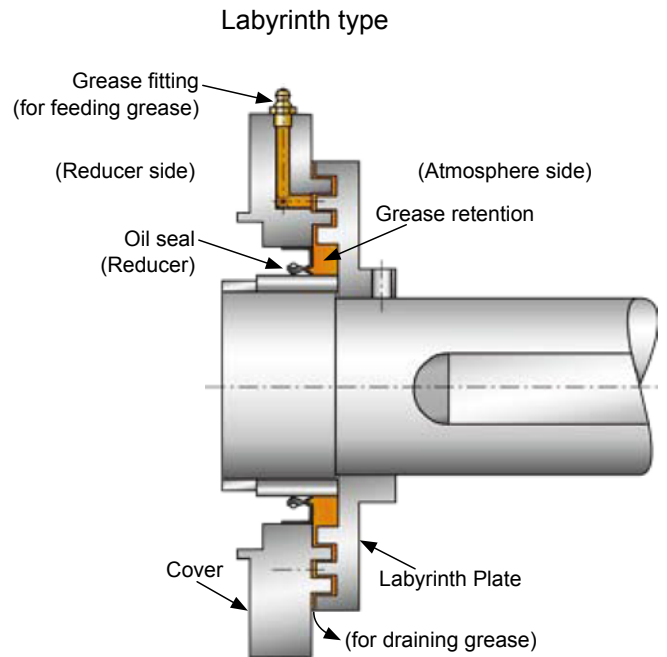
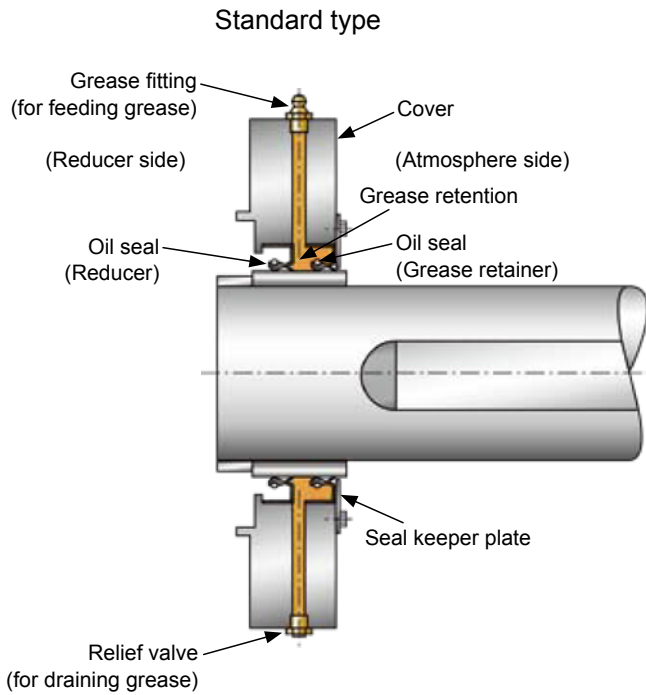
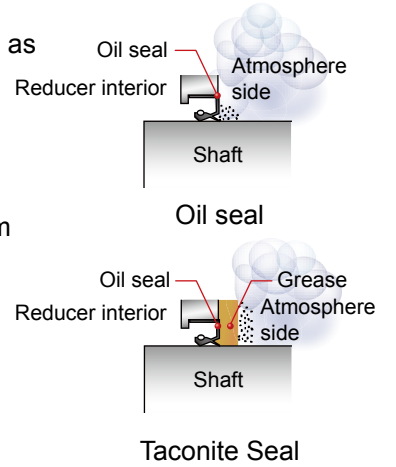
FKM seal do not affect the installation dimension of high speed and slow speed shafts. Refer to the Catalog No. G2002E for details.

Taconite Seal

Taconite seal is suitable used when operating a reducer in a dusty environment, such as applications for coal conveyors.

Specification

- The seal structure has grease on the open air side. This prevents dust particles from reaching the oil seal lip to prevent wear and tear.
- There are two types of seal structures, “standard” and “labyrinth.”



Seal structure application table

S: Standard type L: Labyrinth type

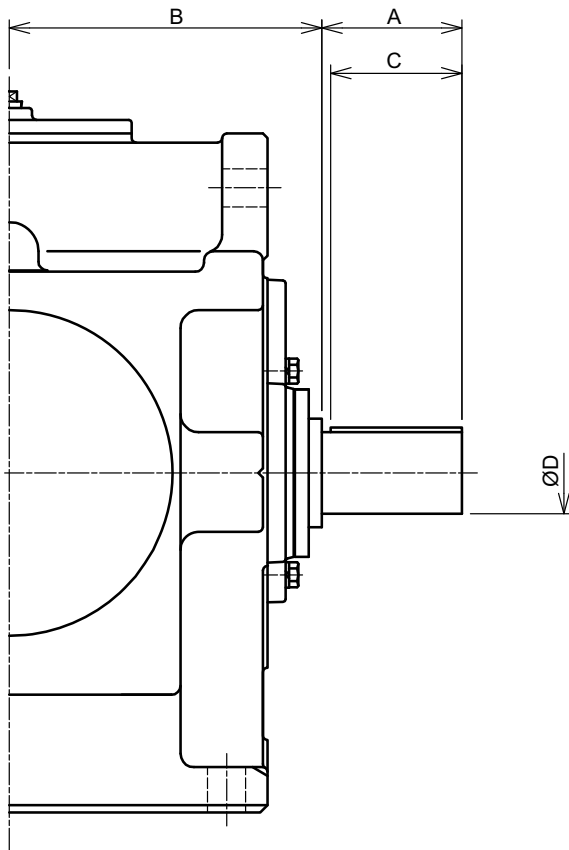
Size	High speed shaft						Slow speed shaft
	P2	P3	P4	R2	R3	R4	
9015	S	S	-	S	-	-	S
9025	S	S	-	S	-	-	
9030	S	S	S	S	S	-	
9035	S	S	S	S	S	-	
9045	S	S	S	S	S	S	
~ 9085							
9090	L	L	S	S	S	S	
~ 9115							

Dimension

- Dimension of the extended shaft of the “standard” taconite seal has the same shaft output dimensions as those described in the catalog. Refer to the Catalog No.G2002E for dimensions.
- The high speed shaft seal for 9090 - 9115 P2, P3 is the “labyrinth” type with different shaft output dimensions and collar-end dimensions.

Dimension

Taconite seal "labyrinth type" high speed shaft-end



Parallel Shaft Double Stage Reduction Horizontal Mounting

Size	A	B	C	D	Key
9090	155	345	150	90m6	25x14
9095	155	345	150	90m6	25x14
9100	195	390	190	100m6	28x16
9105	195	390	190	100m6	28x16
9110	195	420	190	110m6	28x16
9115	195	420	190	110m6	28x16

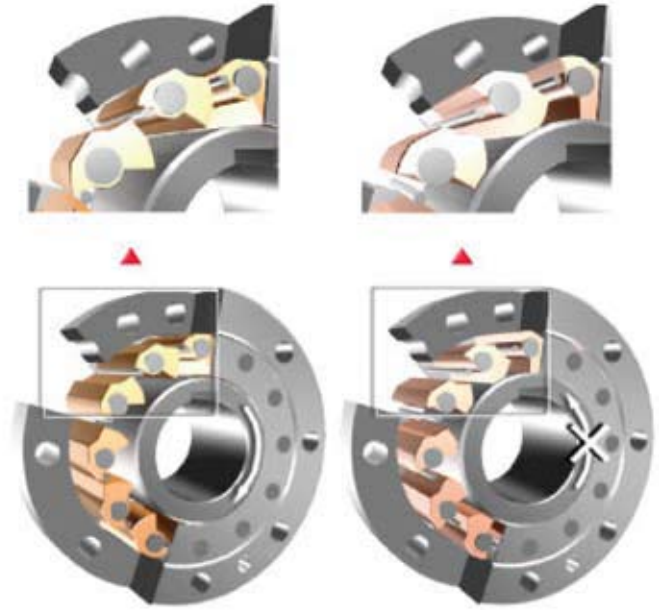
Unit : mm

Parallel Shaft Triple Stage Reduction Horizontal Mounting

Size	A	B	C	D	Key
9090	125	345	125	65m6	18x11
9095	125	345	125	65m6	18x11
9100	125	390	125	75m6	20x12
9105	125	390	125	75m6	20x12
9110	155	420	150	80m6	22x14
9115	155	420	150	80m6	22x14

Unit : mm

Internal Backstop



Internal backstop is mounted directly on the intermediate shaft of the reducer.

Internal type does not require the torque arm for the back stop, bearing, oil seal, and specialized lubrication, unlike the exterior-mount type. It makes the application device more simple, compact, and maintenance free.

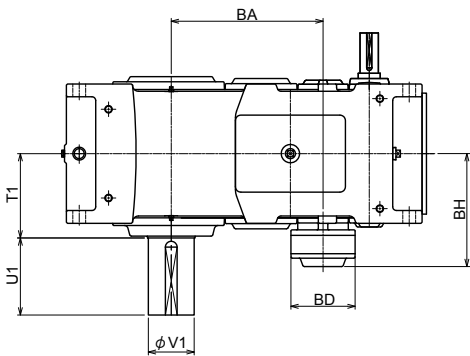
Specification

- Inner race rotate in single direction only. This is a centrifugal lift-off backstop with no contact of cam.

Internal Backstop

Dimension

Parallel Shaft Triple Stage Reduction Horizontal Mounting

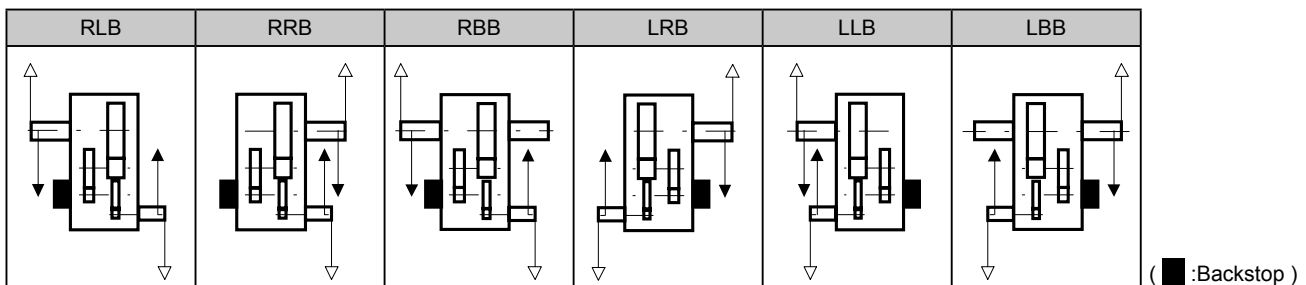


Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9050	358	263	150	201	110	210	24
9055	397	263	150	201	120	210	24
9060	414	308	175	230	125	210	35 *
9065	460	308	175	234	140	250	40 *
9070	482	330	190	259	145	250	53 *
9075	535	330	190	262	160	300	64 *
9080	556	365	210	282	165	300	69 *
9085	612	365	210	285	175	300	85 *

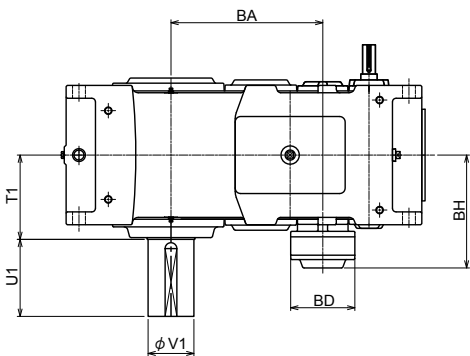
Note: The oil volumes marked with "*" are different from the standard oil volume.

Unit : mm

Standard Shaft Arrangement Configuration



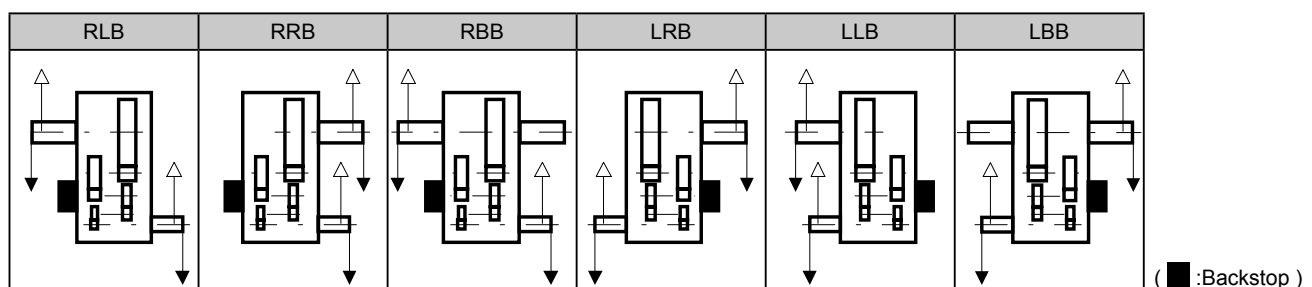
Parallel Shaft Quadruple Stage Reduction Horizontal Mounting



Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9050	358	263	150	201	110	210	56
9055	397	263	150	201	120	210	56
9060	414	308	175	230	125	210	37
9065	460	308	175	234	140	250	42
9070	482	330	190	259	145	250	56
9075	535	330	190	262	160	300	67
9080	556	365	210	282	165	300	73
9085	612	365	210	285	175	300	90

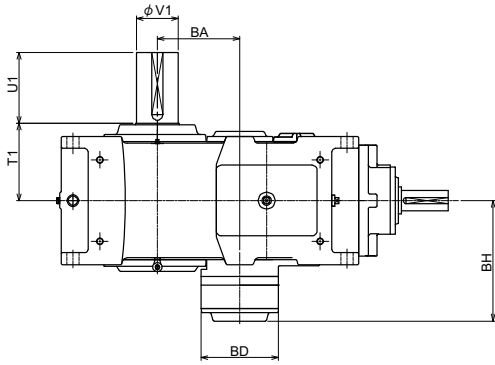
Unit : mm

Standard Shaft Arrangement Configuration



Internal Backstop

Right Angle Shaft Double Stage Reduction Horizontal Mounting

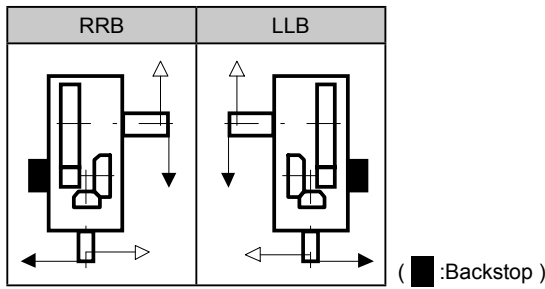


Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9060	245	358	230	230	125	210	25
9065	291	358	230	234	140	250	34
9070	285	402.5	290	259	145	250	37
9075	338	402.5	290	262	160	300	46
9080	330	416.5	322	282	165	300	53
9085	386	416.5	322	285	175	300	67

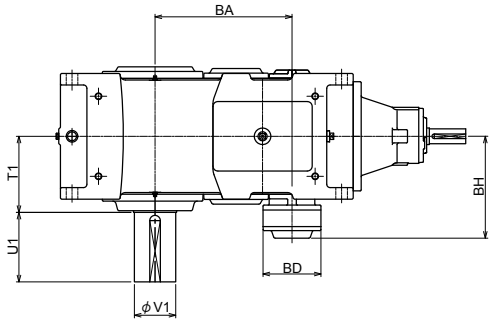
Unit : mm

Note: Consult us when a backstop is used more than twenty times per an hour.

Standard Shaft Arrangement Configuration



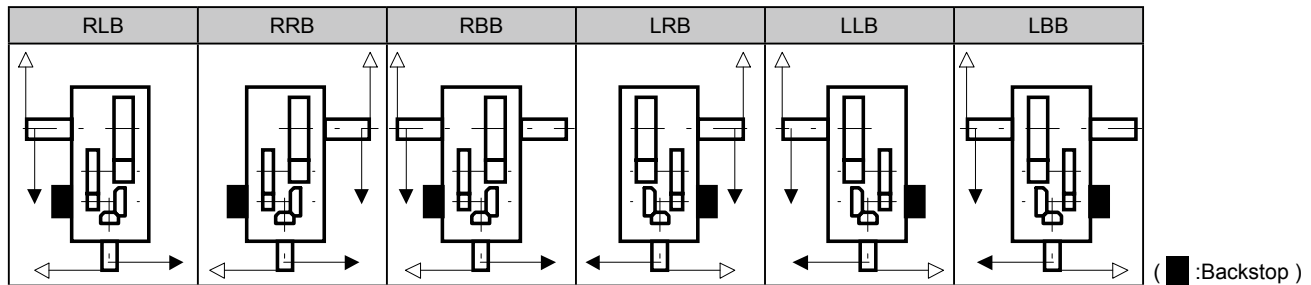
Right Angle Shaft Triple Stage Reduction Horizontal Mounting



Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [ℓ]
9050	358	263	150	201	110	210	32
9055	397	263	150	201	120	210	32
9060	414	308	175	230	125	210	29
9065	460	308	175	234	140	250	33
9070	482	330	190	259	145	250	45
9075	535	330	190	262	160	300	52
9080	556	365	210	282	165	300	60
9085	612	365	210	285	175	300	75

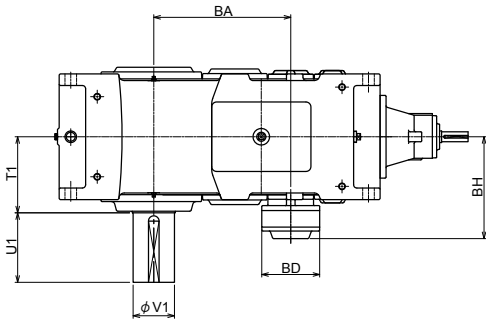
Unit : mm

Standard Shaft Arrangement Configuration



Internal Backstop

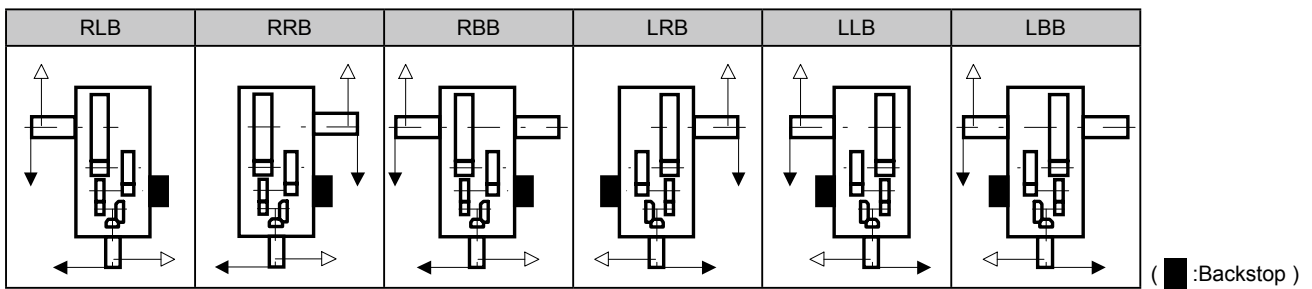
Right Angle Shaft Quadruple Stage Reduction Horizontal Mounting



Size	BA	BH	BD	T1	V1	U1	Approx. oil quantity [l]
9050	358	263	150	201	110	210	24
9055	397	263	150	201	120	210	24
9060	414	308	175	230	125	210	38
9065	460	308	175	234	140	250	43
9070	482	330	190	259	145	250	57
9075	535	330	190	262	160	300	67
9080	556	365	210	282	165	300	73
9085	612	365	210	285	175	300	90

Unit : mm

Standard Shaft Arrangement Configuration

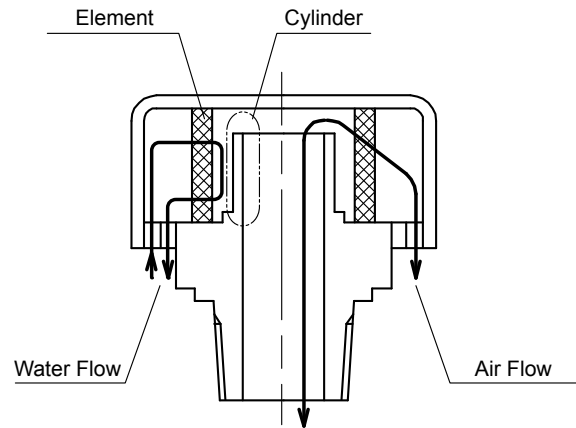


Washdown Breather

Select washdown breather for outdoor environment with exposure to rain or water splash.

Specification

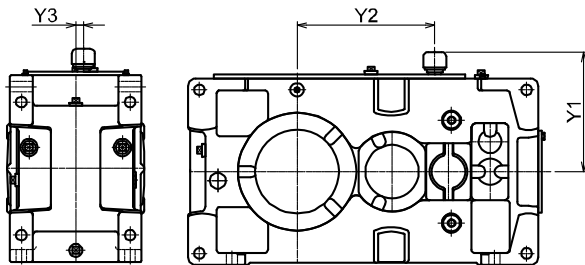
- Compared to the normal air breather, this one has an internal cylindrical section to prevent drops of water from the outside from entering into the inside of the reducer.
- The element is made of stainless steel.



Dimension

Horizontal Mounting

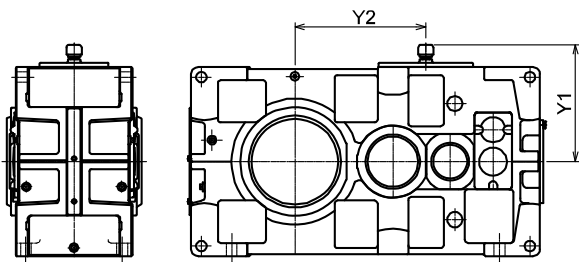
PHA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	Y3
9015	205	150	0
9025	225	200	18
9030	230	232	20
9035	255	263	20
9040	270	274	20
9045	290	313	20
9050	280	322	20
9055	315	361	20

Unit : mm

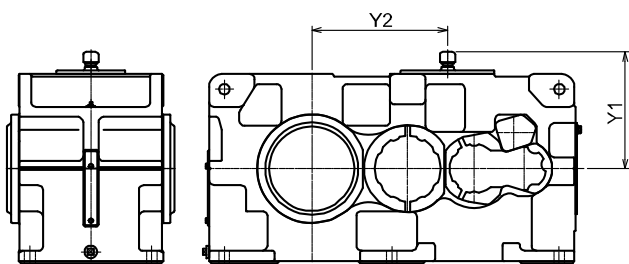
PHD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2
9060	354	325
9065	389	371
9070	389	370
9075	424	423
9080	424	460
9085	464	516

Unit : mm

PHD9090-9115 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2
9090	464	535
9095	489	565
9100	514	620
9105	539	655
9110	564	710
9115	589	760

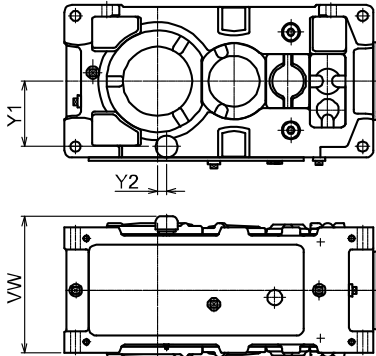
Unit : mm

Washdown Breather

Dimension

Vertical Mounting

PVA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	VW
9015	110	35	243
9025	130	25	270
9030	135	0	351
9035	160	0	298
9040	175	30	340
9045	195	30 ^{*1}	340
9050	180	25	375
9055	215	0	375

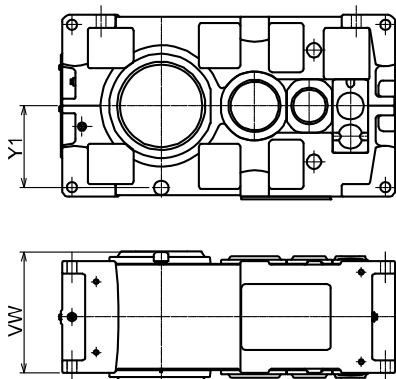
Unit : mm

Note : ^{*1}; The size for the Right Angle Shaft Double Stage model,

Right Angle Shaft Triple Stage model and Parallel Shaft Double Stage model of 9045 is 29.

• Consult us when upward vertical shaft is required.

PVD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction

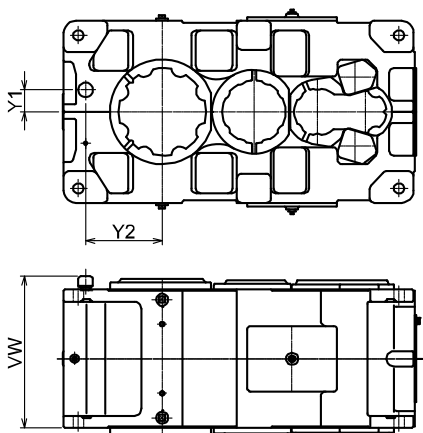


Size	Y1	VW
9060	229	413
9065	264	413
9070	263	463
9075	298	463
9080	298	498
9085	338	498

Unit : mm

Note: Consult us when upward vertical shaft is required.

PVD9090-9115 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	VW
9090	90	315	625
9095	90	345	625
9100	100	355	705
9105	100	390	705
9110	100	405	765
9115	100	440	765

Unit : mm

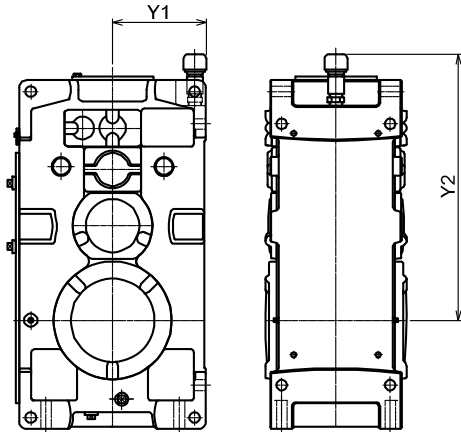
Note: Consult us when upward vertical shaft is required.

Washdown Breather

Dimension

Upright Mounting

PWA9015-9055 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2
9015	142	358
9025	161	408
9030	166	465
9035	191	496
9040	202	519
9045	222	558
9050	211	589
9055	246	628

Unit : mm

Note: Consult us when you use a right angle shaft.

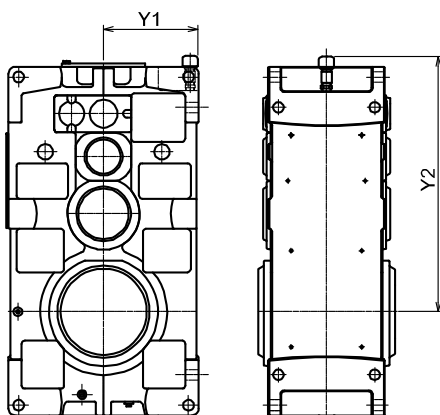
Parallel Shaft Triple Stage Reduction (P3), Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2
9015	142	403
9025	161	473
9030	166	515
9035	191	546
9040	202	593
9045	222	632
9050	211	662
9055	246	701

Unit : mm

Note: Consult us when you use a right angle shaft.

PWD9060-9085 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2
9060	264	655
9065	299	701
9070	297	738
9075	332	791
9080	331	831
9085	371	887

Unit : mm

Note: Consult us when you use a right angle shaft.

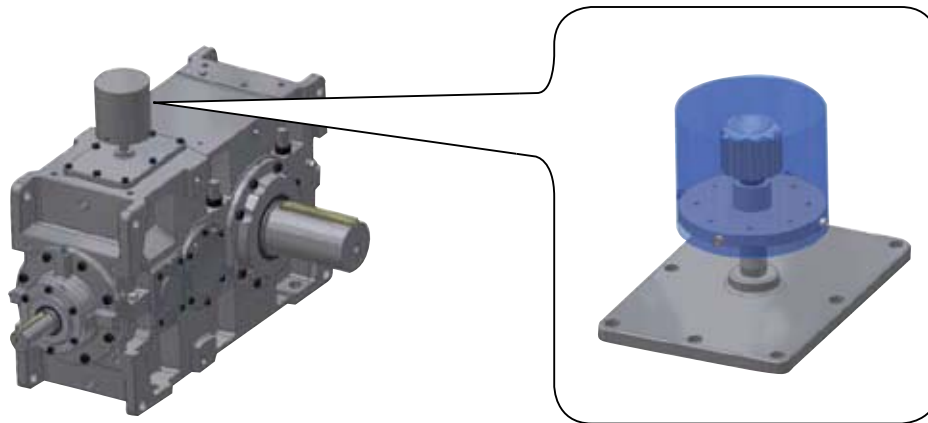
Parallel Shaft Triple Stage Reduction (P3), Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2
9060	264	740
9065	299	786
9070	297	833
9075	332	886
9080	331	951
9085	371	1007

Unit : mm

Note: Consult us when you use a right angle shaft.

Anti-Dust Breather



This air breather should be used when installing a reducer in a very dusty environment.

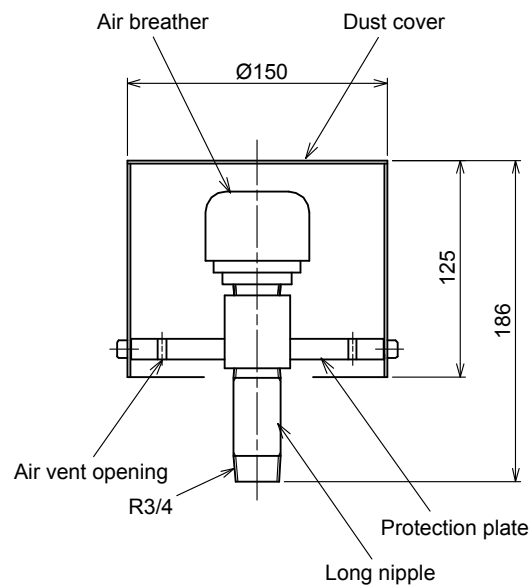
This unit may be used even in an environment whereby the unit with a normal air breather becomes buried under dust.

Specification

- A long nipple is used to raise the unit from the standard installation position, so as to prevent it from becoming buried under dust.
- A dustproof cover is installed over the air breather to prevent direct accumulation of dust.

Dimension

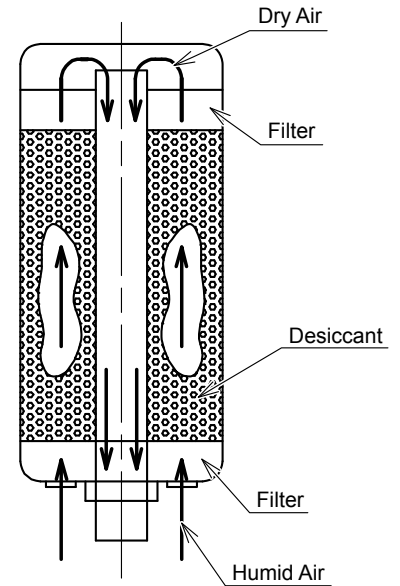
9015~9136 (all sizes)



Anti-Humidity Breather

Specification

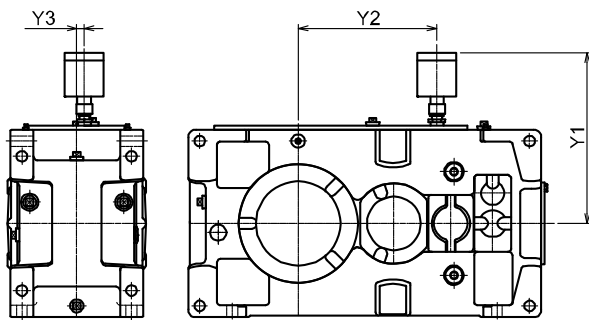
- This breather should be used in a high-humidity environment with the humidity of 85% or above.
- The main unit of the air breather contains an absorbent agent to prevent moisture penetration.
The use of this air breather protects the reducer, and prevents the following types of problems:
 - Rust development on gears and bearings
 - Burning, pitching and other damage caused by the deterioration of lubrication oil
- The absorbent agent can be replaced easily at a timing that is visually indicated.



Dimension

Horizontal Mounting

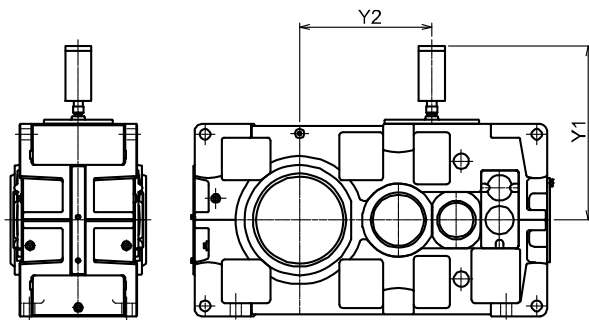
PHA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	Y3
9015	320	150	0
9025	340	200	18
9030	345	232	20
9035	370	263	20
9040	401	274	20
9045	421	313	20
9050	411	322	20
9055	446	361	20

Unit : mm

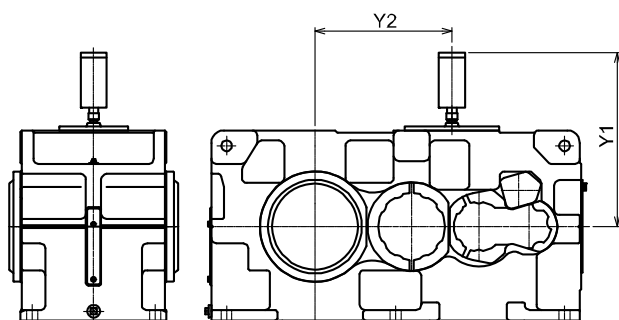
PHD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2
9060	469	325
9065	504	371
9070	504	370
9075	539	423
9080	640	460
9085	680	516

Unit : mm

PHD9090-9115 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2
9090	680	535
9095	705	565
9100	730	620
9105	755	655
9110	780	710
9115	805	760

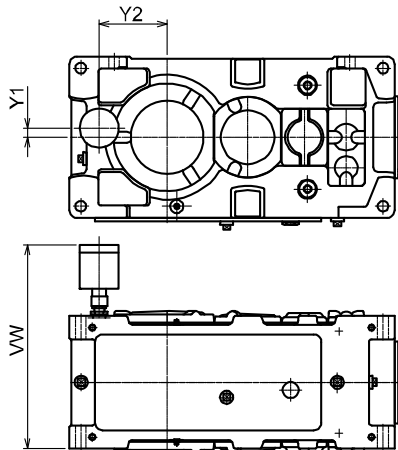
Unit : mm

Anti-Humidity Breather

Dimension

Vertical Mounting

PVA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Right Angle Shaft Double Stage Reduction (R2),
Right Angle Shaft Triple Stage Reduction (R3),
Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2	VW
9015	23	107	364
9025	26	117	391
9030	24	135	419
9035	24	154	419
9040	28	165	478
9045	28	186	478
9050	32	177	513
9055	32	208	513

Unit : mm

Note: Consult us when upward vertical shaft is required.

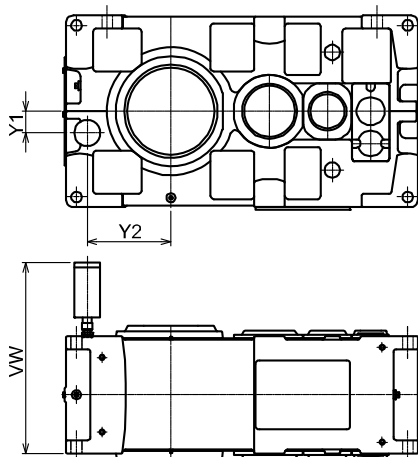
Right Angle Shaft Quadruple Stage Reduction (R4),
Parallel Shaft Triple Stage Reduction (P3),
Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2	VW
9015	19	107	364
9025	23	117	391
9030	23	135	419
9035	23	154	419
9040	24	165	478
9045	24	186	478
9050	24	177	513
9055	24	208	513

Unit : mm

Note: Consult us when upward vertical shaft is required.

PVD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	VW
9060	65	214	551
9065	65	253	551
9070	75	251	601
9075	75	298	601
9080	85	283	738
9085	85	327	738

Unit : mm

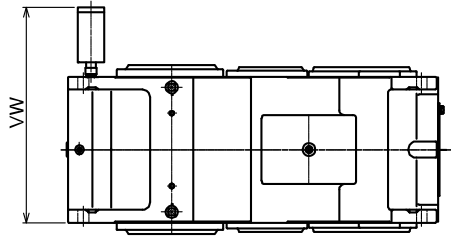
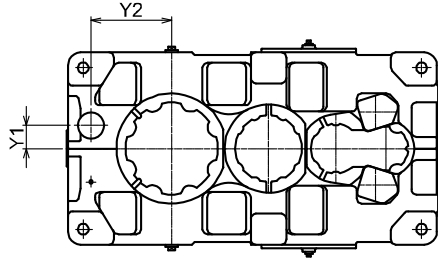
Note: Consult us when upward vertical shaft is required.

Anti-Humidity Breather

Dimension

Vertical Mounting

PVD9090-9115 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	Y1	Y2	VW
9090	90	315	858
9095	90	345	858
9100	100	355	938
9105	100	390	938
9110	100	405	998
9115	100	440	998

Unit : mm

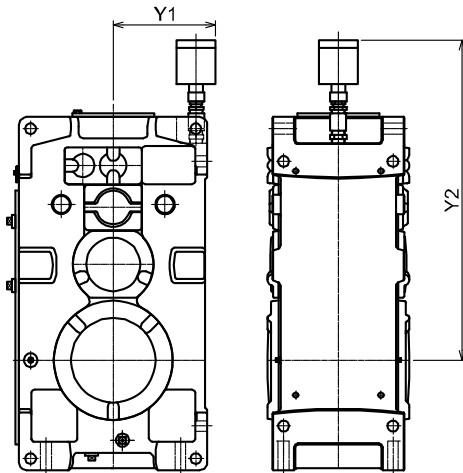
Note: Consult us when upward vertical shaft is required.

Anti-Humidity Breather

Dimension

Upright Mounting

PWA9015-9055 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2
9015	163	473
9025	182	523
9030	187	580
9035	212	611
9040	223	650
9045	243	689
9050	232	720
9055	267	759

Unit : mm

Note: Consult us when you use a right angle shaft.

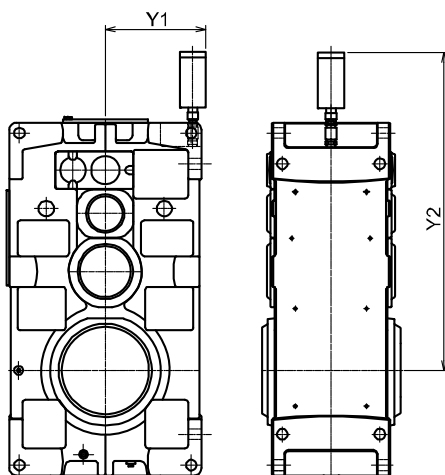
Parallel Shaft Triple Stage Reduction (P3),
Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2
9015	163	518
9025	182	588
9030	187	630
9035	212	661
9040	223	724
9045	243	763
9050	232	793
9055	267	832

Unit : mm

Note: Consult us when you use a right angle shaft.

PWD9060-9085 Parallel Shaft Double, Triple, Quadruple Stage Reduction



Parallel Shaft Double Stage Reduction (P2)

Size	Y1	Y2
9060	285	786
9065	320	832
9070	318	869
9075	353	922
9080	352	1064
9085	392	1120

Unit : mm

Note: Consult us when you use a right angle shaft.

Parallel Shaft Triple Stage Reduction (P3),
Parallel Shaft Quadruple Stage Reduction (P4)

Size	Y1	Y2
9060	285	871
9065	320	917
9070	318	964
9075	353	1017
9080	352	1184
9085	392	1240

Unit : mm

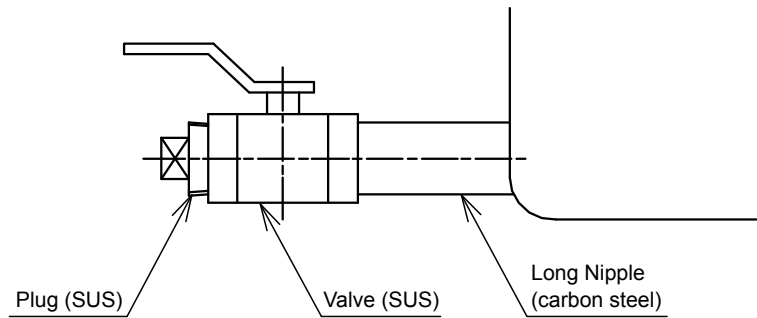
Note: Consult us when you use a right angle shaft.

Stainless Steel Drain Valve

This drain valve is less corrosive than a bronze valve, and can be used in a corrosive atmosphere for an extended period of time.

Specification

- If you require anticorrosive performance, use a stainless-steel drain valve.
- The drain valve uses a ball valve made of stainless steel (equivalent to SUS304).
- * Consult us for gate valves, which can be also manufactured.

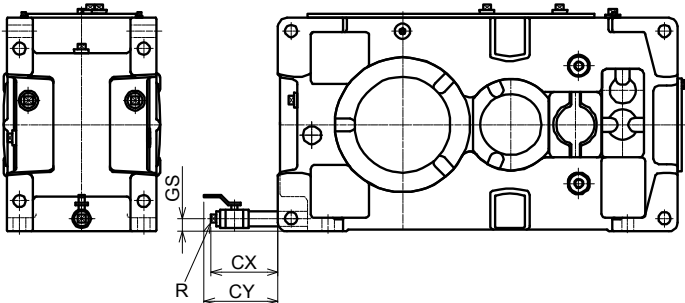


Stainless Steel Drain Valve

Dimension

Horizontal Mounting

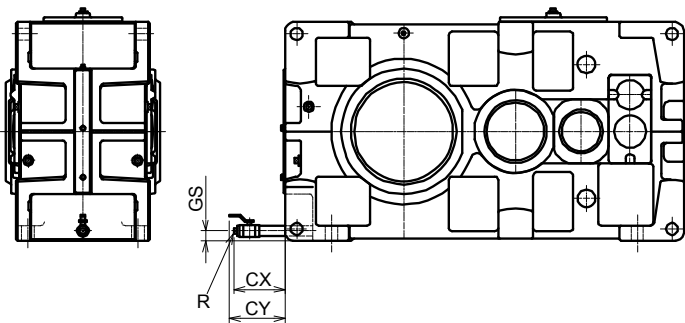
PHA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	GS
9015	3/4"	133	170	23
9025	3/4"	133	170	24
9030	3/4"	130	167	24
9035	3/4"	130	167	24
9040	1"	154	198	28
9045	1"	154	198	28
9050	1"	154	198	29
9055	1"	154	198	29

Unit : mm

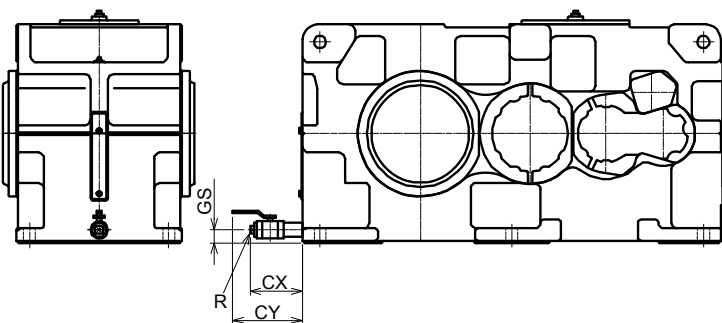
PHD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	GS
9060	1"	191	235	31
9065	1"	191	235	31
9070	1"	176	220	33
9075	1"	176	220	33
9080	1"	176	220	34
9085	1"	176	220	34

Unit : mm

PHD9090-9115 Right Angle Shaft Triple, Quadruple Reduction,
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	GS
9090	1 1/2"	181	241	45
9095	1 1/2"	181	241	45
9100	1 1/2"	181	241	45
9105	1 1/2"	181	241	45
9110	1 1/2"	181	241	48
9115	1 1/2"	181	241	48

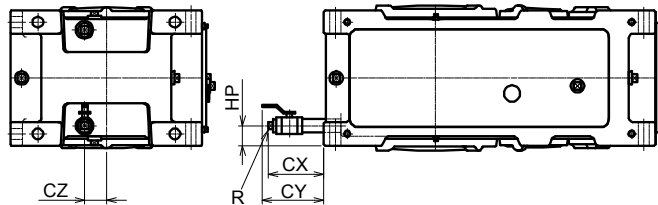
Unit : mm

Stainless Steel Drain Valve

Dimension

Vertical Mounting

PVA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



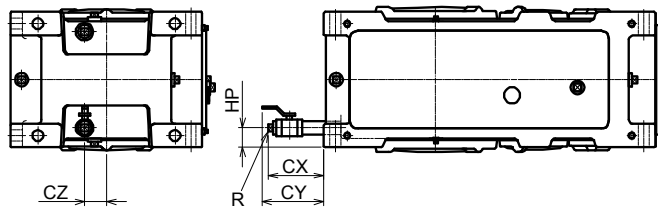
9030-9055 Right Angle Shaft Double Stage Reduction (R2),
Right Angle Shaft Triple Reduction (R3),
Parallel Shaft Double Stage Reduction (P2)

Size	R	CX	CY	CZ	HP
9030	3/4"	121	158	40	43
9035	3/4"	121	158	40	43
9040	1"	149	193	48	55
9045	1"	149	193	48	55
9050	1"	141	185	55	50
9055	1"	141	185	55	50

Unit : mm

9015,9025 Right Angle Shaft Double Stage Reduction (R2),
Parallel Shaft Double Stage Reduction (P2),
Parallel Shaft Triple Stage Reduction (P3)

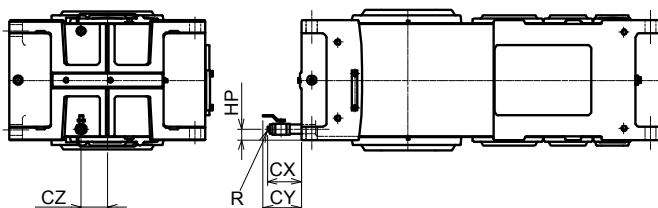
9030-9055 Right Angle Shaft Quadruple Stage Reduction (R4),
Parallel Shaft Triple Stage Reduction (P3),
Parallel Shaft Quadruple Stage Reduction (P4)



Size	R	CX	CY	CZ	HP
9015	3/4"	133	170	25	38
9025	3/4"	128	165	30	40.5
9030	3/4"	121	158	44	43
9035	3/4"	121	158	44	43
9040	1"	149	193	56	55
9045	1"	149	193	56	55
9050	1"	141	185	56	50
9055	1"	141	185	56	50

Unit : mm

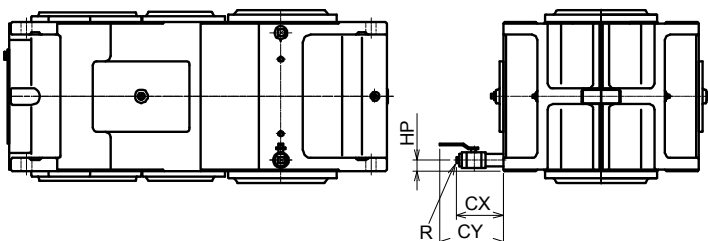
PVD9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	CZ	HP
9060	1"	141	185	75	47
9065	1"	141	185	75	47
9070	1"	141	185	85	47
9075	1"	141	185	85	47
9080	1"	131	175	100	42
9085	1"	131	175	100	42

Unit : mm

PVD9090-9115 Right Angle Shaft Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	CX	CY	HP
9090	1 1/2"	181	241	42
9095	1 1/2"	181	241	42
9100	1 1/2"	181	241	43
9105	1 1/2"	181	241	43
9110	1 1/2"	181	241	44
9115	1 1/2"	181	241	44

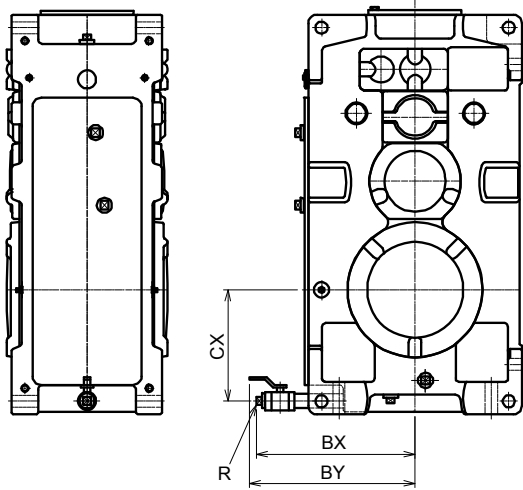
Unit : mm

Stainless Steel Drain Valve

Dimension

Upright Mounting

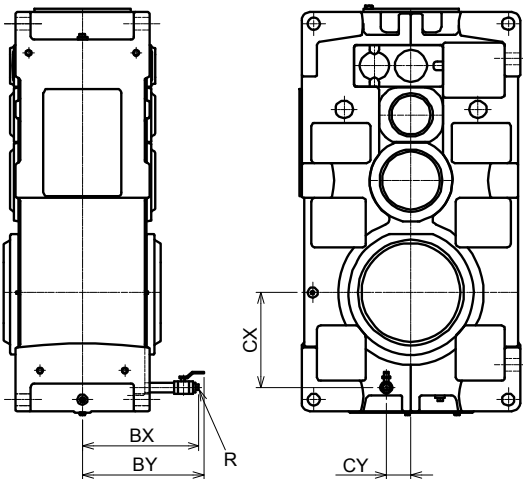
PWA9015-9055 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	BX	BY	CX
9015	3/4"	271	308	135
9025	3/4"	288	325	149
9030	3/4"	290	327	173
9035	3/4"	308	345	192
9040	1"	379	423	205
9045	1"	354	398	226
9050	1"	364	408	224
9055	1"	364	430	255

Unit : mm

PWA9060-9085 Right Angle Shaft Double, Triple, Quadruple Stage Reduction;
Parallel Shaft Double, Triple, Quadruple Stage Reduction



Size	R	BX	BY	CX	CY
9060	1"	356	400	214	65
9065	1"	356	400	253	65
9070	1"	381	425	251	75
9075	1"	381	425	298	75
9080	1"	401	445	283	85
9085	1"	401	445	327	85

Unit : mm

Split Fan Hood (Right Angle Shaft)

This fan hood may be dismantled to facilitate the installation and removal of the coupling.

It creates additional space when using a fluid coupling on the reducer for a conveyor, or when conducting maintenance work on a large coupling.

Specification

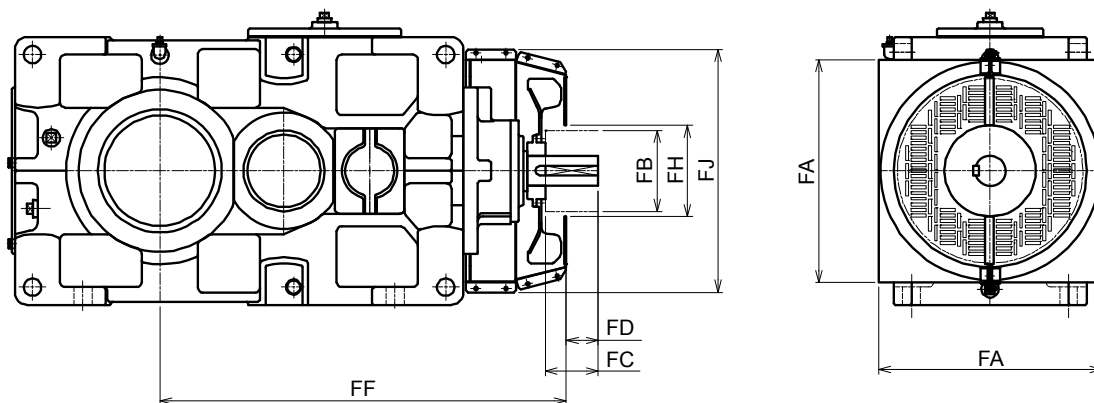
- It is designed so that it breaks up into two sections.
- It is only for horizontal models, and has the identical exterior dimensions as the standard fan hood for installation compatibility.
- Similarly to the standard fan hood, this fan hood has a perforated steel plate on the back for safety reasons, ensuring that people cannot touch the fan rotor.

Note: Make sure not to cover the air inlet of the fan hood.

Dimension

Horizontal Mounting

PHD9060-9085 Right Angle Shaft Double Stage Reduction



Size	FA	FB	FC	FD	FF	FH	FJ
9060	440	160	105	64	801	180	480
9065	440	160	105	64	847	180	480
9070	490	200	105	64	901	220	530
9075	490	200	105	64	954	220	530
9080	540	225	105	59	1021	245	580
9085	540	225	105	59	1077	245	580

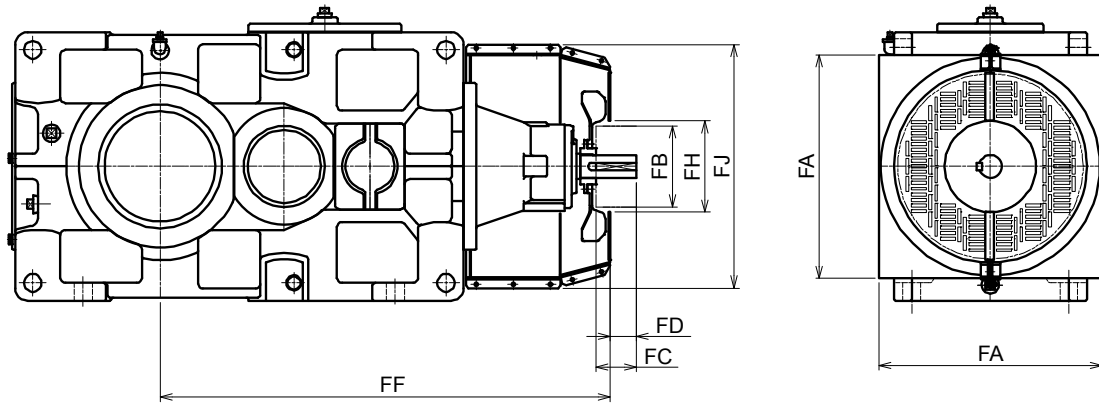
Unit: mm

Split Fan Hood (Right Angle Shaft)

Dimension

Horizontal Mounting

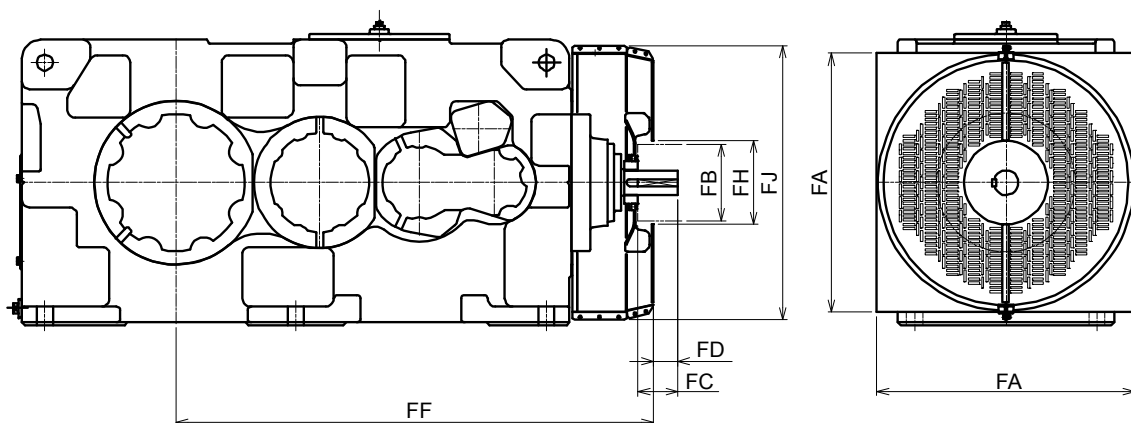
PHD9060-9085 Right Angle Shaft Triple Stage Reduction



Size	FA	FB	FC	FD	FF	FH	FJ
9060	440	160	80	51	888	180	480
9065	440	160	80	51	934	180	480
9070	490	160	80	51	976	180	530
9075	490	160	80	51	1029	180	530
9080	540	160	105	64	1112	180	580
9085	540	160	105	64	1168	180	580

Unit: mm

PHD9090-9105 Right Angle Shaft Triple Stage Reduction



Size	FA	FB	FC	FD	FF	FH	FJ
9090	680	200	105	67	1257	220	720
9095	680	200	105	67	1287	220	720
9100	760	225	105	62	1416	245	800
9105	760	225	105	62	1450	245	800

Unit: mm

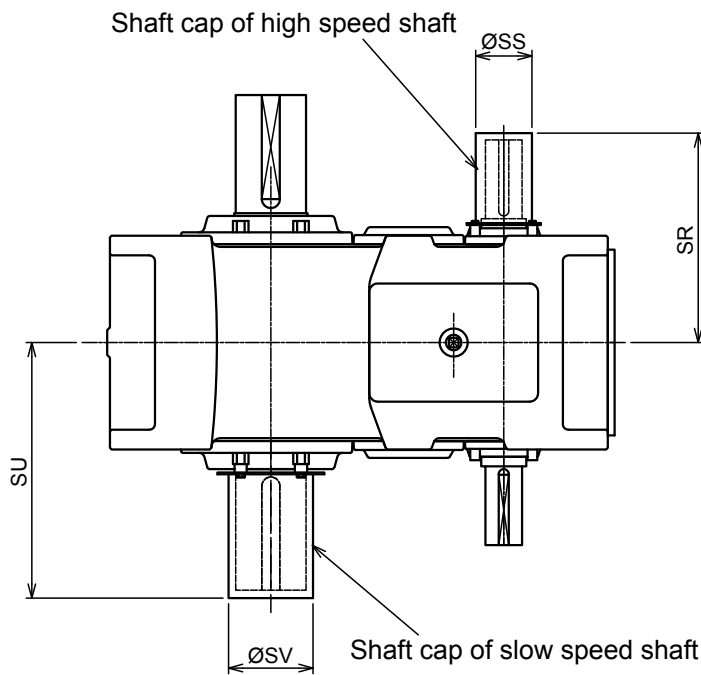
Shaft Cap

For a machine or auxiliary unit that has to use a different shaft due to layout change, a dual output shaft reducer is often chosen so that either side may be used for the output. This cap is used as a safety cover in such cases.

Specification

- The cap is made of welded thin sheet metal.
- The cap is processed for installation on both sides. You can remove a fitted shaft cap, and place it over the shaft on the other side.

Dimension



For slow speed shaft

Size	SU	ØSV
9030	345	120
9035	342	130
9040	362	135
9045	404	145
9050	424	150
9055	424	160
9060	454	150
9065	499	170
9070	524	170
9075	577	190
9080	597	190
9085	601	230
9090	666	230
9095	716	230
9100	756	240

Unit: mm

For high speed shaft

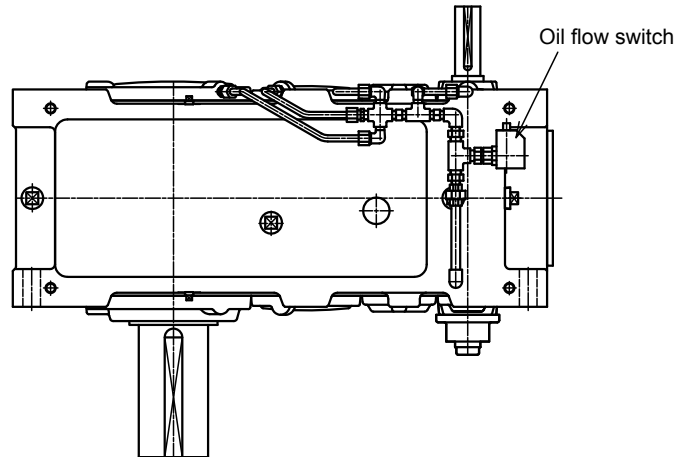
Size	SR	ØSS
9050	2 stage	312
	3 stage	278
9055	2 stage	312
	3 stage	278
9060	2 stage	372
	3 stage	337
9065	2 stage	372
	3 stage	337
9070	2 stage	394
	3 stage	362
	4 stage	362
9075	2 stage	394
	3 stage	362
	4 stage	362
9080	2 stage	444
	3 stage	414
	4 stage	384
9085	2 stage	444
	3 stage	414
	4 stage	384
9090	2 stage	508
	3 stage	478
	4 stage	448
9095	2 stage	508
	3 stage	478
	4 stage	448
9100	2 stage	595
	3 stage	525
	4 stage	526

Unit: mm

MEMO

Oil Flow Switch

This flow switch may be directly installed on the forced lubrication pipe to sound an alarm if a pump stops to terminate the oil flow or to control the operation of the reducer. This is useful to prevent reducer damage attributable to poor lubrication. The diagram on the right shows an installation example of the flow switch.



Specification

- This flow switch (fluid sensor) uses an electronic sensor system, and therefore has no moving parts to remain free from problems caused by grime accumulation or blockage. This feature makes it a maintenance-free switch.
- The sensor is adjusted at the factory on shipment, and requires no further adjustment by users.

Model: SI1006

Manufacturer: Efactor

Output function: Relay contact output (single contact)

Output: Can be configured to be normally open or normally closed

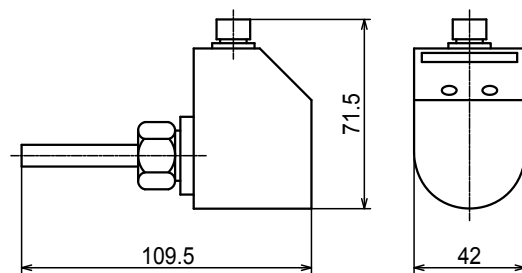
Operating power voltage[V]: AC 90 to 240 (45 to 60Hz)

Consult switching capacity: 3 (AC250V / DC30V)

Power consumption [VA] : <3.5

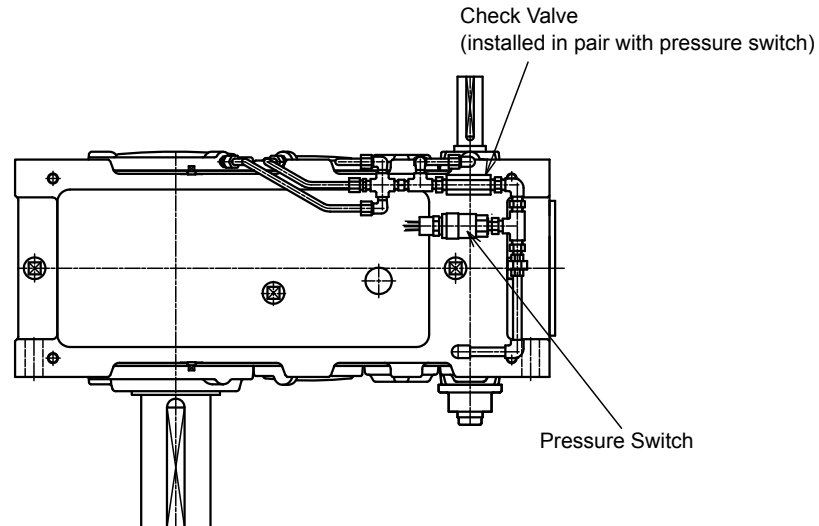
Operation display: LED

Protection system: IP67



Oil Pressure Switch

This pressure switch may be directly installed on the forced lubrication pipe to sound an alarm if a pump stops to terminate oil circulation and reduces hydraulic pressure, or to stop the operation of the reducer. This is useful to prevent reducer damage attributable to poor lubrication. The diagram below shows an installation example of the pressure switch.



Specification

- The pressure in the forced lubrication pipe fluctuates largely according to oil temperature. However, this option applies a check valve to generate pressure above a certain level as long as there is oil flow, and therefore allows you to positively determine whether there is oil flow or not. The sensor is adjusted at the factory on shipment, and requires no further adjustment by users.

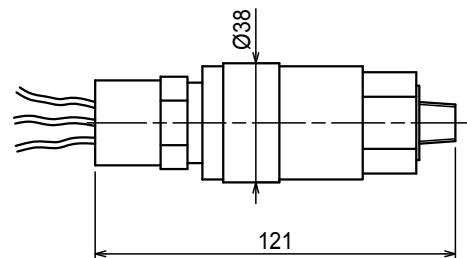
Model: T96211-BB1-T5

Manufacturer: BARKSDALE

Output function: SPDT switch

Output: Can be configured to be normally open or normally closed

Consult switching capacity[A]: 5 (AC125V / 250V)



MEMO

MEMO

MEMO

This is a catalog of optional items for the Global.

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