

Anvil Design Services offers both Basic and Extended Services...

Contact your Anvil representative for more information.

Basic Services

Anvil Design Services produces fabrication drawings of mechanical room piping 2½" and larger including chillers, heat exchangers, boilers, and pumps from contractor supplied flow diagrams, mechanical drawings, and approved submittals and specifications.

The drawings include a Bill of Materials with tags referencing the components in the mechanical room. The piping is color coded by service and is represented in 3-D with plan, isometric, and elevation views.

Initially, Anvil personnel meet with you to determine your piping preferences. The project scope and fee is agreed upon in a Design Services contract.

The plans and specifications are then interpreted in terms of economy, accuracy, and compliance. We may suggest modifications in arrangement, construction, equipment location, or product to attain the desired results. Piping layouts are carefully analyzed to determine whether further economies can be attained in the piping system.

Piping drawings are then prepared to determine the most efficient pipe routing, taking equipment location and any interferences into consideration. Preliminary prints are sent to you for revision or approval.

Upon approval, (4) sets of drawings with tags and Bills of Materials of the included system components are sent to you. Copies of the electronic data file of the project drawings are available at no extra charge. This brochure is an example of the finished product.

With Basic Services, you can plan the mechanical room. The preliminary drawings can be taken to coordination meetings with other trades to "reserve" space by "getting in" first. Also, your field supervisor can spend more time supervising and not calculating pipe lengths and pipe routing. The components can be grouped from the finished drawings for better workflow planning.

We usually reduce fitting counts by 10%-15% by moving equipment whenever possible, usually less than a foot. The more movement that is allowed, the more savings can be realized.

Extended Services:

Extended Services include any scope beyond Basic Services. There are many different types of services offered as extended:

- > BOM by component (pump, chiller) or by system
- > Unique Tagging – adding unique tags to individual components
- > Air Handling Units – with associated ductwork
- > Single Line Routing – non-dimensional
- > Distribution Piping
- > Dimensioned Floor Penetrations
- > AWWA Piping - Total Scope
- > Commercial Piping
- > Oil Field Piping
- > Retrofit Projects - Field Survey
- > Hybrid Systems
- > Anything Else

PIPE

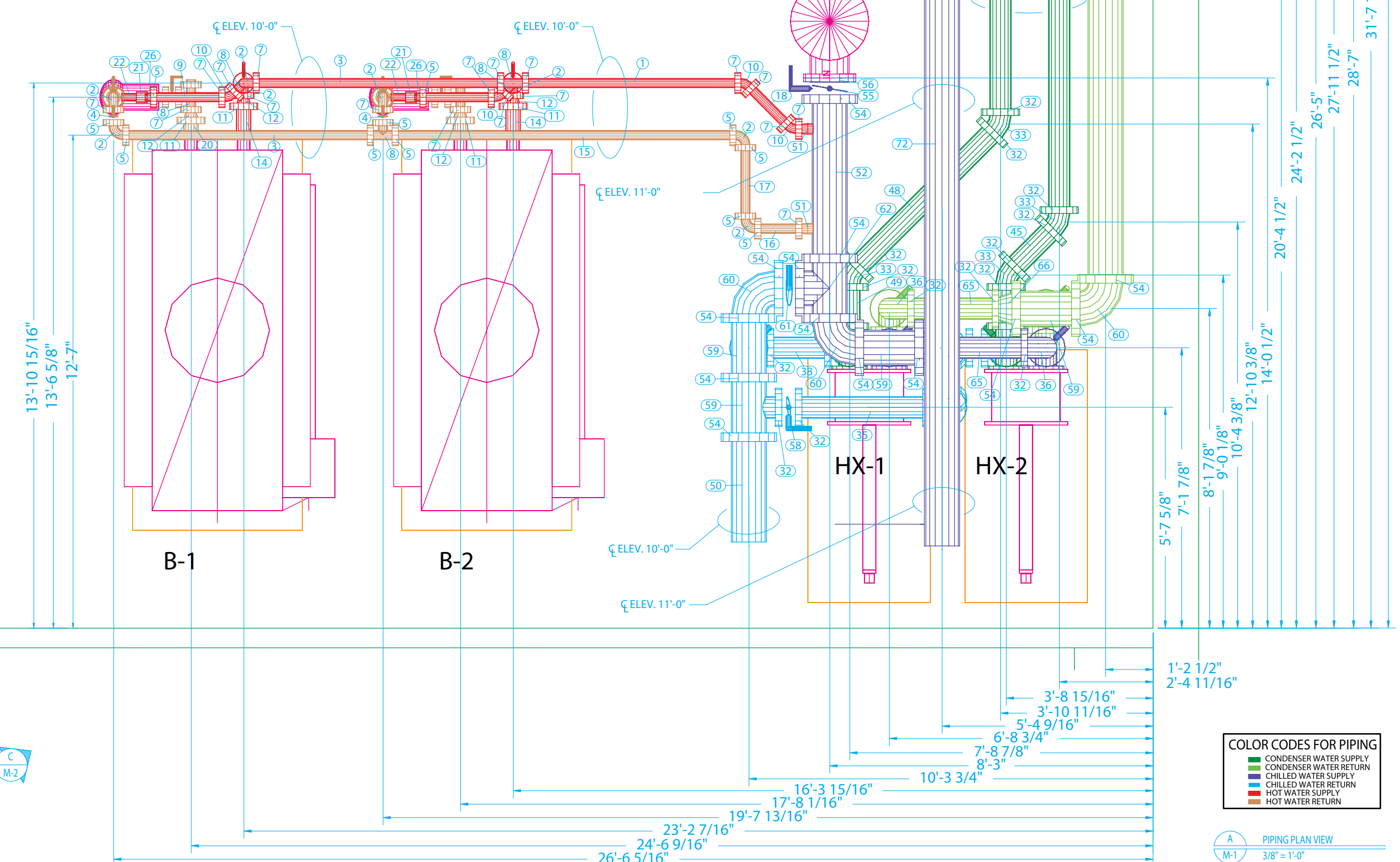
Qty	TAG#	SIZE	END TYPE	PIPE LENGTH
1	1	2.5	GRVxGRV	5'-4 7/8"
2	3	2.5	GRVxGRV	6'-2 3/4"
2	6	2.5	GRVxGRV	4' 1/4"
2	9	2.5	GRVxGRV	1'-8 13/16"
2	13	2.5	GRVxGRV	4'-7 3/8"
2	14	4	GRVxTHD	10' 5/16" (FIELD FIT)
1	15	2.5	GRVxGRV	8'-7 1/4"
1	16	2.5	GRVxGRV	1'-0 7/16"
1	17	2.5	GRVxGRV	1'-8 7/8"
1	18	2.5	GRVxGRV	1'-3 1/8"
2	20	4	GRVxGRV	6"
6	22	2	THDxGRV	6" (FIELD FIT)
4	24	2.5	GRVxGRV	6"
2	29	2.5	GRVxGRV	1'
1	30	6	GRVxGRV	4'-5 1/8"
1	31	6	GRVxGRV	1'-6 5/16"
1	35	6	GRVxGRV	3'-2 3/4"
1	37	6	GRVxGRV	4' 5/8"
1	38	6	GRVxGRV	1'-5 5/16"
1	39	6	GRVxGRV	5'-10"
1	40	6	GRVxGRV	4'-4 7/8"
1	41	6	GRVxGRV	4'-2 3/8"
1	42	6	GRVxGRV	3'-5 1/8"
1	43	6	GRVxGRV	1'-3 11/16"
2	44	6	GRVxGRV	2'-4 1/4"
1	45	6	GRVxGRV	1'-3 1/2"
1	46	6	GRVxGRV	17'-7 1/8"
1	47	6	GRVxGRV	12'-11 1/8"
1	48	6	GRVxGRV	4'-9 15/16"
4	49	6	GRVxGRV	11 3/4"
1	50	10	GRVxGRV	2'-9 3/16"
1	52	10	GRVxGRV	4'-0 9/16"
1	53	10	GRVxGRV	1'-0 7/16"
1	63	6	GRVxGRV	2'-8 7/8"
1	64	6	GRVxGRV	2'-11 3/8"
2	65	6	GRVxGRV	2'-1 5/8"
1	67	6	GRVxGRV	7'-1 3/4"
1	68	6	GRVxGRV	6'-11 1/4"
2	69	6	GRVxGRV	1'-11 5/8"
1	70	10	GRVxGRV	7'-5 1/4"
1	71	10	GRVxGRV	25'-4 7/8"
1	72	10	GRVxGRV	17'-7 1/4"
1	73	6	GRVxGRV	4'-7 1/4"
1	74	6	GRVxGRV	4'-9 3/4"
1	77	6	GRVxGRV	5'-10 1/4"
1	78	6	GRVxGRV	6'-0 3/4"
1	79	6	GRVxGRV	1'-9 5/8"
8	82	6	GRVxGRV	1'

FITTINGS

Qty	TAG#	SIZE	PART#	DESCRIPTION #1	DESCRIPTION #2
10	2	2.5	GRUVLOK, Fig.7050	90 ELBOW, GRVD	290390014249
27	5	2.5	GRUVLOK, Fig.7001	COUPLING, FLEX GRVD.	
32	7	2.5	GRUVLOK, Fig.7401	COUPLING, RIGIDLOK GRVD.	290390013522
6	8	2.5	GRUVLOK, Fig.7060	TEE, GROOVED	290390016822
4	10	2.5	GRUVLOK, Fig.7051LR	45 ELBOW, GRVD	290390014801
4	11	4	GRUVLOK, Fig.7401	COUPLING, RIGIDLOK GRVD.	290390013548
4	12	4x2.5	GRUVLOK, Fig.7072	4x2.5' GRVD CONC REDUCER	290390028645
2	19	2.5	GRUVLOK, Fig.7074	CAP, GRVD	290390030161
6	21	2		COUPLING, THRD	
2	23	2		TEE, THRD	
6	26	2.5x2	GRUVLOK, Fig.7076	2.5x2' GRVD CONC REDUCER	290390028413
4	28	2.5	GRUVLOK, Fig.7012	GRVD, FLANGE ADAPT.	290390020102
73	32	6	GRUVLOK, Fig.7401	COUPLING, RIGIDLOK GRVD.	290390013563
8	33	6	GRUVLOK, Fig.7051LR	45 ELBOW, GRVD	290390014942
18	36	6	GRUVLOK, Fig.7050	90 ELBOW, GRVD	290390014363
2	51	10x2.5		GROOVE-O-LET	
22	54	10	GRUVLOK, Fig.7401	COUPLING, RIGIDLOK GRVD.	290390013589
2	56	10	GRUVLOK, Fig.7012	GRVD, FLANGE ADAPT.	290390020126
2	57	10	GRUVLOK, Fig.7051LR	45 ELBOW, GRVD	290390014983
7	59	10x6	GRUVLOK, Fig.7061	REDUCING TEE, GROOVED	290390019065
3	60	10	GRUVLOK, Fig.7050	90 ELBOW, GRVD	290390014405
1	62	10	GRUVLOK, Fig.7060	TEE, GROOVED	290390016962
5	66	10x6	GRUVLOK, Fig.7072	10x6' GRVD CONC REDUCER	290390029429
2	75	6	GRUVLOK, Fig.7074	CAP, GRVD	290390030302
2	76	6	GRUVLOK, Fig.7060	TEE, GROOVED	290390016921
24	80	6	GRUVLOK, Fig.7001	COUPLING, FLEX GRVD.	
2	83	4	GRUVLOK, Fig.7012	GRVD, FLANGE ADAPT.	290390020110
2	84	6x4	GRUVLOK, Fig.7072	6x4' GRVD CONC REDUCER	290390028967
2	86	5	GRUVLOK, Fig.7012	GRVD, FLANGE ADAPT.	290390020114
2	87	6x5	GRUVLOK, Fig.7072	6x5' GRVD CONC REDUCER	290390029007
8	90	6	GRUVLOK, Fig.7012	GRVD, FLANGE ADAPT.	290390020118

VALVES

Qty	TAG#	SIZE	PART#	DESCRIPTION #1
8	4	2.5	GRUVLOK, SER.7700	BUTTERFLY VALVE, GRVD
2	25	2.5	GRUVLOK, FIG.758	STRAINER, GROOVED
2	27	2.5	GRUVLOK, SER.7800	CHECK VALVE, GRVD
4	34	6	GRUVLOK, Fig.7260	STRAINER, GROOVED
2	55	10	GRUVLOK, SER.7700	BUTTERFLY VALVE, GRVD
12	58	6	GRUVLOK, SER.7700	BUTTERFLY VALVE, GRVD
1	61	10	GRUVLOK, SER.7700	BUTTERFLY VALVE, GRVD
4	81	6	GRUVLOK, FIG.722G	3DTY VALVE, GROOVED
2	85	6x5	GRUVLOK, Fig.7250	SUCTION DIFF, GROOVED
2	89	6	GRUVLOK, Fig.7250	SUCTION DIFF, GROOVED



Green	CONDENSER WATER SUPPLY
Blue	CONDENSER WATER RETURN
Purple	CHILLED WATER RETURN
Red	CHILLED WATER SUPPLY
Yellow	HOT WATER SUPPLY
Orange	HOT WATER RETURN

A M-1 PIPING PLAN VIEW
3/8" = 1'-0"

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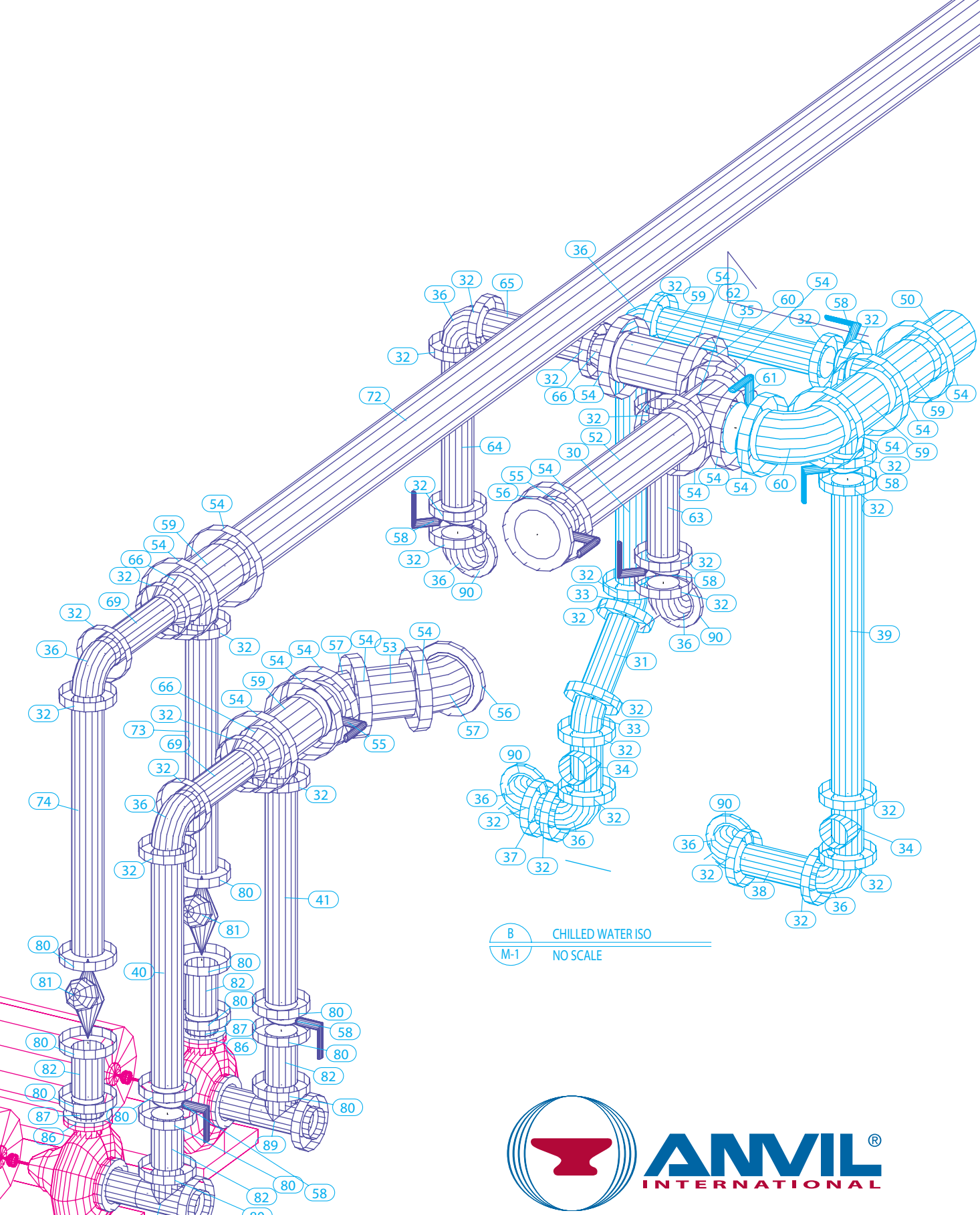
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Revision Date: 4.1.08



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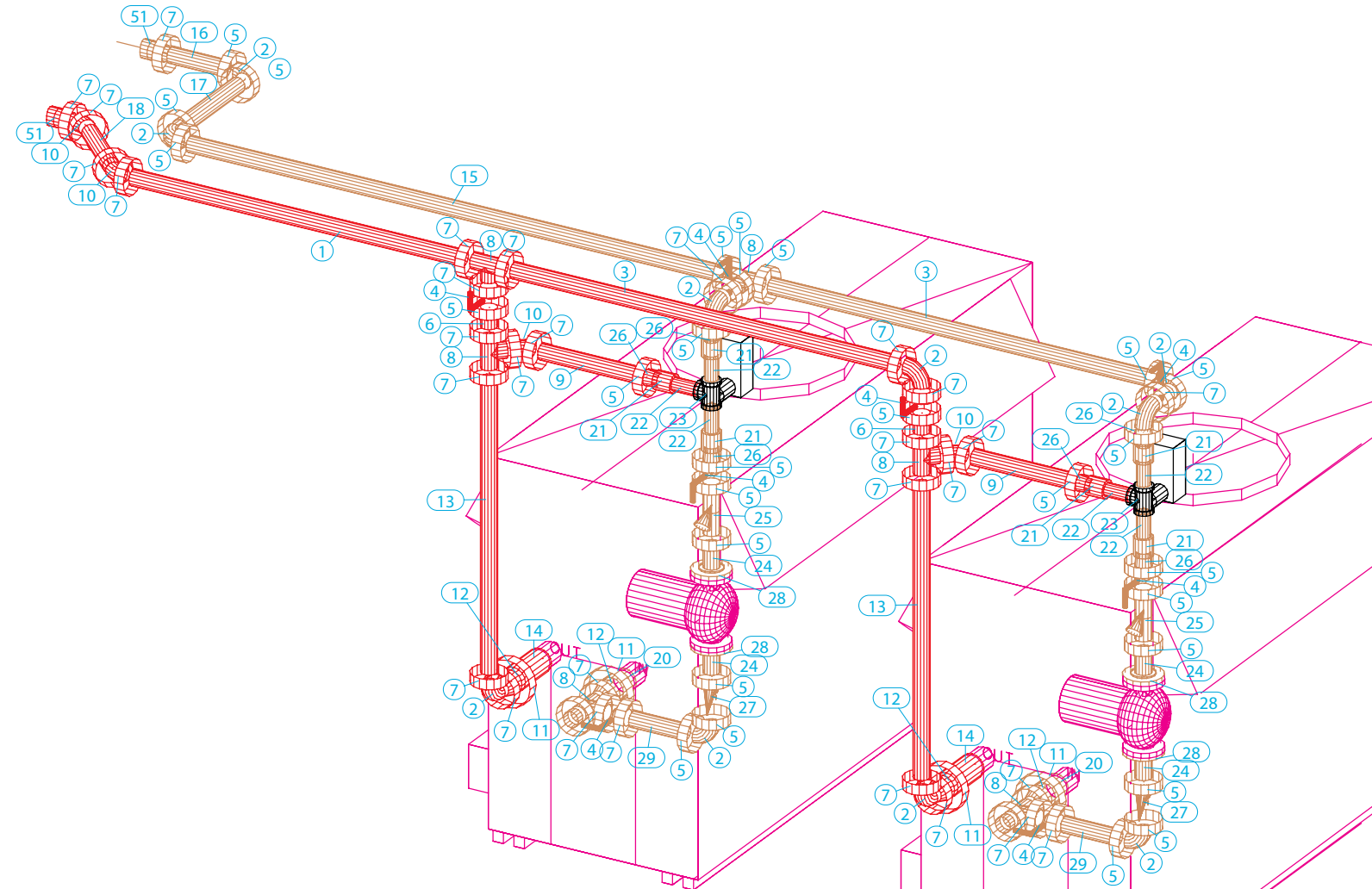
BUILDING CONNECTIONS THAT LAST



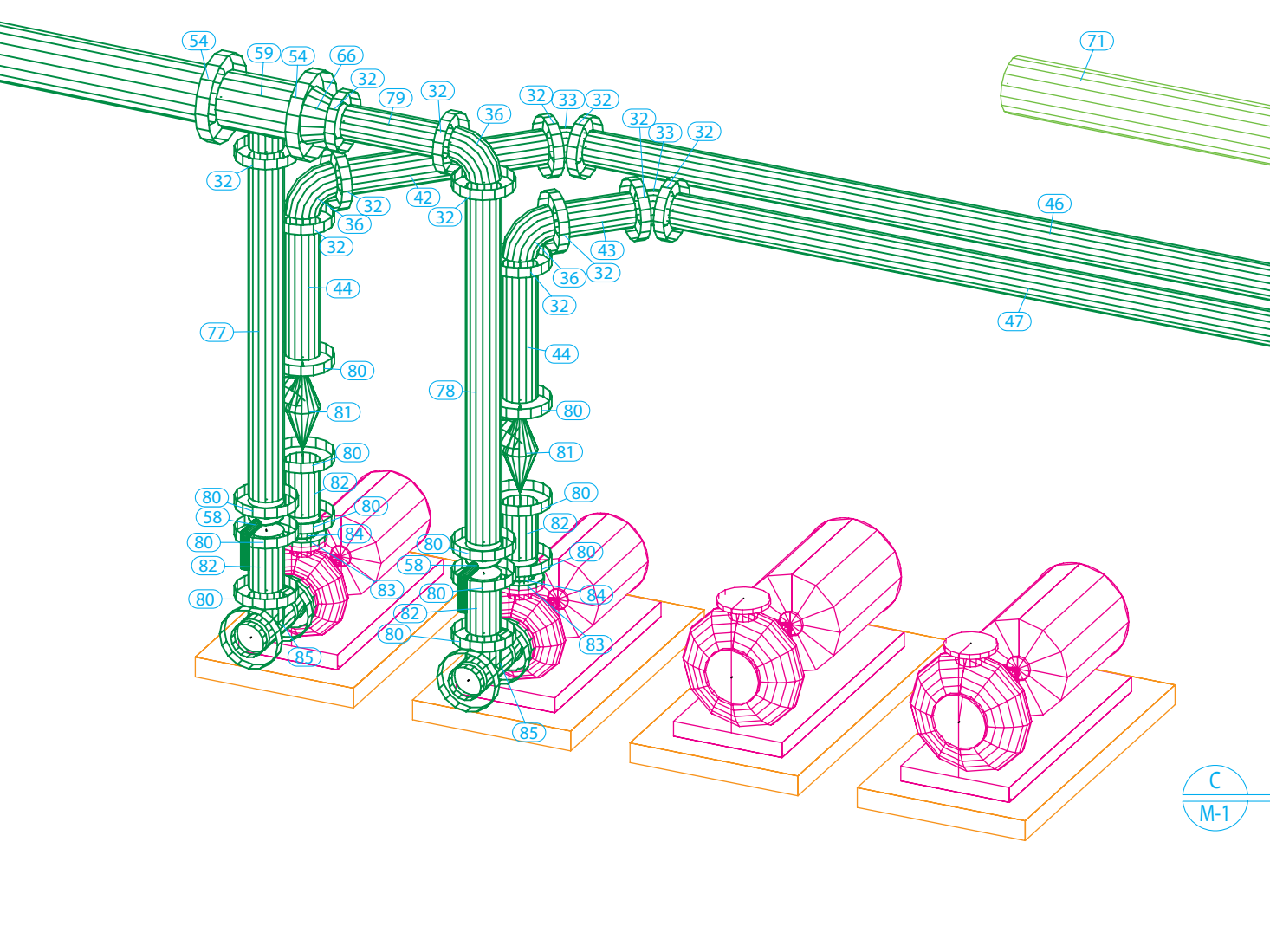
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PIPE				PIPE				FITTINGS							
Qty	TAG#	SIZE	END TYPE	PIPE LENGTH	Qty	TAG#	SIZE	END TYPE	PIPE LENGTH	Qty	TAG#	SIZE	PART#	DESCRIPTION #1	DESCRIPTION #2
1	1	2.5	GRVXGRV	5'-4 7/8"	2	44	6	GRVXGRV	2'-4 1/4"	27	5	2.5	GRUVLOK.Fig.7050	90 ELBOW, GRVD	290390014249
2	3	2.5	GRVXGRV	6'-2 3/4"	1	45	6	GRVXGRV	17'-3 1/2"	32	7	2.5	GRUVLOK.Fig.7001	COUPLING, FLEX GRVD.	290390013522
2	6	2.5	GRVXGRV	4 1/4"	1	46	6	GRVXGRV	17'-7 1/8"	32	7	2.5	GRUVLOK.Fig.7060	COUPLING, RIGIDLOK GRVD.	290390016822
2	9	2.5	GRVXGRV	1'-8 13/16"	1	47	6	GRVXGRV	12'-11 1/8"	6	8	2.5	GRUVLOK.Fig.7060	TEE, GROOVED	290390014801
2	13	2.5	GRVXGRV	4'-7 3/8"	1	48	6	GRVXGRV	4'-9 15/16"	4	10	2.5	GRUVLOK.Fig.7051LR	45 ELBOW, GRVD	290390013548
2	14	4	GRVXTHD	10 5/16" (FIELD FIT)	4	49	6	GRVXGRV	11 3/4"	4	11	4	GRUVLOK.Fig.7401	COUPLING, RIGIDLOK GRVD.	290390013548
1	15	2.5	GRVXGRV	8'-7 1/4"	1	50	10	GRVXGRV	2'-9 3/16"	4	12	4x2.5	GRUVLOK.Fig.7072	4x2.5' GRVD CONC REDUCER	290390028645
1	16	2.5	GRVXGRV	1'-0 7/16"	1	52	10	GRVXGRV	4'-0 9/16"	2	19	2.5	GRUVLOK.Fig.7074	CAP, GRVD	290390030161
1	17	2.5	GRVXGRV	11'-8 7/16"	1	53	10	GRVXGRV	1'-0 7/16"	6	21	2		COUPLING, THRD	
1	18	2.5	GRVXGRV	1'-3 1/8"	1	63	6	GRVXGRV	2'-8 7/8"	2	23	2		TEE, THRD	
2	20	4	GRVXGRV	6"	1	64	6	GRVXGRV	2'-11 3/8"	6	26	2.5x2	GRUVLOK.Fig.7076	2.5x2' GRVD CONC REDUCER	290390028413
6	22	2	THDXGRV	6" (FIELD FIT)	2	65	6	GRVXGRV	2'-1 5/8"	4	28	2.5	GRUVLOK.Fig.7012	GRVD, FLANGE ADAPT.	290390020102
4	24	2.5	GRVXGRV	6"	1	67	6	GRVXGRV	7'-1 3/4"	73	32	6	GRUVLOK.Fig.7401	COUPLING, RIGIDLOK GRVD.	290390013563
2	29	2.5	GRVXGRV	1'	1	68	6	GRVXGRV	6'-11 1/4"	8	33	6	GRUVLOK.Fig.7051LR	45 ELBOW, GRVD	290390014942
1	30	6	GRVXGRV	4'-5 1/8"	2	69	6	GRVXGRV	1'-11 5/8"	18	36	6	GRUVLOK.Fig.7050	90 ELBOW, GRVD	290390014363
1	31	6	GRVXGRV	1'-6 5/16"	1	70	10	GRVXGRV	7'-5 1/4"	2	51	10x2.5		GROOVE-O-LET	
1	35	6	GRVXGRV	3'-2 3/4"	1	71	10	GRVXGRV	25'-4 7/8"	22	54	10	GRUVLOK.Fig.7401	COUPLING, RIGIDLOK GRVD.	290390013589
1	37	6	GRVXGRV	4 5/8"	1	72	10	GRVXGRV	17'-7 1/4"	2	56	10	GRUVLOK.Fig.7012	GRVD, FLANGE ADAPT.	290390020126
1	38	6	GRVXGRV	1'-5 5/16"	1	73	6	GRVXGRV	4'-9 1/4"	2	57	10	GRUVLOK.Fig.7051LR	45 ELBOW, GRVD	290390019083
1	39	6	GRVXGRV	5'-10"	1	74	6	GRVXGRV	4'-9 3/4"	7	59	10x6	GRUVLOK.Fig.7061	REDUCING TEE, GROOVED	290390019065
1	40	6	GRVXGRV	4'-4 7/8"	1	77	6	GRVXGRV	5'-10 1/4"	3	60	10	GRUVLOK.Fig.7050	90 ELBOW, GRVD	290390014405
1	41	6	GRVXGRV	4'-2 3/8"	1	78	6	GRVXGRV	6'-0 3/4"	1	62	10	GRUVLOK.Fig.7060	TEE, GROOVED	290390016962
1	42	6	GRVXGRV	3'-5 1/8"	1	79	6	GRVXGRV	1'-9 5/8"	5	66	10x6	GRUVLOK.Fig.7072	10x6' GRVD CONC REDUCER	290390029429
1	43	6	GRVXGRV	1'-3 11/16"	8	82	6	GRVXGRV	1'	2	75	6	GRUVLOK.Fig.7074	CAP, GRVD	290390030302
										2	76	6	GRUVLOK.Fig.7060	TEE, GROOVED	290390016921
										24	80	6	GRUVLOK.Fig.7001	COUPLING, FLEX GRVD.	
										2	83	4	GRUVLOK.Fig.7012	GRVD, FLANGE ADAPT.	290390020110
										2	84	6x4	GRUVLOK.Fig.7072	6x4' GRVD CONC REDUCER	290390028967
										2	86	5	GRUVLOK.Fig.7012	GRVD, FLANGE ADAPT.	290390020114
										2	87	6x5	GRUVLOK.Fig.7072	6x5' GRVD CONC REDUCER	290390029007
										8	90	6	GRUVLOK.Fig.7012	GRVD, FLANGE ADAPT.	290390020118

VALVES				
Qty	TAG#	SIZE	PART#	DESCRIPTION #1
8	4	2.5	GRUVLOK.SER.7700	BUTTERFLY VALVE, GRVD
2	25	2.5	GRUVLOK.FIG.758	STRAINER, GROOVED
2	27	2.5	GRUVLOK.SER.7800	CHECK VALVE, GRVD
4	34	6	GRUVLOK.FIG.7260	STRAINER, GROOVED
2	55	10	GRUVLOK.SER.7700	BUTTERFLY VALVE, GRVD
12	58	6	GRUVLOK.SER.7700	BUTTERFLY VALVE, GRVD
1	61	10	GRUVLOK.SER.7700	BUTTERFLY VALVE, GRVD
4	81	6	GRUVLOK.FIG.722G	3DTY VALVE, GROOVED
2	85	6x5	GRUVLOK.Fig.7250	SUCTION DIFF, GROOVED
2	89	6	GRUVLOK.Fig.7250	SUCTION DIFF, GROOVED



D HOT WATER ISO
M-1 NO SCALE



C CONDENSER WATER ISO
M-1 NO SCALE

COLOR CODES FOR PIPING	
Green	CONDENSER WATER SUPPLY
Blue	CONDENSER WATER RETURN
Light Blue	CHILLED WATER SUPPLY
Dark Blue	CHILLED WATER RETURN
Red	HOT WATER SUPPLY
Orange	HOT WATER RETURN