CHARLOTTE
PIPE AND FOUNDRY COMPANY

SUBMITTAL FOR CHARLOTTE®
HEAVY-DUTY "MD" NO-HUB COUPLINGS

Date: _____

Job Name: _____ Location: _____

Engineer: _____ Contractor: _____

Charlotte® Heavy-Duty "MD" (yellow shield) No-Hub Couplings, manufactured by Ideal Clamp Products, are engineered to connect No-Hub cast iron pipe in applications replacing the less-efficient hub & spigot material. Coupling consists of an elastomeric compound gasket (ASTM C 564) housed inside a 304 stainless steel corrugated shield. Depending on the size of the shield, (4) or (6) 304 stainless steel clamps surround the shield and provide the sealing force. The 5/16" hex-head screws are made from 305 stainless steel. The Charlotte patented Heavy-Duty "MD" No-Hub Couplings are available in sizes ranging from 1½" – 10". The couplings are designed to be torqued to 80 in-lbs. The entire coupling is corrosion resistant. Conforms to ASTM C 1540.

Heavy-Duty "MD" No-Hub Couplings

Size	Installation Torque Inch Pounds	No. of Clamps Per Coupling
1½"	80	4
2"	80	4
3"	80	4
4"	80	4
5"	80	6
6"	80	6
8"	80	6
10"	80	6

The Design:
The Charlotte Heavy-Duty "MD" No-Hub Couplings are engineered to provide all the extra holding power of a Heavy-Duty coupling without all the extra cost. Conforms to ASTM C 1540.

The Gasket:
Made from high-quality elastomeric compound (ASTM C 564), the Charlotte No-Hub gasket features a pattern of multiple thick sealing sectors and adjacent groove sectors laterally spaced. When the clamps are tightened, this pattern permits the clamping bands and the shield to form a restriction impeding the movement of the shield relative to the gasket.

The Shield:
0.008" thick type 304 stainless steel yellow shield requires less band load to transfer pressure to the gasket, leaving more clamping load in reserve to compress the gasket. The patented, bi-directional corrugations create clamp sealing pressure in both parallel and transverse patterns on the gasket and pipe, thereby avoiding pull-out failures, and providing a positive, reliable seal.

The Clamps:
Heavy-duty 304 stainless steel clamps and 5/16" hex-head 305 screws provide the sealing force. 1½" through 4" couplings use four (4) clamps; 5" through 10" couplings use six (6) clamps. The entire assembly is corrosion resistant.

MADE IN USA

CHARLOTTE® HEAVY-DUTY "MD" NO-HUB COUPLINGS

Product Information Submittal for No-Hub Systems

TEST	GASKET PHYSICAL TEST MIN. OR MAX. REQUIREMENTS	ASTM METHOD
Tensile Strength	1500 psi min.	D 412
Elongation	250 min.	D 412
Durometer (Shore A)	70 +/-5 @ 76°F +/- 5°F	D 2240
Accelerated Aging	15% maximum tensile and 20% maximum elongation, 10 points maximum increase in hardness, all determinations after oven aging for 96 hours at 158°F	D 573
Compression Set	25% max. after 22 hours at 158°F	D 395 Method B
Oil Immersion	80% max. volume change after immersion in IRM 903 for 70 hours at 212°F.	D 471
Ozone Cracking	No visible cracking at 2 times magnification of the gasket after 100 hours exposure in 1.5 ppm ozone concentration at 104°F. Testing and inspection to be on gasket which is loop mounted to give approximately 20% elongation of outer surface.	D 1149
Tear Resistance	150 lbf /in. min.	D 624
Water Absorption	20% max. by weight after 7 days at 158°F	D 471

MATERIALS	
Clamp	Type 304 AISI stainless steel
Screw	Type 305 AISI stainless steel 5/16" hex head/shoulder
Shield	Type 304 AISI stainless steel, corrugated. Shield thickness 0.008"
Gasket	The gasket is made of an elastomeric compound that meets the requirements of ASTM C 564

The Charlotte® Heavy-Duty "MD" No-Hub Coupling has been engineered to provide a mid-range, all stainless steel coupling, balancing the desire for a more rigid joint with the need to provide a superior, positive seal which can accommodate possible disparities in the mating of No-Hub pipe and fittings. This has been accomplished by manufacturing our coupling with a mid-range corrugated shield of sufficient width to accommodate additional surface-bearing sealing clamps.

The additional sealing clamps, when torqued to 80 in-lbs, deliver additional performance benefits. First the overall dimensional thickness of the clamp and shield, in conjunction with the additional width of the coupling, result in a more uniformly rigid joint, with the load being supported at both the outer edge of the coupling and the centerline of the joint. Second, the additional sealing clamps yield increased surface-bearing contact between the coupling and the pipe or fittings, thereby inhibiting joint movement at higher internal pressures not commonly associated with DWV systems.

The 1½", 2", 3" and 4" diameter couplings consist of a 3" wide bi-directional, corrugated 304 stainless steel shield in conjunction with four (4) stainless steel clamps mounted in a series, secured in place by means of fixed and "floating" eyelets to allow the clamp "travel" during tightening. The 5", 6" 8" and 10" couplings consist of a 4" corrugated 304 stainless steel shield and six (6) stainless steel clamps.

All Charlotte Heavy-Duty "MD" No-Hub Couplings are designed to be installed with a pre-set torque wrench calibrated at 80 in-lbs. accommodates the 305 stainless steel 5/16" hex-head/ shoulder screw.