IOM TRS-TRL-TMS

Gate Valves

RAPHAEL VALVES INDUSTRIES

Sep-24

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1. OPERATING INSTRUCTIONS

Each valve is operated by means of a hand wheel or drive bar. In the latter case a purpose-designed permanent wrench is used.

Valves are opened anti-clockwise unless the customer especially requests the contrary (in which case the sticker on the valve body will indicate this change).

Do not use in regulation mode.
Temperature range: -10ºC / 80ºC.

It is recommended to check if there are foreign bodies that avoid suitable working.

1. MAINTENANCE INSTRUCTIONS

As explained in our brochures, our valves are maintenance-free and fully guaranteed for ten years.

Should you wish to replace any part of a valve, follow these instructions?

Starting at the seal area of the valve:

1- Release the flywheel or square bar from its anchor point by slackening the screw holding it down.
2- Unscrew the spindle gland (press nut) on the top of the cover in order we can access to the packing.
3- There are two spindle gland gaskets as well as one guide gland lodged in the spindle gland. These pieces can be replaced if necessary.
4- It is very important to check that the water tightness gasket (seal) between the cover and the spindle gland (nut) is in good condition as well as the bronze washer. If not, replace it.
5- In order to replace the gland gaskets lodged in the bonnet it will be necessary unscrew the spindle from the wedge lock nut and take it out from the external part of the bonnet. We can do this operation without unscrew the bolts which join the body with the bonnet. In the internal part of this bonnet there are two “O” rings stuffing nuts which we should replace. In order we can take out these “O” rings and replace them we need a screwdriver or a punch to remove them taking care not to damage the housing (groove), and fitting a new set.

   To re-assemble the unit, repeat these operations in reverse order.

2. CHECKING BEFORE ASSEMBLY

Before assembling the unit, open the valve to ensure that it works properly. If it does not, or if any damage is observed, inform us immediately.

While the hatch is open, clean off any dirt which may have settled on the cleaning surface during transport or storage?

Clean the pipe flanges to remove any particles of metal or weld which may have been deposited there.

Check that the pipe flanges are drilled in accordance with the same standards as the valves.

Check that the flanges are properly aligned and separated: errors in parallelism or gaps may lead screws to subject flanges to stress, which in turn may lead to valve breakages.

3. MOUNTING

Valve mounting on pipes is unaffected by the direction of flow.

When connecting valves to pipes, ensure that force is not transmitted to the valve body.

Any pipes or pipe sections not yet finally clamped in place must be supported to prevent them hanging from the valve flanges and thus exerting undue stress on one or both sides of the valve.

The flanges to which valves are connected must be parallel and the pipes perfectly aligned.

Tighten screws gradually in a star-shaped pattern. Tightening torque should be as per the attached table for the screw sizes specified on drawings.

During storage, handling, and mounting, take care not to damage paintwork. Any damage should be touched up when mounting is completed.

Once valves are mounted, the threads for screws must be greased with a brush or spray. Molycote or similar graphite based waterproof grease should be used to prevent corrosion and facilitate subsequent dismantling.

Leave the seal slightly open: if it is closed completely the resulting pressure can lead to increased wear. Also remember that long storage in unsuitable conditions can damage the elastomer and seals.

4. TIGHTENING TORQUE AND TENSIONS

The torque (in Nm) and tensions indicated are standard levels for metric threads as per DIN-13. Dimensions as per DIN- 912, 931, 934, 6912, 7984 & 7990, using 90% of the yield strength (friction coefficient 0.14 - new, non-lubricated screws). We recommend reducing torque by 20% if lubrication is used, especially with cadmium plated surfaces.

SIZE		GRADE											
		3,6 (4 D)		5,6 (5 D)		6,9 (6 G)		8,8 (8 G)		10,9 (10 K)		12,9 (12 K)	
THREAD	NUT	P_V	M_A	P_V	M_A	P_V	M_A	P_V	M_A	P_V	M_A	P_V	M_A
	mm	N	Nm	N	Nm	N	Nm	N	Nm	N	Nm	N	Nm
M 2	4	284	0.12	378	0,16	731	0,31	863	0,37	1216	0,52	1461	0,63
M 2,3	4,5	407	0,2	544	0,26	1049	0,51	1245	0,6	1755	0,84	2099	1,01
M 2,6	5	525	0,28	701	0,37	1353	0,73	1598	0,86	2246	1,21	2697	1,45
M 3	5,5	726	0,44	966	0,59	1863	1,13	2207	1,34	3109	1,88	3727	2,26
M 3,5	6	971	6,8	1294	0,9	2501	1,74	2962	2,06	4168	2,89	5001	3,48
M 4	7	1255	1	1677	1,34	3226	2,6	3825	3,04	5374	4,31	6453	5,15
M 5	8 9	2059	1,96	2736	2,65	5286	5,1	6257	6,03	8806	8,48	10591	10,2
M 6	10	2903	3,43	3864	4,51	7453	8,73	8836	10,3	12405	14,71	14906	17,65
M 7	11 12	4237	5,59	5649	7,45	10885	14,22	12945	17,16	18191	24,52	21771	28,44
M 8	13 14	5315	8,24	7090	10,79	13680	21,57	16230	25,5	22752	35,3	27361	42,17
M 10	15 17	8473	16,67	11278	21,57	21771	42,17	25792	50,01	36285	70,61	43542	85,32
M 12	19 21	12356	28,44	16475	38,25	31773	73,55	37658	87,28	52956	122,58	63547	147,1
M 14	22 23	16966	45,11	22654	60,8	43640	116,7	51681	138,27	72668	194,17	87280	235,36
M 16	24 26	23340	69,63	31087	93,16	60017	178,48	71197	210,84	100028	299,1	120132	357,94
M 18	27	28341	95,13	37854	127,49	72962	245,17	86495	289,3	121603	411,88	146120	490,34
M 20	30	36481	135,33	48641	180,44	93850	348,14	111306	411,88	156417	578,5	187798	696,28
M 22	32	45601	182,4	60802	245,17	117190	470,72	139255	558,98	195644	784,54	234380	941,44
M 24	36	52564	230,46	70020	308,91	135333	598,21	160340	710,99	225554	1000,28	270665	1196,42
M 27	41	69235	343,23	92281	460,92	177992	887,51	210844	1049,32	296163	1480,81	355984	1775,01
M 30	46	84044	465,82	112287	622,73	215748	1206,23	255955	1421,97	359906	2010,38	432476	2402,64
M 33	50	104932	632,53	139746	848,28	269685	1627,91	319699	1931,92	449147	2716,46	539369	3265,63
M 36	55	123074	813,96	164263	1088,54	316757	2098,64	374616	2481,1	527601	3491,19	632533	4197,27
M 39	60	148081	1059,12	197115	1412,17	380500	2716,46	451109	3226,41	633513	4530,7	761001	5442,72
M 42	65	169166	1304,29	225554	1745,59	435418	3363,7	515833	3991,33	725697	5609,44	870836	6727,4
M 45	70	198096	1637,72	264781	2177,09	509949	4207,08	604093	4991,62	850242	7011,8	1019899	8414,16
M 48	75	222612	1980,96	297143	2638	573693	6060,55	679605	6021,32	956154	8473	1147385	10149,94
M 52	80	267723	2539,94	356964	3393,12	688431	6541,08	815918	7747,3	1147385	10885,45	1377843	13091,96
M 56	85	308911	3167,57	411882	4226,69	793363	8149,38	940463	9649,8	1323906	13582,29	1588687	16279,14
M 60	90	360887	3932,49	481509	5246,59	927715	10100,91	1098351	11964,19	1544557	16867,54	1853468	20201,82
M 64	95	407959	4786,64	544272	6305,71	1049318	12160,32	1245452	14415,86	1750498	20299,89	2098636	24320,64

RAPHAEL, founded in 1949, is the first Israeli manufacturer of water control valves. RAPHAEL´s research department constantly strives to introduce new and innovative products and solutions for water control systems including water works, fire-protection and irrigation systems.

RAPHAEL

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