

Auto Coupling System

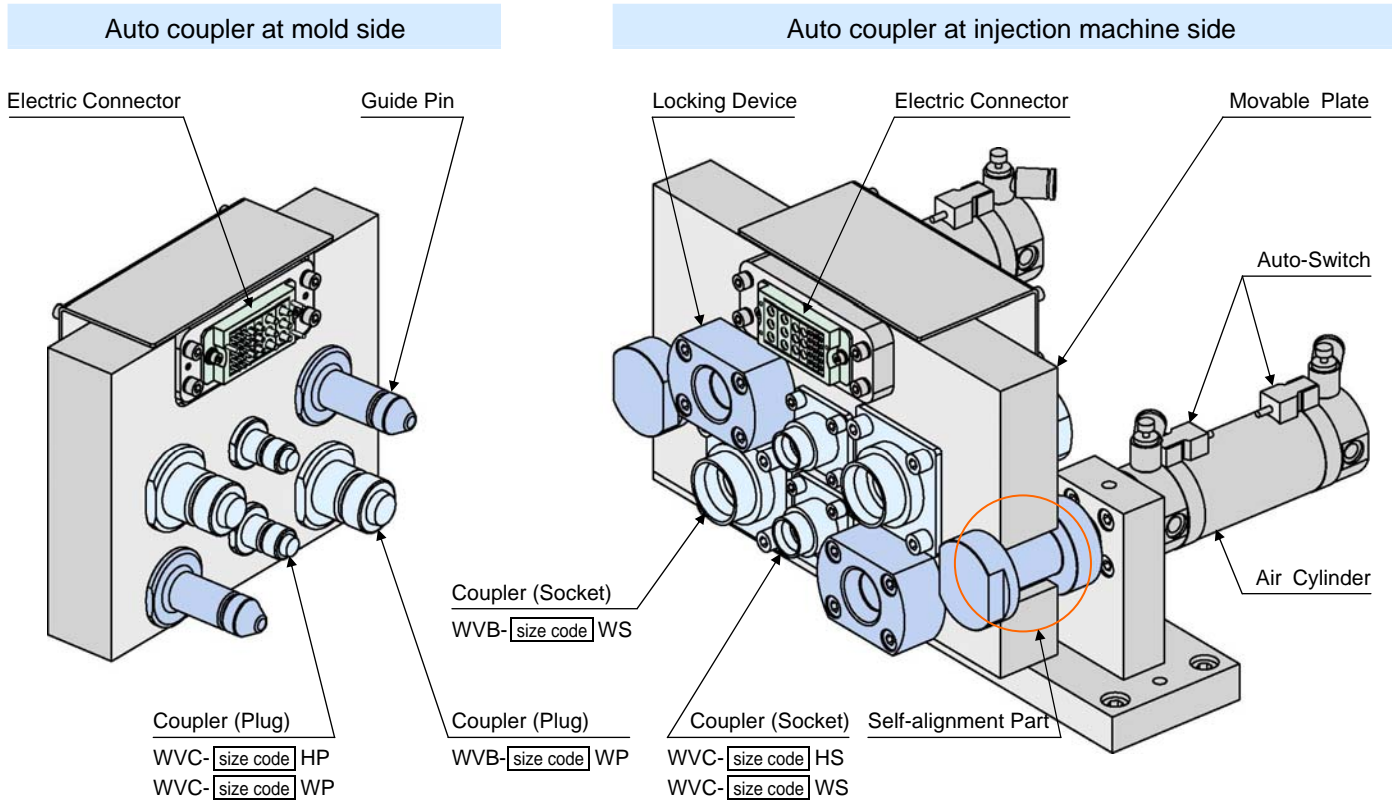
Data sheet

Coupler module	Hydraulic fluid	model WVC-H
	Water · Air	model WVC-W
	Water · Air	model WVB-W
	Surface seal	model WVF

Guide pin & Locking device	model WVK
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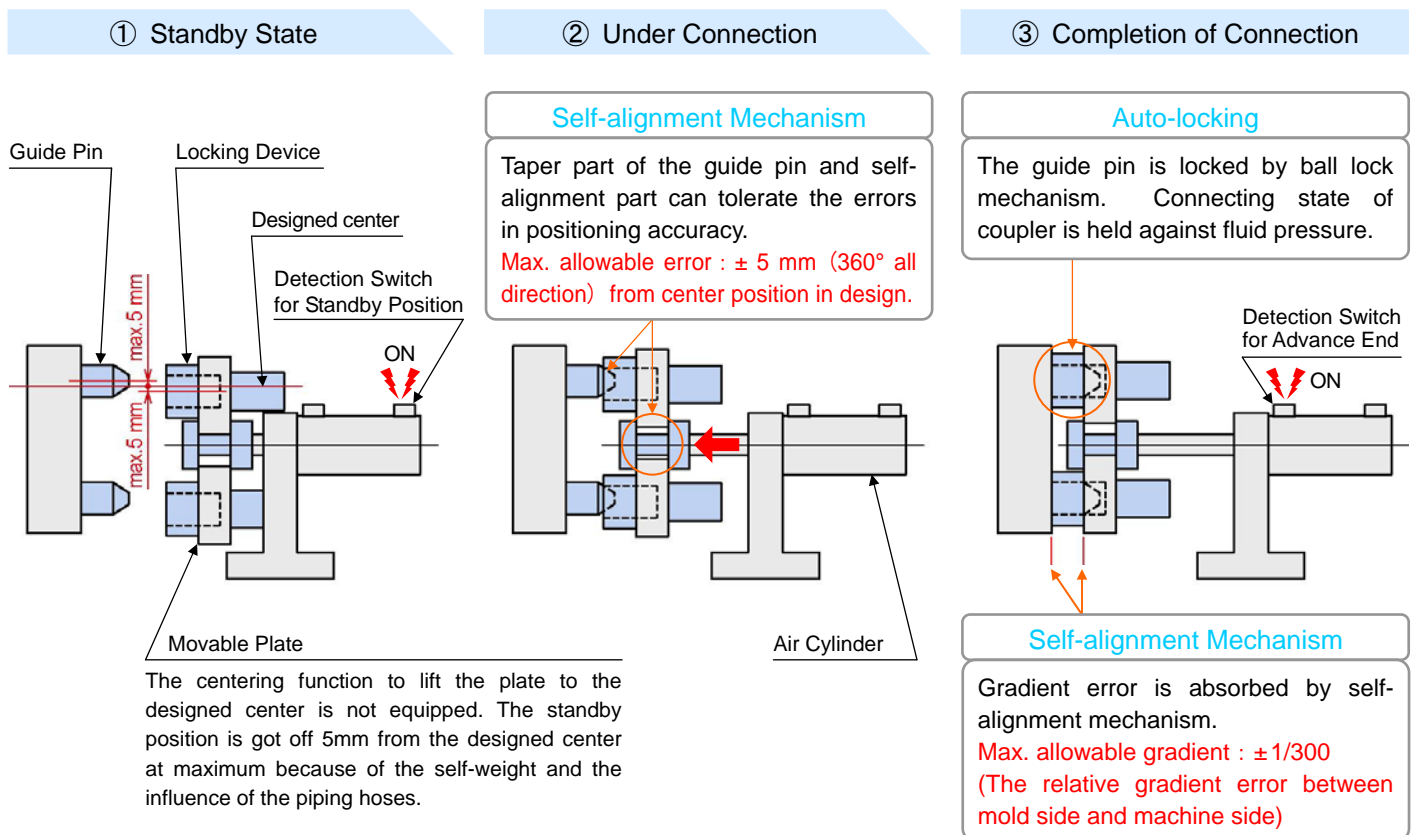
Electric connector

● System Configuration

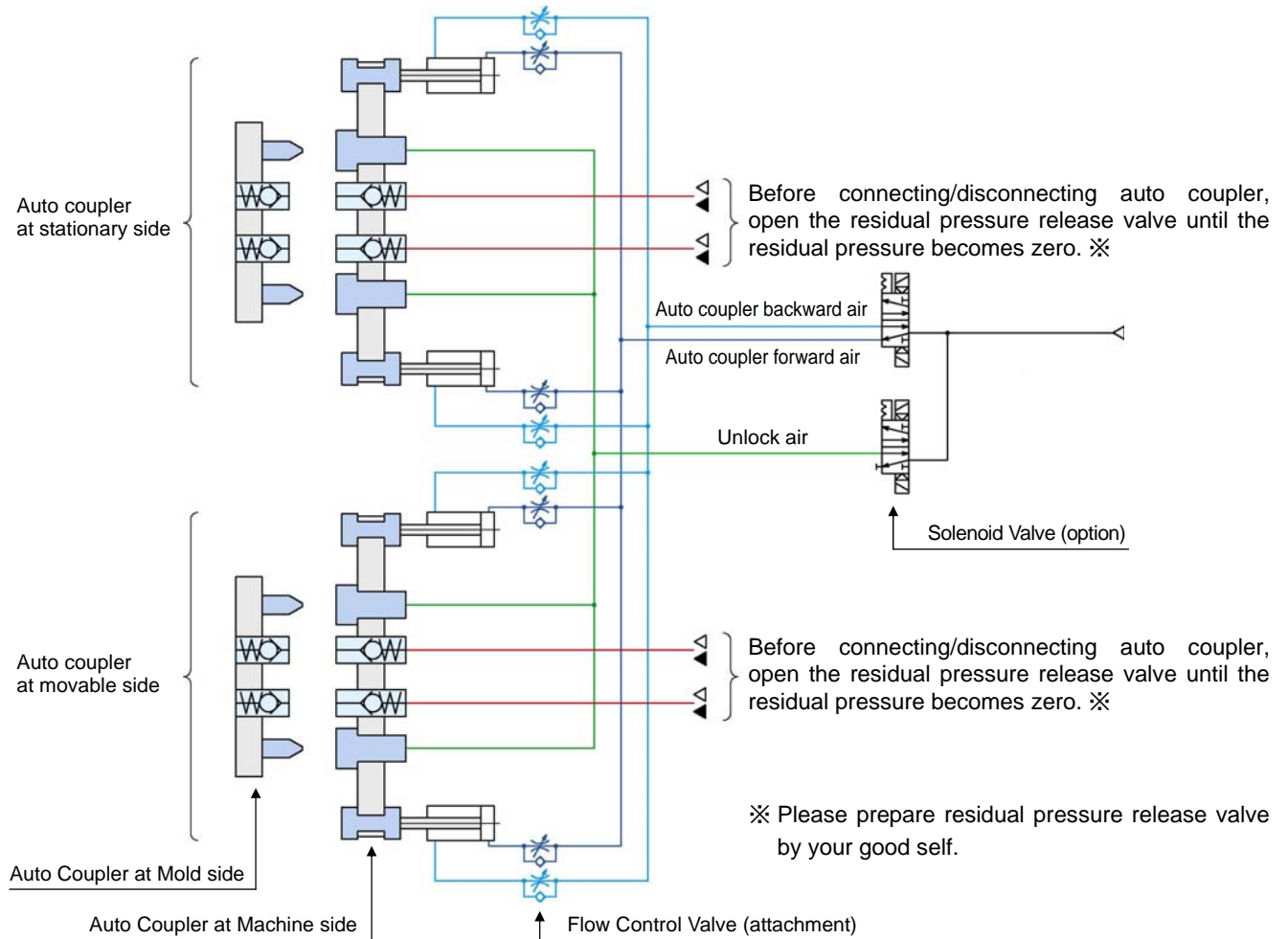


● Above image shows an example of basic layouts. Actual layouts vary according to the customer's particular conditions such as the size and quantity of coupler or whether an electric connector is required or not. The product shall be made to meet the customer's own condition after having detailed talks for specifications.

● Self-alignment Mechanism · Auto Locking

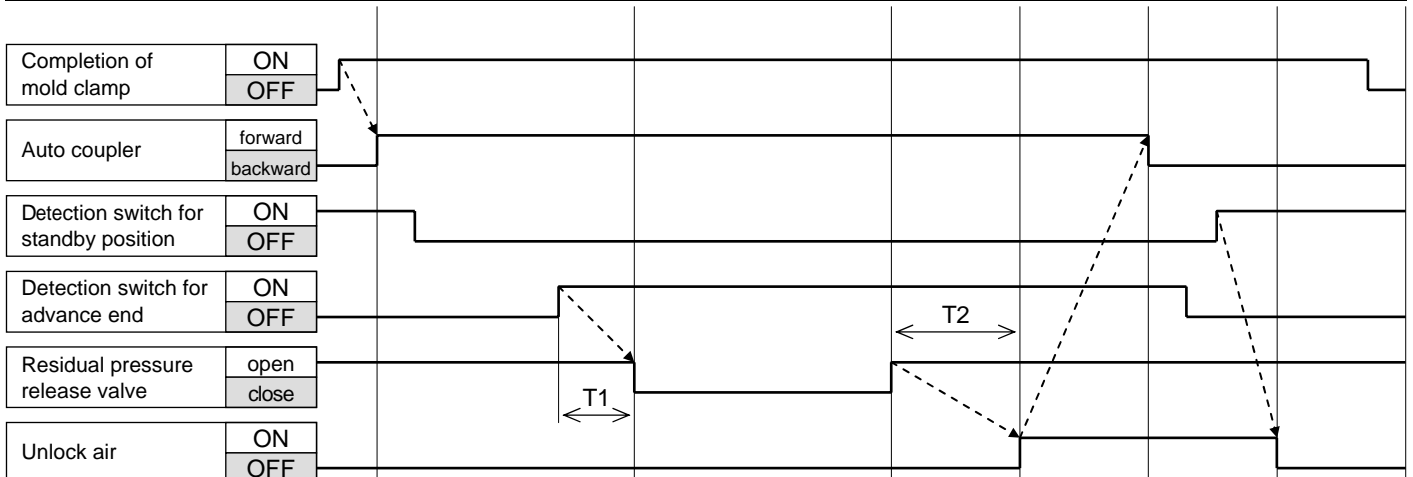


● Circuit Diagram



● Flow of Operation

Operation	Under connection of coupler	Under injection molding	Under disconnection of coupler	
Auto coupler forward air (connection)		ON		OFF
Auto coupler backward air (disconnection)		OFF		ON
Unlock air		OFF	ON	OFF
Residual pressure release valve	Open	Close	Open	



T1 : Time between detecting the advance end by auto-switch and completing the connection of auto coupler. (Please adjust by a timer at installation.)

T2 : Time for releasing the residual pressure until zero. (Please adjust by a timer at installation.)

Pascal

Model designation

WVC - 04 H P

Size
 02 : 1/4"
 03 : 3/8"
 04 : 1/2"
 06 : 3/4"
 08 : 1" (For hydraulic oil only)

Fluid to be used
 H : General mineral-based hydraulic oil
 W : Water, Air

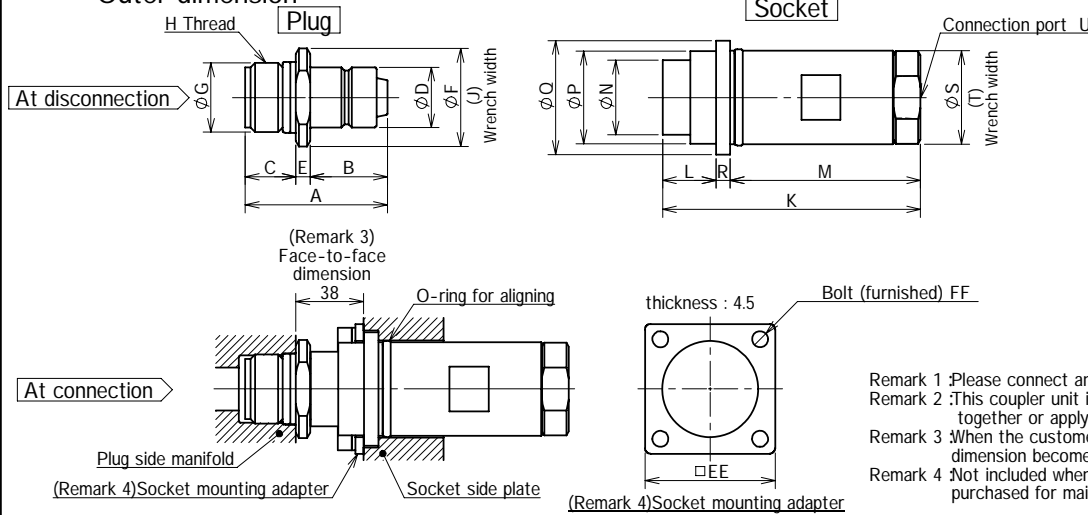
Type
 P : Plug
 S : Socket

Specification

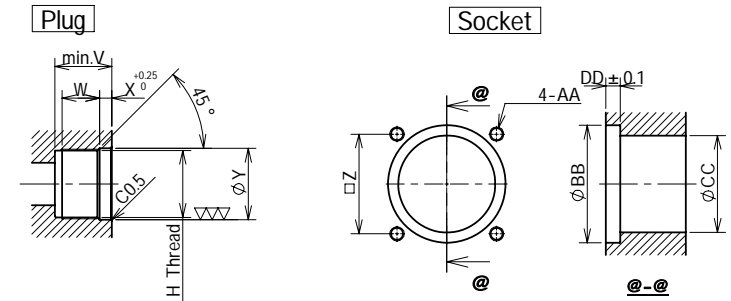
Model	WVC-02H	WVC-03H	WVC-04H	WVC-06H	WVC-08H	
Connection Port	1/4"	3/8"	1/2"	3/4"	1"	
Max working Pressure (MPa)	25					
Proof pressure (MPa)	30					
Allowable misalignment (mm)	± 0.5 (Aligning by O-ring at socket)					
Min.Orifice Area (mm ²)	28	28	71	118	218	
Reaction force(N)	Per 1 MPa hydraulic pressure	254	254	380	706	1017
	At 0MPa hydraulic pressure(spring force)	129	129	136	189	212
Mass(kg)	P:Plug	0.1	0.1	0.2	0.5	0.8
	S:Socket	0.6	0.6	1	2	2.8
Material of seal	NBR					
Fluid	General mineral-based hydraulic oil					
Ambient temperature ()	0 ~ 70 (No freezing)					

Model	WVC-02W	WVC-03W	WVC-04W	WVC-06W	
Connection Port	1/4"	3/8"	1/2"	3/4"	
Max working Pressure (MPa)	1				
Proof pressure (MPa)	1.5				
Allowable misalignment (mm)	± 0.5 (Aligning by O-ring at socket)				
Min.Orifice Area (mm ²)	28	28	71	118	
Reaction force(N)	Per 1 MPa hydraulic pressure	25	25	38	71
	At 0MPa hydraulic pressure(spring force)	129	129	136	189
Mass(kg)	P:Plug	0.1	0.1	0.2	0.5
	S:Socket	0.6	0.6	1	2
Material of seal	NBR				
Fluid	Water, Air				
Ambient temperature ()	0 ~ 70 (No freezing)				

Outer dimension



Mounting details



- Remark 1 :Please connect and disconnect at residual pressure of 0 MPa.
- Remark 2 :This coupler unit is not equipped with a locking mechanism against the spring force and the fluid reaction force. So, use a locking device together or apply 1.5-2 times as high force as reaction force to hold the couplers.
- Remark 3 :When the customer fabricating the plug side manifold and socket side plate to mount the couplers, please make sure the face-to-face dimension becomes 38mm by adopting a stopper or the like.
- Remark 4 :Not included when ordering coupler(s) only. As it is normally sold as an components of auto coupling system, a single coupler is only purchased for maintenance. In case a socket mounting adapter is required, please order separately.

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF
WVC-02	57.5	32	20	20	5.5	32.5	25f7	M24x1.5	30	100	32	63	25.8	32	42	5	33.5	27	Rc1/4	22	12	6	25H7	38	M6 depth13	44	35.5	5.3	49	M6x14
WVC-03	57.5	32	20	20	5.5	32.5	25f7	M24x1.5	30	100	32	63	25.8	32	42	5	33.5	27	Rc3/8	22	12	6	25H7	38	M6 depth13	44	35.5	5.3	49	M6x14
WVC-04	69.5	39	24	25	6.5	40	31f7	M30x1.5	36	120	31	83	32	39	49	6	40.5	36	Rc1/2	28	17	7	31H7	44	M6 depth13	51	42.5	6.3	58	M6x14
WVC-06	80	43.5	28.5	34	8	55	40f7	M39x1.5	46	145	30	107	42	52	64	8	52.5	46	Rc3/4	32	21	7	40H7	56	M8 depth15	66	54.5	8.3	73	M8x18
WVC-08	84	44.5	31.5	44	8	65	50f7	M48x1.5	60	150	30	112	52	62	74	8	65	55	Rc1	33	21.5	7.5	50H7	65	M8 depth15	77	67	8.3	83	M8x18

SCALE NON	REVISION HISTORY	DATE 2008/08/08	DESIGNED BY 06004	MODEL WVC	NAME Pascal Coupler	DWG.NO. 3MWB37900	FILE.NO. MWB3790.slddrw
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Pascal

Model designation

W V B - 08 W P

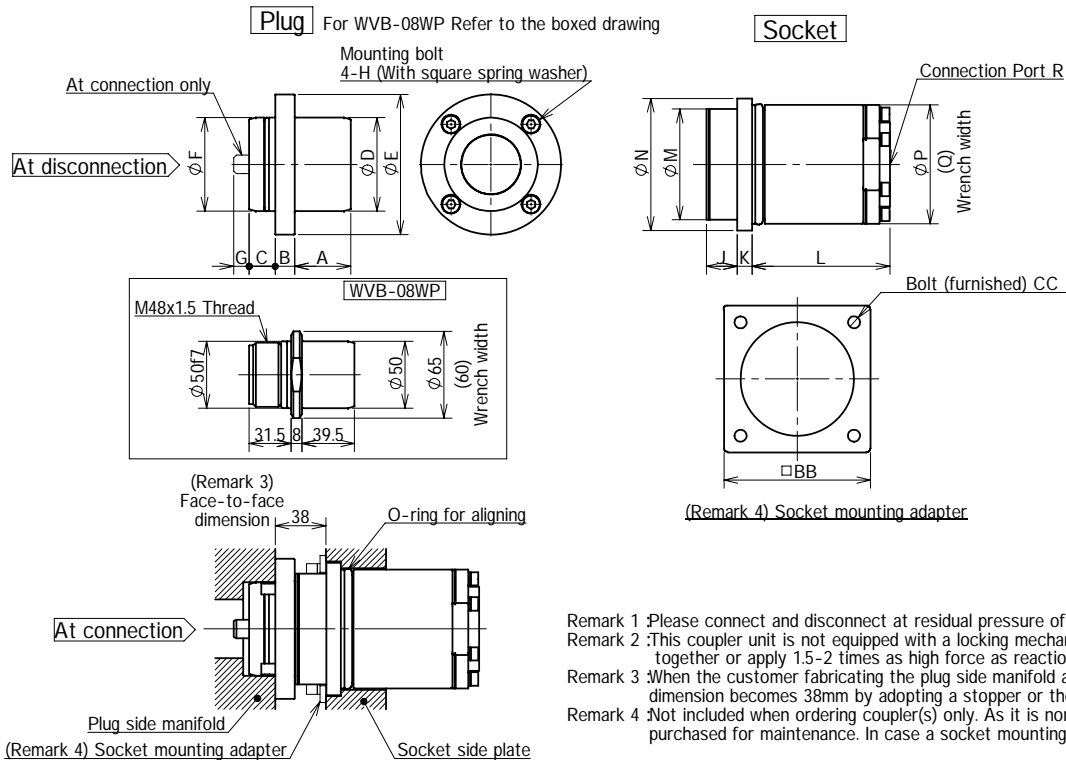
Size

08 : 1"
10 : 1 1/4"
12 : 1 1/2"
16 : 2"

Type

P : Plug
S : Socket

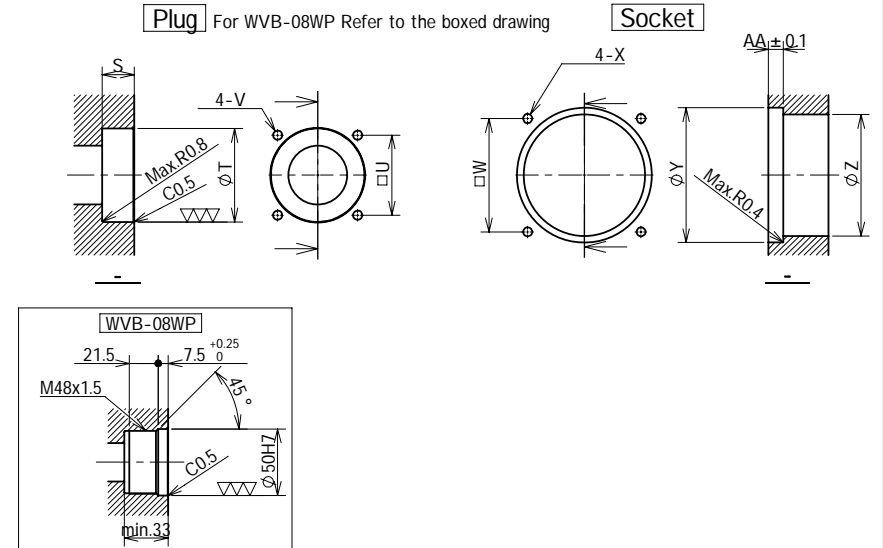
Outer dimension



Specification

Model	WVB-08W	WVB-10W	WVB-12W	WVB-16W	
Connection Port	1"	1 1/4"	1 1/2"	2"	
Max. Working Pressure (MPa)	1				
Proof Pressure (MPa)	1.5				
Allowable misalignment (mm)	± 0.5 (Aligning by O-ring at socket)				
Min. Orifice Area (mm ²)	382	623	924	1362	
Reaction force (N)	Per 0.1MPa hydraulic pressure	196	238	385	503
	At 0MPa hydraulic pressure (spring force)	195	230	373	553
Mass (kg)	P : Plug	0.7	1.2	1.6	2.6
	S : Socket	2	3.3	4	5.1
Material of seal	NBR				
Fluid	Water, Air				
Ambient temperature ()	0 ~ 70 (No freezing)				

Mounting details



- Remark 1 Please connect and disconnect at residual pressure of 0 MPa.
- Remark 2 This coupler unit is not equipped with a locking mechanism against the spring force and the fluid reaction force. So, use a locking device together or apply 1.5-2 times as high force as reaction force to hold the couplers.
- Remark 3 When the customer fabricating the plug side manifold and socket side plate to mount the couplers, please make sure the face-to-face dimension becomes 38mm by adopting a stopper or the like.
- Remark 4 Not included when ordering coupler(s) only. As it is normally sold as an components of auto coupling system, a single coupler is only purchased for maintenance. In case a socket mounting adapter is required, please order separately.

Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC
WVB-08W									30	8	87	62	75	65	60	Rc1					65	M8 depth15	77	67	8.3	83	M8x18
WVB-10W	39.5	14	22.5	55	90	60F7	10	M8x20	23.5	11	95.5	73	89	80	75	Rc1 1/4	25	60H7	52	M8 depth15	80	M8 depth15	91	81	11.3	95	M8x18
WVB-12W	42	14.5	19.5	70	105	70F7	12	M8x20	23	11	103.5	83	99	89	80	Rc1 1/2	22	70H7	60	M8 depth15	85	M8 depth15	101	91	11.3	105	M8x18
WVB-16W	45	16.5	30	80	120	85F7	12	M8x20	21	11	115.5	95	109	100	95	Rc2	32	85H7	75	M8 depth15	95	M8 depth15	111	101	11.3	120	M8x18

SCALE	REVISION HISTORY	DATE	DESIGNED BY	MODEL	NAME	DWG.NO.	FILE.NO.
NON		2007/04/11	04018	WVB	Pascal Coupler	3MWXB17710	MWXB1771.slddrw

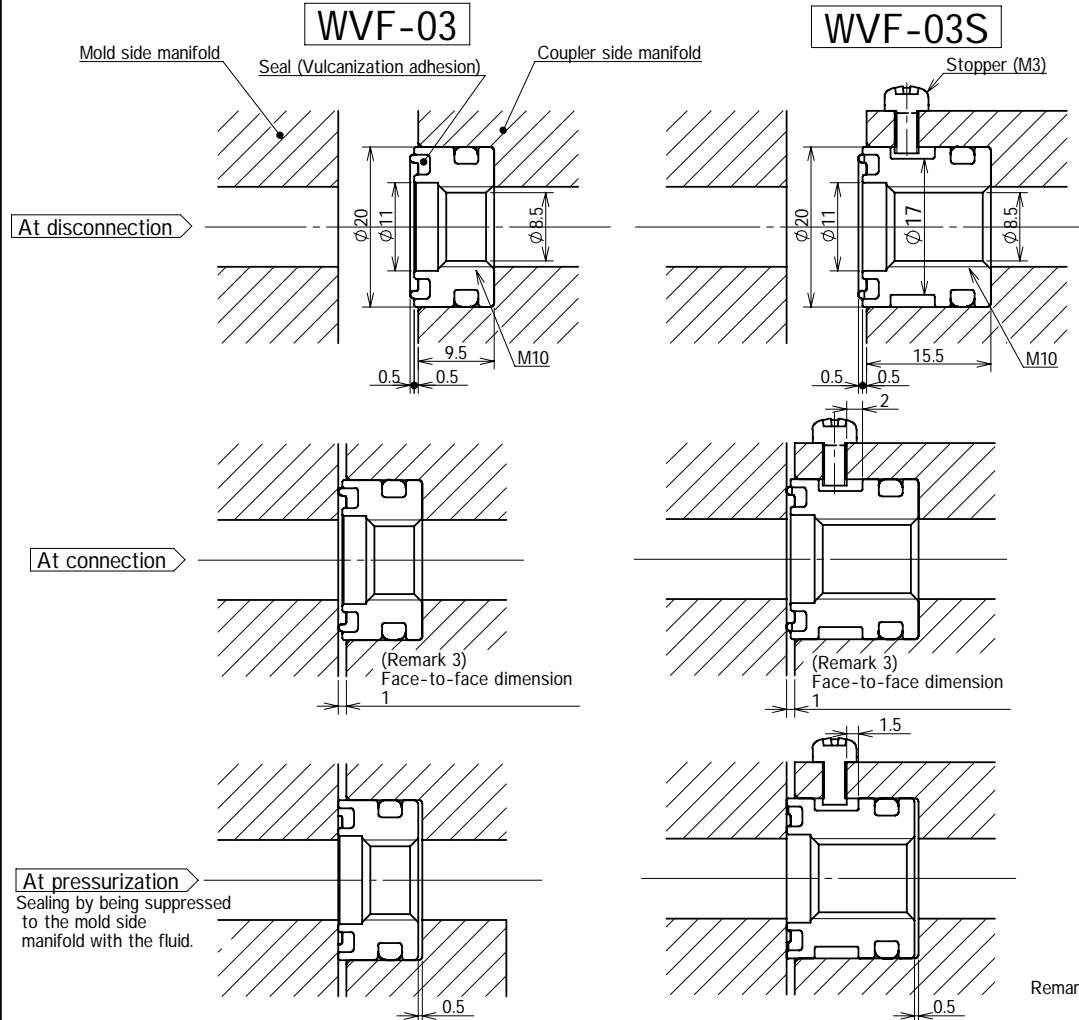
Pascal

Model designation

WVF-03

No symbol : Without stopper
S : With stopper

Outer dimension

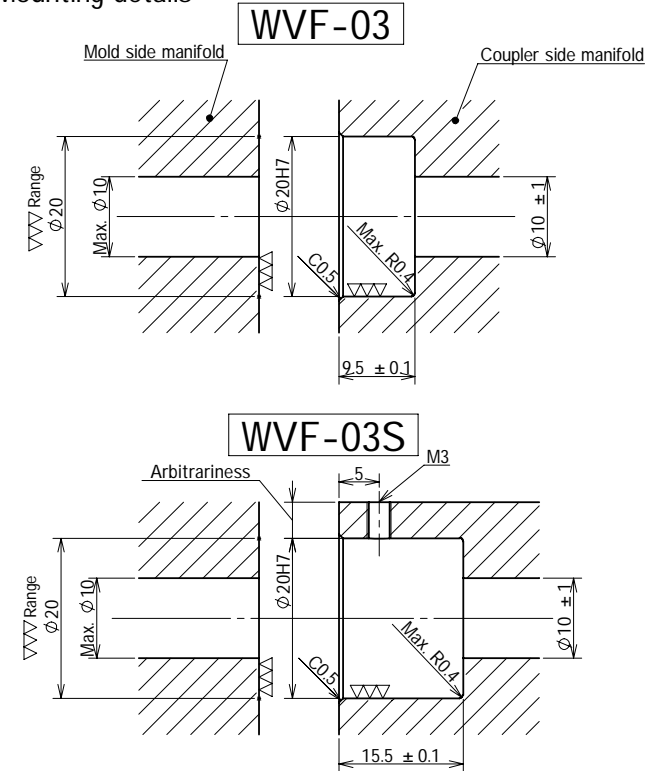


Specification

Model	WVF-03	WVF-03S
Pressure (MPa)	3	
Proof pressure (MPa)	4.5	
Min. orifice Area (mm ²)	57	
Reaction force(per 0.1MPa) [N]	31	
Mass (g)	15	23
Material of seal	NBR	
Fluid	General mineral-based hydraulic oil, Water, Air	
Ambient temperature ()	0 ~ 70 (No freezing)	

- Remark 1 :The check valve system is not attached to this product.
The remains residual fluid in a circuit may leak to the outsiders at disconnection.
Please air purge inside of a circuit before coupler separation to reduce the amount of leaks.
- Remark 2 :When disconnecting WVF-03 coupler, please make sure the pressure in theircircuit is zero as it is not equipped with a stopper.
If WVF-03 is disconnected while pressurized, it may drop off.

Mounting details



Remark 3 It shows the face-to-face dimension between mold side manifold and coupler side manifold at connection.
When fabricating the manifold, please keep this face-to-face dimension by having spot facing or the like.

SCALE	REVISION HISTORY	DATE	DESIGNED BY	MODEL	NAME	DWG.NO.	FILE.NO.
NON		2008/08/08	06004	WVF	Face-seal Coupler	3MWXB38000	MWXB3800.slddrw

Pascal

Model designation

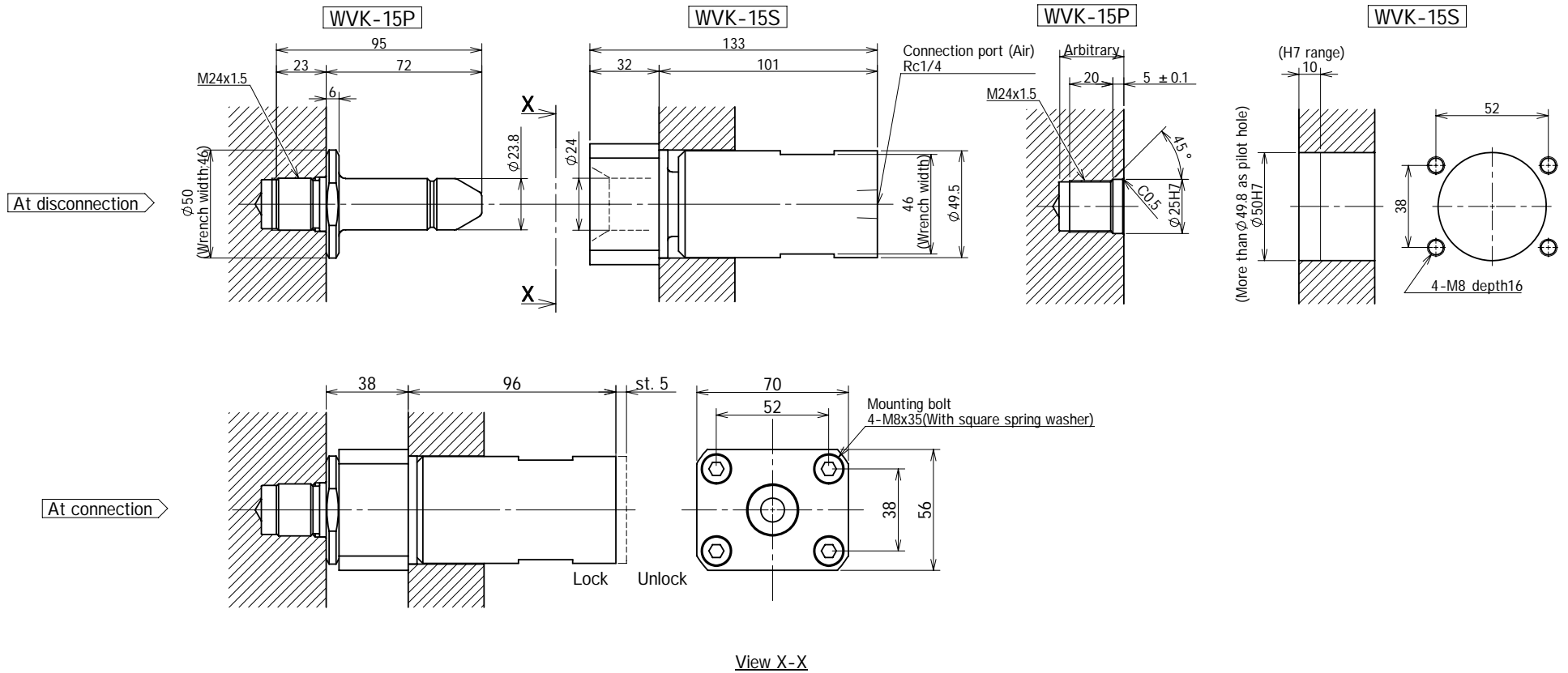
WVK - 15 P

categories
 P : Pin
 S : Socket

Specification

Lock capability	15 kN	
Lock system	Self-locking system with spring (At connection)	
Unlock system	Air pilot system	
Min. operation pressure (MPa)	0.2	
Max. working pressure (MPa)	1	
Allowable misalignment (mm)	± 5	
Ambient temperature ()	0 ~ 70 No freezing)	
Mass (kg)	P :Pin	0.4
	S :Socket	1.9

Outer dimension



SCALE	REVISION HISTORY	DATE	DESIGNED BY	MODEL	NAME	DWG.NO.	FILE.NO.
NON		2008/08/08	06004	WVK	Lock guide system	3MWXB38100	MWXB3810.slddrw

Pascal

Model designation

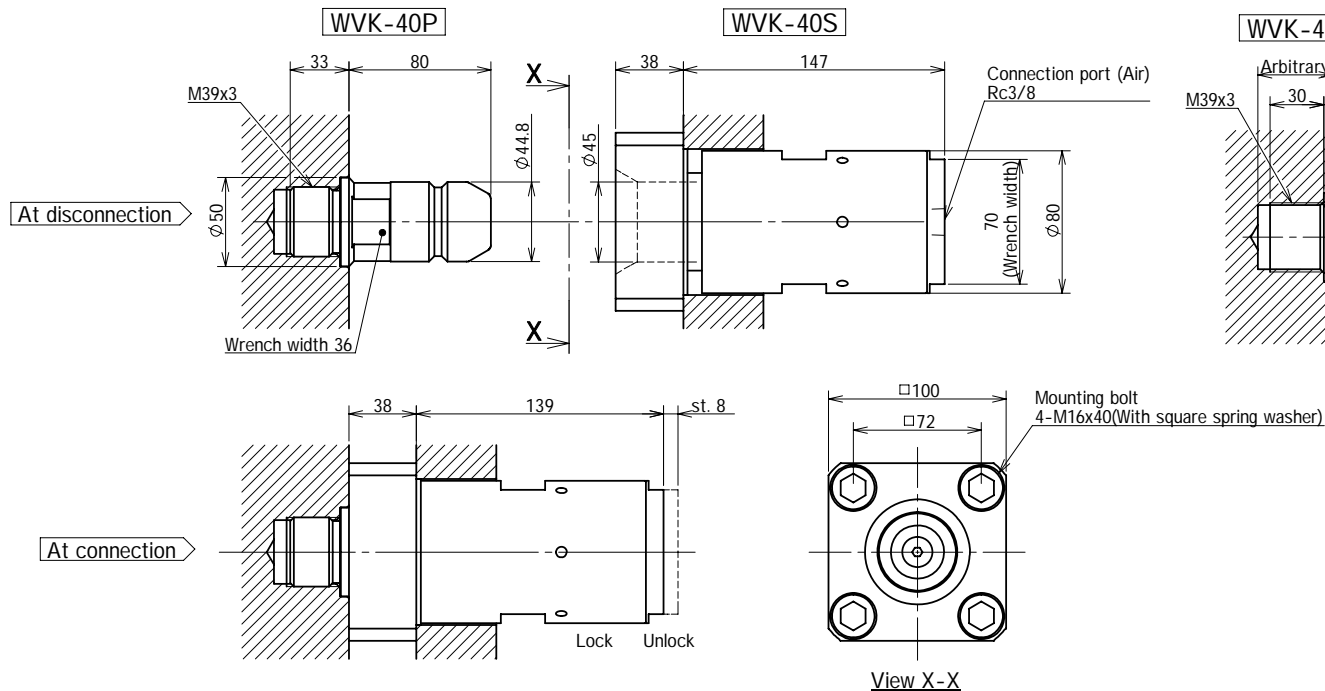
WVK - 40 P

Categories
P : Pin
S : Socket

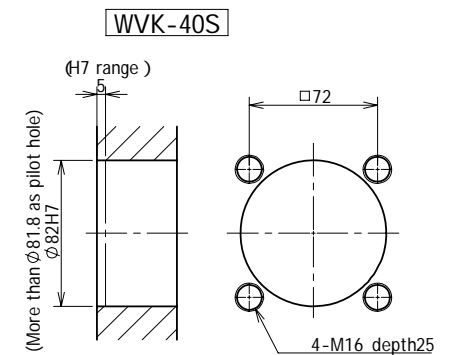
Specification

Lock capability	40 kN	
Lock system	Self-locking system with spring (At connection)	
Unlock system	Air pilot system	
Min. operation pressure (MPa)	0.2	
Max. working pressure (MPa)	1	
Allowable misalignment (mm)	± 5	
Ambient temperature ()	0 ~ 70 (No freezing)	
Mass (kg)	P :Pin	1.2
	S :Socket	6.7

Outer dimension



Mounting details

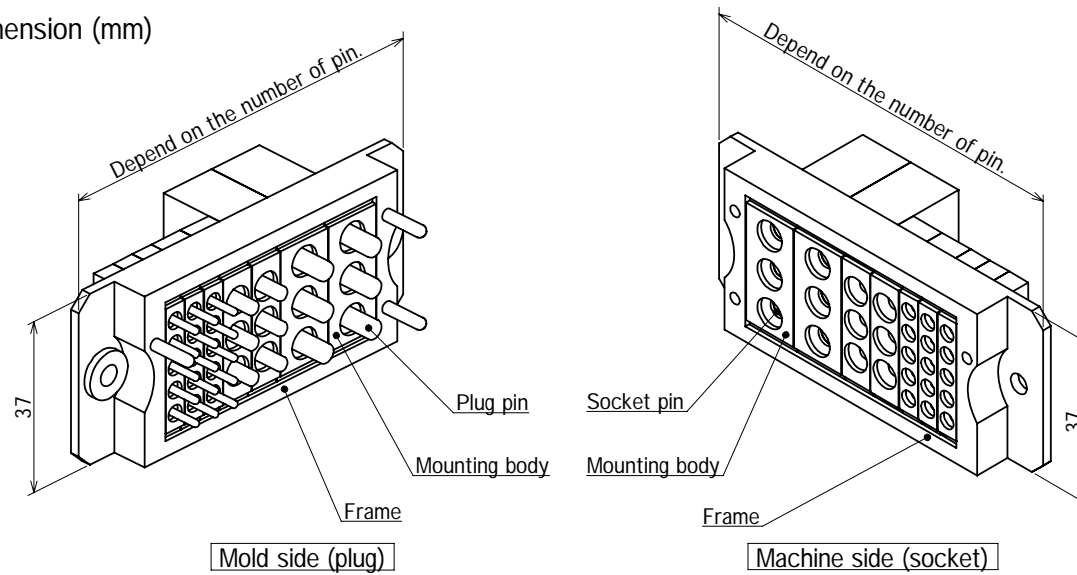


SCALE NON	REVISION HISTORY	DATE 2008/08/08	DESIGNED BY 06004	MODEL WVK	NAME Lock guide system	DWG.NO. 3MWB38200	FILE.NO. MWB3820.slddrw
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Pascal

<<The Auto coupling system adopts an electric connector of ODU Co.(Germany).>>

Outer dimension (mm)



Feature

- Electrical connector is composed of frame, mounting body, and pin. Free pin arrangement is possible for it according to the required number of electric points of contact and capacity.
- The spring wire contact arranged in the socket pin can maintain stable connection for long time against vibration and shock.
- Automatic coupling durability of more than 100,000 cycles. (according to manufacturers catalog)
- The floating function of the plug side frame that tolerates the positioning error $\pm 0.3\text{mm}$.

Method for connection

- To connect a cable to a pins, use a special crimp tool or solder.
- Pins can be set by one-touch from the backside of the mount body. For removal, a special pull-out tool is required.

Specification

Application	Pin diameter[mm]	Rated voltage[V]	Largest current[A]	Model of crimp tool	Model of pullout tool
Signal line (thermo couple, limit check, etc.)	1.5	125	18	080 000 014 000 000	087 170 138 000 000
	2.41	250	23		087 170 365 000 000
Power line (heater, etc.)	3	250	30	080 000 011 000 000	087 170 136 000 000
	4	250	40		087 170 367 000 000

SCALE NON	REVISION HISTORY	DATE 2008/08/08	DESIGNED BY 06004	MODEL ODU	NAME Electrical connector	DWG.NO. 3MWXB38300	FILE.NO. MWXB3830.slddrw
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