



SCOPE OF SUPPLY

Romtec Utilities designs and supplies pre-engineered lift stations with both standard and optional components and features. A range of design and technical field services ensure the best quality and performance of the completed station. The Scope of Supply is unique for each individual Romtec Utilities lift station. The listing of all available standard and optional components, features and services appears below. **NOTE:** Romtec Utilities can supply other components, features and services not appearing here, but specified by the lift station site engineer and listed in the Final Approved Submittal Documents for the individual lift station.

I. Pre-cast Concrete Wet Well

Inside Diameter	4', 5', 6', 8' & 10'
Overall Depth	9' to 40'
Material	4000 psi steel-reinforced concrete, meets ASTM C 478-97
Lifting	Factory installed lifting devices
Interior Lining	Ameron T-Lock pre-cast into concrete barrel sections and top slab by Romtec Utilities
Interior Coating	Raven or Tnemec by others
Exterior Sealers	Tnemec and other exterior coatings and sealers by Romtec Utilities or by others, as specified

A. Monolithic Base Slab & Basin

Description	One-piece pre-cast concrete base slab and basin
Interior Surface	Concrete, Tnemec Sewer Shield or Fiberglass
Pump Discharge Connections	ITT Flygt pump discharge elbows pre-installed in concrete base for single, double or triple (simplex, duplex, triplex) pumps

B. Pre-cast Concrete Barrel Sections

Standard Joints	Single offset R-3 rubber gasket joints meet ASTM C 443-98
Exterior Joint Sealer	Tape Coat (joint tape)
Penetrations	Pre-cored to 31" diameter; knockouts for penetrations larger than 31" diameter
Penetration Seals	Pre-installed Kor-N-Seal or LinkSeals for penetrations up to 31" diameter; sealing by others for knockouts larger than 31" diameter

C. Wet Well Pre-cast Top Slab

Concrete	4000 psi steel-reinforced concrete, meets ASTM C 478-97
Lockable Hatch	ITT Flygt Safe-Hatch Access, USF or Bilco (pedestrian or H-20)
Cable Hatch (optional)	Romtec Utilities' cable hatch pre-cast into top slab (aluminum, lockable)
Junction Box (optional)	Available in-ground electrical junction box in separate concrete vault
Ventilation	Wet well vent pre-cast into top slab (aluminum) (Optional: Gooseneck)
Disconnect Panel Stand	Romtec Utilities' stainless steel pump disconnect panel stand mounted to top slab (Optional: Available with ITT Flygt safe hatch)

C. Wet Well Pre-cast Top Slab (continued)

Optional	Traffic Load Hatch	H-20 heavy-duty traffic load design (steel and aluminum)
	Davit Crane	Thern Davit Crane (finish and other options as specified)

II. Mechanical Equipment Inside Wet Well, supplied by Romtec Utilities

Standard	Pump Discharge Elbows	ITT Flygt discharge elbows preinstalled; ID to match pumps
	Influent Deflector	HDPE panel with guillotine panel for inspection/cleaning; includes stainless steel mounting brackets and pre-fitted fasteners, stainless steel cable/bracket assembly
	Discharge Piping	Schedule 40 - 316 stainless steel (Optional: Ductile iron, schedule 40 galvanized steel)
	Pump Guide Rails & Brackets	316 stainless steel
	Pump Lifting Chain & Hardware	316 stainless steel
	Pump & sensor cable brackets	Stainless steel
Optional	Check Valve Assembly	Ball check valves in discharge pipes in wet well (no valve vault) for stormwater and industrial applications
	Manifold Piping	Pre-assembled manifold piping within wet well for stormwater and industrial applications
	Drop Structure	Drop structure by Romtec Utilities

III. ITT Flygt Pumps

	4' Duplex	3 HP - 10 HP: MP3068, 3085, 3102, 3127
	5' Duplex	3 HP - 10 HP: MP3068, 3085, 3102, 3127; 3 HP-6.5 HP: NP3085, 3102
	6' Duplex	3 HP - 35 HP: 3085, 3102, 3127, 3153, 3171SH
	8' Duplex	3 HP - 105 HP: 3085, 3102, 3127, 3153, 3171, 3202, 3301HT
	8' Triplex	3 HP - 30 HP: 3085, 3102, 3127, 3153, 3171MT
	10' Duplex	3 HP - 105 HP: 3085, 3102, 3127, 3153, 3171, 3202, 3301LT
	10' Triplex	3 HP - 105 HP: 3102, 3127, 3153, 3171, 3202, 3301HT
Optional	Mix-Flush Valve	ITT Flygt Mix-Flush Valve (available with all pumps)

IV. Liquid Level Sensing Devices

Standard	Primary	ITT Flygt LS 100 Pressure Transducer
	Primary	ITT Flygt conductive probe
	Primary	MJK Pressure Transducer
	Primary	ITT Flygt LSU 100 Ultrasonic Level Sensor
	Primary	Siemens XPS 15 Ultrasonic Level Sensor
	Primary	ITT Flygt Floats
	Redundant High Level	ITT Flygt conductive probe

V. Pump Disconnect Panel & Stand

Standard	Pump Disconnect Panel	UL Listed 698; hazardous area seal-off; junction box; circuit breakers (no fuses), interrupt rating = 10KA; All level sensing intrinsically safe for wet well entrance. Service entrance rated; main power disconnect; separate pump power disconnect.
	Pump Disconnect Stand	Stainless steel with lockable ventilated cable chase. Mounts to side of wet well top slab (standard) or other concrete slab as specified (optional).
Optional	Pump Disconnect At Control Panel (no stand)	No pump disconnect panel & stand at wet well; extended cable chase and hatch from wet well to control panel; all pump disconnect components in bottom of control panel enclosure.
	Cable Chase and Hatch Extension	Configured per spec. to route pump and control cables from wet well to control panel
	In-ground Electrical Junction Box & Vault	Available in-ground electrical junction box in separate concrete vault

VI. Pre-cast Concrete Valve Vaults & Valve Assemblies

Standard	Vaults	Precast concrete valve vaults, 4000 psi steel-reinforced concrete, meet ACI-318-83 building code, ASTM 6-857 min. structural design load, ASTM C 478-97
	Hatch	ITT Flygt, USF or Bilco hatch with large double access doors, pedestrian load (lockable, aluminum)
Optional	H-20 Hatch	H-20 occasional traffic load hatch (lockable, aluminum)
	Traffic Load Hatch	H-20 heavy-duty traffic load design (steel)
	Other Vault Options	floor drain, sump pump, ladder
Standard	Valve Vault Piping	Class 53 ductile iron or schedule 40 galvanized steel
	Eccentric Plug Valves	Val-Matic Series 5800 Eccentric Plug Valves
	Swing Check Valves	Val-Matic Swingflex Series 500 Rubber-seated Check Valves
	Pressure Sensor	Ashcroft 3 1/2 gauge and stainless steel iso-ring
Optional	Eccentric Plug Valves	DeZurik, Milliken, and other major brand plug valves
	Swing Check Valves	APCO Series 6000, Clow, Kennedy, and other major brand swing check valves
	Pressure Sensor	Red Valve non-contact pressure sensor
	Flow Meter (in valve vault)	Siemens flow meters
Optional	Other Valve Assembly Options	Emergency pumping port, pigging port, air vacuum release, special valve requirements
	Above-ground Valve Assembly (no vault)	Above-ground valve assembly on pre-cast concrete slab

VII. Flow Meter Assemblies in Separate Pre-cast Concrete Vaults

Standard	Vaults	Precast concrete valve vaults, 4000 psi steel-reinforced concrete, meet ACI-318-83 building code, ASTM 6-857 min. structural design load, ASTM C 478-97
	Hatch	ITT Flygt, USF or Bilco hatch with large double access doors, pedestrian load (lockable, aluminum)
Optional	H-20 Hatch	H-20 occasional traffic load hatch (lockable, aluminum)
	Traffic Load Hatch	H-20 heavy-duty traffic load design (steel)
	Other Vault Options	floor drain, sump pump, ladder
Standard	Flow Meters	Siemens flow meters

VII. Flow Meter Assemblies (continued)

	Valves	Val-Matic Series 5800 Eccentric Plug Valves
	Bypass Line	Pre-assembled with eccentric plug valves (2) and Class 53 ductile iron
Optional	Flow Meters	Foxboro, other major brands as specified
	No-Bypass	One shut off and replacement spool
	Valves	DeZurik, Milliken, and other major brand plug valves
	Above-ground Meter Assembly (no vault)	Above ground flow meter assembly on pre-cast slab

VIII. Electrical Control Panels, Liquid Level Sensors

A. Control Panels

Power Rating	480 V 3 phase, 240 V 3 phase, 208 V 3 phase, 240 V 1 phase (with VFDs for phase conversion)
Enclosures	Types: NEMA 3R painted steel, NEMA 3R stainless steel, NEMA 4 painted steel, NEMA 4X stainless steel
Mounting	Free-standing pad-mounted, Wall mount with tabs, Mounted to top of well (storm only)
Leg Kits (optional)	12" skirted, 24" skirted

B. Pump Controllers - Stormwater, Wastewater or Industrial

Primary Pump Control	Alternators <u>via</u> relays
	APP521 (Duplex only)
	APP721 (Triplex)
	FMC 200 & FMC 300
	Allen Bradley Micologix 1100
	Allen Bradley Micologix 1500
	Siemens Hydro Ranger 200

Optional	Primary Pump Control	All other major PLCs and proprietary controllers
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C. Liquid Level Sensors

Primary Level Sensing & Control	ITT Flygt LS 100 Pressure Transducer
	ITT Flygt Conductive Probes conductive
	ITT Flygt LSU 100 Ultrasonic Pressure Transducer
	Siemens XPS 15 Ultrasonic Pressure Transducer
	ITT Flygt Floats

C. Liquid Level Sensors (continued)

Back up Level Sensing & Control - Independent of main controller	ITT Flygt Conductive Probes conductive
	ITT Flygt Floats
No Independent Back-Up Level Sensing & Control	If specified

IX. Communications

Standard	Telemetry	Autodialer (AD2000 4 input autodialer)
	Web/Cell Radio	Mission Station Monitor
	Radio	Rado MDS – 900
	Modem	Westermo TD-33 for FMC controllers
Optional	Telemetry	Romtec Utilities can provide any other autodialer as specified
	Radio	Romtec Utilities can provide any other radio as specified
	Telemetry Interface	Connection to telemetry systems by others. Romtec Utilities' control panels will output as defined to any and all telemetry and SCADA systems. Romtec Utilities will provide dry contact interconnection points to any as specified.

X. Standby Electrical Generators

A. Generator (by Cummins)

Standard	Permanent On-Site Generator	Permanent site mounted (with Quite Site sound attenuation) with automatic transfer switch, permanent site mount transfer switch with generator receptacle integral to the transfer switch. Available Fuel Types: natural gas, diesel, propane
Optional	Portable Generator	Trailer mounted generator with standard weather protective enclosure, generator receptacle and manual transfer switch in the main control panel.
	Generator Receptacle	Appelton 100 or 200 amp RS (on control panel)

B. Other Electrical Options

Optional	Load banks
	APF (pump flush circuit)

XI. Control Buildings & Shelters

A. Building Kits (Do not include construction/installation, plumbing or electrical. All include sealed plan sets for your state including structural.)

Standard	12'-8" x 16'-8" x 9'-4" - Includes double door and exhaust fan
	16'-8" x 16'-8" x 9'-4" - Includes double door, exhaust louver & damper, intake louver & damper
	20'-8" x 20'-8" x 9'-4" - Includes double door, exhaust louver & damper, intake louver & damper

B. Shelters

Standard	All are "kits" that do not include the base slab or construction/installation
	Steel Control Shelter with 2, 4 or 6-post design

XII. Engineering and Field Services

A. Scope of Supply

Standard Documentation Complete listing and description of the components supplied

B. Design Submittal

Standard Documentation Defines all aspects of Romtec Utilities' Scope versus others. Includes all drawings and data sheets and basis of design.

C. Drawings

Standard Documentation Structural and Mechanical - Wet Well, Valve Vault, Meter Vault
Documentation Electrical (Process & instrumentation and layout) for control panel, disconnect panel, generator and automatic transfer switch.

D. Data Sheets

Standard Pumps Performance curve, performance specifications, general specifications, discharge elbows, cord grips, leakage sensors, mix flush valve, grip-eye system & upper guide bar brackets
Level Sensing Probes, pressure transducers, floats
Wett Well Gaskets, penetration seals, joint seals,
Valve Vault and Flow Meter Vault Valves, pressure sensors, piping, flow meters
Controls Scope of Supply
Warranty Romtec Utilities' warranty and others

Optional Wett Well Interior linings or exterior coatings
Meter Vault Valves, flowmeters, flow meter transmitters and pipes
Thern Crane Thern crane data sheets
Generator Data sheets for generator and manual or automatic transfer switch

E. Field Services and Support

Standard Services Underground Construction Advisor - On-site during underground construction
Electrical Interconnection Advisor - Phone support from Romtec Utilities
Start-up Technician - On-site to preform start-up
O&M Training Technician - On-site to perform O&M training

XIII. Warranty

Standard Romtec Utilities' warranty is 1 year 6 months from acceptance or 1 year 6 months from the date of delivery to the contractor, which ever comes first. Romtec Utilities also transfers individual component warranties to the customer.